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; μg/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 μg/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 μg/m^3 to 12.0 μg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 μg/m^3, as was the annual secondary standard of 15 μg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 μg/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

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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

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[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.

vicinity of freeways, distribution centers, rail yards, ports, refineries, chrome-plating facilities, dry cleaners, and 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 O_3 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.

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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.

- 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.

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]

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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.

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[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.

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[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.

iii. Providing electric charging capable warehousing docks to accommodate ZE Transport Refrigeration Units (TRUs).

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

[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*.

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.

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.

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[16] USA.Com 2021, July 22 (accessed). Monthly Average Temperature and Precipitation Summary. http://www.usa.com/cupertino-ca-weather.htm

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]

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.

[17] USA.Com 2021, July 22 (accessed). Monthly Average Temperature and Precipitation Summary. http://www.usa.com/cupertino-ca-weather.htm

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 site are best documented by measurements made by the BAAQMD. The BAAQMD monitoring station closest to the project site is the San Jose – Jackson Street Monitoring Station, which monitors O_3, NO_2, PM_{10} and $PM_{2.5}$. Data from this station is summarized in Table 3. The data show occasional violations of the State and federal O_3 standards, as well as state PM_{10} and state and federal $PM_{2.5}$ standards. The State and federal CO and NO_2 standards have not been exceeded in the last five years in the vicinity of the project site.

Table 3 Ambient Air Quality Monitoring Summary

Pollutant/Standard	Number of Days Threshold Were Exceeded and Maximum Levels during Such Violations				
	2016	2017	2018	2019	2020
Ozone (O_3)					
State 1-Hour ≥ 0.09 ppm	0	3	0	1	1
State & Federal 8-hour ≥ 0.07 ppm	0	4	0	2	2
Maximum 1-Hour Conc. (ppm)	0.087	0.121	0.078	0.095	0.106
Maximum 8-Hour Conc. (ppm)	0.066	0.098	0.061	0.081	0.085
Nitrogen Dioxide (NO_2)					
State 1-Hour ≥ 0.18 (ppm)	0	0	0	0	0
Maximum 1-Hour Conc. (ppb)	0.0511	0.0675	0.0861	0.0598	0.0519
Coarse Particulates (PM_{10})					
State 24-Hour > 50 $\mu g/m^3$	0	6	4	4	10
Federal 24-Hour > 150 $\mu g/m^3$	0	0	0	0	0
Maximum 24-Hour Conc. ($\mu g/m^3$)	40.0	69.8	121.8	77.1	137.1
Fine Particulates ($PM_{2.5}$)					
Federal 24-Hour > 35 $\mu g/m^3$	0	6	15	0	12
Maximum 24-Hour Conc. ($\mu g/m^3$)	22.6	49.7	133.9	27.6	120.5

Source: California Air Resources Board, 2021, Air Pollution Data Monitoring Cards (2016, 2017, 2018, 2019, and 2020), Accessed September 21, 2021, https://www.arb.ca.gov/adam/topfour/topfour1.php. Data from the San Jose Jackson Street Monitoring Station for 0_3, 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 two-story 141,000 square foot office with associated surface parking and landscape, which currently 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 Sunflower Learning Center and TLC Preschool to the southeast, Cupertino High School and residential neighborhoods to the south, Fremont Union High School District Adult School, The Residence Inn Hotel, Kaiser Permanent hospital, residential neighborhoods, Main Street Park to the west of the project site, and Jenny Strang Park and residential neighborhoods to the northeast of the project site.

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]

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[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

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]

Regional Significance Criteria

BAAQMD's 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

Pollutant	Construction Phase	Operational Phase	
	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.

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 4.3-7 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.

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.

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.

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]

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

Odors

BAAQMD's 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. 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]

1.2.2 Toxic Air Contaminants

The BAAQMD's 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]*). CEQA does not require an environmental evaluation to analyze the environmental effects of attracting development and people to an area. However, 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]

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

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.

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]

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.

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

29 Ibid.

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.

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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, gradual changes in the earth's temperature changed the distribution of species, availability of water, etc.

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.

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 2014 and 2015. [52] Statewide precipitation has become increasingly variable from year to year, with the driest

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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.

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.

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

[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. 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 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.[55]

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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 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.

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.

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 $MMTCO_2e$. [56]

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.[57] 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. [58]

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.

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

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56 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.

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/scopingplan.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/document/updatedscopingplan2013.htm.

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.[59]

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 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

[59] 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.

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.[60]

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 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 SCAG region are an 8 percent per capita GHG reduction in 2020 from 2005 levels (unchanged from the 2010 target) and a 19 percent per capita GHG reduction in 2035 from 2005 levels (compared to the 2010 target of 13 percent).[61] 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

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[60] 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.

[61] 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 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 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. 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.[62] Under

[62] California Energy Commission (CEC). 2018. News Release: Energy Commission Adopts Standards Requiring Solar Systems for New Homes, First in Nation. http://www.energy.ca.gov/releases/2018_releases/2018-05-09_building_standards_adopted_nr.html.

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.[63] 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.[64]

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.[65]

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 requirements), water conservation, material conservation, and internal air contaminants.[66] The mandatory provisions of CALGreen became effective January 1, 2011. The CEC adopted the voluntary standards of the 2019 CALGreen on October 3, 2018. 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

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[63] California Energy Commission (CEC). 2018. 2019 Building Energy and Efficiency Standards Frequently Asked Questions. http://www.energy.ca.gov/title24/2019standards/documents/2018_Title_24_2019_Building_Standards_FAQ.pdf.

[64] California Energy Commission (CEC). 2018. 2019 Building Energy and Efficiency Standards Frequently Asked Questions. http://www.energy.ca.gov/title24/2019standards/documents/2018_Title_24_2019_Building_Standards_FAQ.pdf.

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

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

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.

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.[67] In-use on-road rules are expected to reduce black carbon emissions from on-road sources by 80 percent between 2000 and 2020.

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.[68] 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 percent 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.[69] However, Plan Bay Area 2050 remains on track to meet a 19 percent per capita reduction of GHG emissions by 2035.[70] The proposed project site is not within a PDA.[71]

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[67] 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.

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

[69] 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.

[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). 2022, January 18

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.[72]

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 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 the Metropolitan Transportation Commission (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

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(accessed). Priority Development Areas (Plan Bay Area 2050) ArcGIS. https://www.arcgis.com/apps/mapviewer/index.html?layers=4df9cb38d77346a289252ced4ffa0ca0.

[72] 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.

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.[73] 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.
- 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.[74] 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.

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

2.2 ENVIRONMENTAL SETTING

2.2.1 Existing Emissions

The project site is currently developed with one two-story office building (141,000 square-foot) with associated surface parking and landscaping. 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 *Justification Report: CEQA Thresholds for Evaluating the Significance of Climate Impacts From Land Use Projects and Plans* (Justification Report).[75] Development of the proposed project 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

75 BAAQMD. 2022, April 20. Justification Report: CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans. https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa-thresholds-2022/justification-report-pdf.pdf?la=en

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 - VP1 Apple Office Project, Construction

Name:	VP1 Apple Office Project
Project Number:	COCU-21
Project Location:	19191 Vallco Parkway
County:	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:	Bay Area Air Quality Management District (BAAQMD)

Project Site Acreage	7.97
Disturbed Site Acreage	7.97

Project Components	SQFT		Tons	
Demolition				
Existing Building	141,024		6,487	
Asphalt Demo	168,000		3,366	
New Construction				
	Stories/Levels	**Total SQFT**	**Building Footprint**	**Acres**
4-Story Office building	4	280,020	75,430	1.73
Commercial/Retail Space	1	2,300	2,300	0.05
TOTAL COMMERCIAL		**282,320**	**77,730**	**1.78**
Parking Garage	6	213,080	35,250	0.81
Parking Lot	N/A	129,591	129,591	2.98
Hardscape[1]	N/A	21,706	21,706	0.50
Landscape	N/A	82,896	82,896	1.90
Total Other Non-Asphalt Surfaces		**104,602**	**104,602**	**2.40**

Notes:

[1] Includes Outdoor Commercial Space.

CalEEMod Land Use Inputs

Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	Land Use Square Feet
Commercial	General Office building	282.32	1000 sqft	1.78	282,320
Parking (Parking garage)	Enclosed parking with elevator	213.08	1000 sqft	0.81	213,080
Parking (Parking lot)	Parking Lot	129.59	1000 sqft	2.98	129,591
Parking	Other Non-Asphalt Surfaces	104.60	1000 sqft	2.40	104,602
				7.97	**729,593**

Demolition

Component	Amount to be Demolished (Tons)	Haul Truck Capacity (tons)[1]	Haul Distance (miles)[1]	Total Trip Ends	Trip Ends/ day	Total Days
Building	6,487	20	20	649	130	5
Asphalt	3,366	20	20	337	67	5
Total	9,853			986		

Notes:

[1] CalEEMod default used.

Soil Haul[1]

Construction Activities	Haul Truck Capacity (CY)[1]	Volume (CY)[2]	Haul Distance (miles)[1]	Total Trip Ends	Total Days	Trip Ends/Day
Rough Grading (import & export)	16	58,757	20	7346	30	250
		58,757	20			

Notes:

[1] CalEEMod default used.

[2] Combined soil haul import and export volumes into one phase provided by Applicant.

Architectural Coating

	4-Story Office Building[1,3]	Parking Garage[2,3]	Commercial/Retail Space[1,3]
Percent Interior Painted:	45%	0%	1%
Percent Exterior Painted:	0%	5%	0%
	VOC Content (g/L)	**VOC Content (g/L)**	**VOC Content (g/L)**
Interior	50	100	50
Exterior	100	157	100

Notes:

[1] CalEEMod defaults used for exterior painting VOC content for office building and commercial/retail space.

[2] CalEEMod defaults used for interior painting VOC content for parking garage.

[3] Information provided by Applicant.

Non-Residential Structures	Land Use Square Feet	CalEEMod Factor[2]	Total Paintable Surface Area	Paintable Interior Area[1]	Paintable Exterior Area[1]
4-Story Office Building	280,020	2.0	560,040	189,014	0
Commercial Space	2,300	2.0	4,600	35	0
Parking Garage	213,080	2.0	426,160	0	5,327
				189,048	**5,327**
Parking[3]					
Parking Lot (Striping)	129,591	6%	7,775	-	7,775
					7,775

Notes:

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

[2] The program assumes the total surface for painting equals 2.7 times the floor square footage for residential and 2.0 times that for nonresidential square footage defined by the user.

[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.

Silicon Valley Clean Energy Carbon Intensity Factors

CO_2:[1]	2.00	pounds per megawatt hour
CH_4:[1]	0	pound per megawatt hour
N_2O:[1]	0	pound per megawatt hour

Notes:

[1] CalEEMod default values.

BAAQMD Construction BMPs

Replace Ground Cover	PM10:	5	% Reduction
Replace Ground Cover	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

CalEEMod Inputs - VP1 Apple Office Project, Existing Conditions

Name:	VP1 Apple Office Project
Project Number:	COCU-21
Project Location:	19191 Vallco Parkway
County:	Santa Clara
Source Receptor Area (SRA):	21- Capistrano Valley
Climate Zone:	4
Land Use Setting:	Urban
Operational Year:	2021 & 2024
Utility Company:	Silicon Valley Clean Energy
Air Basin:	San Francisco Bay Area Air Basin (SFBAAB)
Air District:	Bay Area Air Quality Management District (BAAQMD)

Project Site Acreage 7.97

CalEEMod Land Use Inputs

Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	Land Use Square Feet
Commercial	General Office Building	141.02	1000sqft	3.24	141,024
Parking	Parking Lot	141.29	1000sqft	3.24	141,292
Parking (Landscape)	Other Non-asphalt surfaces	64.86	1000sqft	1.49	64,857
				7.97	

Trips[1]

Source: Fehr & Peers. 2021. Transportation Analysis: VP1 Apple Office Project.

Land Use Type	Average Daily Trips[2]	CalEEMod Trip Rate	Saturday Trips	CalEEMod Trip Rate	Sunday Trips	CalEEMod Trip Rate
General Office Building	1,823	**12.93**	0	**0.00**	0	**0.00**

Trips	Annual Vehicle Miles Traveled[3]	Average Daily Vehicle Miles Traveled	VMT per Worker
Total Trips	4,759,300	13,039	15.60

Notes:
[1] Assume normal office operations of similar Apple buildings in which offices will be closed on the weekends.
[2] Based on trip generation rates presented in Apple Campus 2 (2013) by Fehr & Peers, 2021.
[3] Annual and total daily VMT calculated based on daily VMT per worker provided by Fehr & Peers, 2021.

	Trip Type Percentages		
	Primary	Diverted	Passby
General Office Building	77%	19%	4%
Adjusted Trip Type Percentages	**100%**	**0%**	**0%**

	Trip Length		
	H-W or C-W	H-S or C-C	H-O or C-NW
General Office Building	9.50	7.30	7.30
Adjusted Trip Lengths	**15.60**	**7.30**	**7.30**

Water Use and Wastewater Generation

Wastewater is treated by the San José/Santa Clara Water Pollution Control Plant (SJ/SCWPCP), which provides tertiary treated wastewater throughout the County of Santa Clara. Therefore, CalEEMod defaults reflect 100% aerobic treatment.

Land Use	Wastewater Demand[1]	Indoor[2]	Outdoor[3]	Total
Total Water Use (gal/day)	6,699	7,051	1,954	**15,704**
Total Water Use (gal/year)	2,445,004	2,573,688	713,265	**5,731,957**

Notes:
[1] Assume wastewater flow rate of 95% of indoor water demand for non-residential (Westport).
[2] Yarne & Assoc, 2014, Water Supply Evaluation (pg 16) (from Appendix H of GPEIR).
[3] Assume all irrigation is drip or bubblers; no turf areas for outdoor water calculations.

Solid Waste

Land Use	Total Solid Waste (lbs/day)	tons/lb	days/year	Total Solid Waste (tons/yr)
General Office Building	1,222	0.0005	365	223

Source:

Per Capita Disposal for Employees - CalRecycle, 2020, Jurisdiction Per Capita Disposal Trends, https://www2.calrecycle.ca.gov/LGCentral/AnnualReporting/ReviewReports.

Architectural Coating

Percentage Interior Painted:	100%	
Percent Exterior Painted:	100%	
Rule 1113	**VOC Content (g/L)**	
Interior Paint VOC content:	100	grams per liter
Exterior Paing VOC content:	100	grams per liter

Non-Residential Structures	Land Use Square Feet	CalEEMod Factor[2]	Total Paintable Surface Area	Paintable Interior Area[1]	Paintable Exterior Area[1]
General Office Building	141,024	2.0	282,048	211,536	70,512
			282,048	**211,536**	**70,512**
Parking	141,292	6%	8,478	-	8,478
			8,478		8,478

Notes:

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

[2] 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.

[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.

Electricity (Buildings)

Existing Energy

Existing non-residential modeled using historic energy demand rates in CalEEMod. Modeling is conservative because the net increase in energy use due to the project is likely smaller than reflected due to improved building energy efficiency between the project and existing land uses.

Land Use Subtype	Title-24 Electricity Energy Intensity (kWhr/size/year)*	Nontitle-24 Electricity Energy Intensity (kWhr/size/year)	Lighting Energy Intensity (KWhr/size/year)	Title-24 Natural Gas Energy Intensity (KBTU/size/year)*	Nontitle-24 Natural Gas Energy Intensity (KBTU/size/year)
General Office Building	8.01	7.84	4.72	19.90	0.06
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.88	0.00	0.00

Silicon Valley Clean Energy Carbon Intensity Factors

CO_2:[1]	2.00	pounds per megawatt hour
CH_4:[1]	0	pound per megawatt hour
N_2O:[1]	0	pound per megawatt hour

Notes:

[1] CalEEMod default values.

CalEEMod Inputs - VP1 Apple Office Project, Operations Assumptions

Name:	VP1 Apple Office Project
Project Number:	COCU-21
Project Location:	19191 Vallco Parkway
County:	Santa Clara
Source Receptor Area (SRA):	21- Capistrano Valley
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:	Bay Area Air Quality Management District (BAAQMD)

Project Site Acreage 7.97

Proposed New Construction				
	Stories/Levels	**Total SQFT**	**Building Footprint**	**Acres**
4-Story Office building	4	280,020	75,430	1.73
Commercial/Retail Space	1	2,300	2,300	0.05
TOTAL COMMERCIAL		**282,320**	**77,730**	**1.78**
Parking Garage	6	213,080	35,250	0.81
Parking Lot	N/A	129,591	129,591	2.98
Hardscape	N/A	21,706	21,706	0.50
Landscape	N/A	82,896	82,896	1.90
Total Other Non-Asphalt Surfaces		**104,602**	**104,602**	**2.40**

CalEEMod Land Use Inputs

Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	Land Use Square Feet
Commercial	General Office building	280.02	1000 sqft	1.73	280,020
Retail (Retail space)[1]	Convenience Market	2.30	1000 sqft	0.05	2,300
Parking (Parking garage)	Enclosed parking structure with elevator	213.08	1000 sqft	0.81	213,080
Parking (Parking lot)	Parking Lot	129.59	1000 sqft	2.98	129,591
Parking	Other Non-Asphalt Surfaces	104.60	1000 sqft	2.40	104,602
				7.97	

Notes:

[1] Used Convenice market land use subtype to represent the retail space within the office building.

Trips[1]

Source: Fehr & Peers. 2021. Transportation Analysis: VP1 Apple Office Project.

Land Use Type	Average Daily Trips	CalEEMod Trip Rate	Net Increase in Saturday Trips[1]	CalEEMod Trip Rate	Net Increase in Sunday Trips	CalEEMod Trip Rate
General Office Building	3,621	**12.93**	0	**0.00**	0	**0.00**
Convience Market (Commercial Retail Space)	327	**142.17**	0	**0.00**	0	**0.00**
Total	**3,948**					
Net	2,125					

Trips	Annual Vehicle Miles Traveled[2]	Average Daily Vehicle Miles Traveled	VMT Per Worker
Total Trips	10,049,378	27,533	15.51

Notes:

[1] Assume normal office operations of similar Apple buildings in which offices will be closed on the weekends.

[2] Annual and total daily VMT calculated based on daily VMT per worker provided by Fehr & Peers, 2021. TDM Program also included in calculation.

	Trip Type Percentages		
	Primary	**Diverted**	**Passby**
General Office Building	77%	19%	4%
Convience Market (Commercial Retail Space)	24%	15%	61%
Adjusted Trip Type Percentages	**100%**	**0%**	**0%**

	Trip Length		
	H-W or C-W	**H-S or C-C**	**H-O or C-NW**
General Office Building	9.50	7.30	7.30
Convience Market (Commercial Retail Space)	9.50	7.30	7.30
Adjusted Trip Lengths	**15.51**	**7.30**	**7.30**

Water Use and Wastewater Generation

Wastewater is treated by the San José/Santa Clara Water Pollution Control Plant (SJ/SCWPCP), which provides tertiary treated wastewater throughout the County of Santa Clara. Therefore, CalEEMod defaults reflect 100% aerobic treatment.

Land Use	Wastewater Demand for General Office Building[1]	Wastewater Demand for Retail Space[1]	Indoor General Office Building[2]	Indoor Retail Space[2]	Outdoor[3]
Water Use (gal/day)	13,301	240	14,001	253	2,229
Water Use (gal/year)	4,854,865	87,600	5,110,365	92,345	813,595
Total General Office Building	**9965230**				
Total Retail Space	**179945**				
Total Outdoor	**813595**				

Notes:

[1] Assume wastewater flow rate of 95% of indoor water demand for non-residential (Westport).

[2] Yarne & Assoc, 2014, Water Supply Evaluation (pg 16) (from Appendix H of GPEIR) and CalWater WSA, 2018, Vallco Area Specific Plan for commercial office water demand factor.

[3] Exclude bioretention areas because this will not require irrigation.

Solid Waste

Land Use[1]	Total Solid Waste (lbs/day)	tons/lb	days/year	Total Solid Waste (tons/yr)
General Office Building	2,440	0.0005	365	445

Source:

Per Capita Disposal for Employees - CalRecycle, 2020, Jurisdiction Per Capita Disposal Trends, https://www2.calrecycle.ca.gov/LGCentral/AnnualReporting/ReviewReports.

Notes:

[1] This calculation includes General Office Building and Commercial Retail Space.

Architectural Coating

* See Architectural Coating for Construction Model

Fireplaces

**No fireplaces or grills on project site*

Electricity (Buildings)

Modeling is conservative because it is based on the Electricity and Natural Gas Energy Intensity default information from CalEEMod, which complies with 2019 Building Energy Efficiency Standards.

Table A-9 shows average energy use rates per dwelling unit or area for major natural gas commercial and residential end uses. Any full or partial reduction in natural gas end uses or appliance types can be estimated by multiplying the percentage of natural gas reduction by the percent of total natural gas consumption for a given gas appliance. That reduction percentage can then be subtracted from an existing total gas consumption rate (e.g. CalEEMod default energy use intensities). The additional electricity use can be estimated by multiplying the electric energy use rate by the number of dwelling units or commercial square footage and adding this to the CalEEMod® default total electricity consumption rate. For example, a single family residence that complies with BMP 1 would remove all natural gas use from the CalEEMod® default ("Title 24" and "Non-Title 24" natural gas categories) and add 4,650 kWh to the electricity total. In contrast, a residence that keeps natural gas cooking would use Table A-9 to show that it should keep 9% of the CalEEMod® default natural gas use and should add (4,650 minus 310 equals 4,340) 4,340 kWh to the electricity total.

Source Sacramento Metropolitan Air Quality Management District (SCAQMD). 2020, June 1. Greenhouse Gas Thresholds for Sacramento County. Table A-9, Increases in Electricity Use to Replace Natural Gas Greenhouse Gas CEQA Thresholds Update Sacramento County, California. https://www.airquality.org/LandUseTransportation/Documents/SMAQMDGHGThresholds2020-03-

Commercial Energy Use Categories	Percent of Annual Energy - Gas[1]	Energy Use Index (KwH/ksf/yr)	Energy Use Index (KwH/sf/yr)
Water Heaters	31%	341	0.341
Space Heaters	44%	1037	1.037
Cooking (Oven + Cooktop)	18%	666	0.666
Total	93%	2044	2.044

Notes:

1 This demonstrates that the majority of natural gas use in commercial buildings (93%) is accounted for by these three appliance groups. Due to differences in efficiency between electric and natural gas appliances, the relative amount of energy used for each appliance group may vary if applied to electricity consumption.

Based on the Electricity and Natural Gas Energy Intensity default information from CalEEMod, which complies with 2019 Building Energy Efficiency Standards

Additional Electricity Demand from Fuel Switching

4-Story Office building	kWhr/size/year	T24E	NT24E	Additional Kwh/size/year
280,020	2.04	1.38	0.67	572,361
Commercial/Retail Space	**kWhr/size/year**	**T24E**	**NT24E**	**Additional Kwh/size/year**
2,300	2.04	1.38	0.67	4,701

CalEEMod Defaults

Land Use Subtype	T24E	NT24E	LightingElect	T24NG	NT24NG
	kWhr/size/year			kBTU/size/year	
Commercial/Retail Space	2.46	2.68	5.25	2.34	0.00
Enclosed Parking Garage with Elevator	3.50	0.19	1.75	0.00	0.00
General Office Building	5.45	7.84	3.88	16.14	0.06
Parking Lot	0.00	0.00	0.35	0.00	0.00

Notes:

[1] Photovoltaic (PV) system will be installed and generate 525,000 kWh/year and generate 5% of the total electricity demand.

[2] Emergency generator will be permitted and under review of BAAQMD.

Silicon Valley Clean Energy Carbon Intensity Factors

CO_2:[1]	2.00	pounds per megawatt hour
CH_4:[1]	0	pound per megawatt hour
N_2O:[1]	0	pound per megawatt hour

Notes:

[1] CalEEMod default values.

Construction Activities and Schedule Assumptions: 22690 Stevens Creek Boulevard Residential Project

Based on the Construction Schedule provided by the project applicant.

CalEEMod

		Construction Schedule		
Construction Activities	**Phase Type**	**Start Date**	**End Date**	**CalEEMod Duration (Workday)**
Demolition (Building + Asphalt)	Demolition	5/1/2023	5/26/2023	20
Building Demolition Debris Haul	Demolition	5/17/2023	5/23/2023	5
Asphalt Demolition Debris Haul	Demolition	5/17/2023	5/26/2023	8
Site Preparation	Site Preparation	5/27/2023	6/2/2023	5
Rough Grading	Grading	6/3/2023	6/30/2023	20
Rough Grading Soil Haul (import & export)	Grading	6/3/2023	7/15/2023	30
Fine Grading/Trenching	Grading	7/1/2023	11/3/2023	90
Building Construction	Construction	11/4/2023	8/23/2024	210
Parking Structure Construction	Construction	1/28/2024	10/4/2024	180
Paving	Paving	8/24/2024	9/6/2024	10
Architectural Coating	Architectural Coating	9/7/2024	10/4/2024	20
Finishing/Landscaping	Trenching	10/5/2024	11/1/2024	20

Overlapping Construction Schedule

Construction Activities	**Start Date**	**End Date**	**CalEEMod Duration (Workday)**
Demolition	5/1/2023	5/16/2023	12
Demolition, Building Demolition Debris Haul, and Asphalt Demolition Debris Haul	5/17/2023	5/23/2023	5
Demolition and Asphalt Demolition Debris Haul	5/24/2023	5/26/2023	3
Site Preparation	5/27/2023	6/2/2023	5
Rough Grading and Soil Haul	6/3/2023	6/30/2023	20
Rough Grading Soil Haul and Fine Grading/Trenching	7/1/2023	7/15/2023	10
Fine Grading/Trenching	7/16/2023	11/3/2023	80
Building Construction 2023	11/4/2023	12/31/2023	40
Building Construction 2024	1/1/2024	1/27/2024	20
Building Construction 2024 and Parking Structure Construction 2024	1/28/2024	8/23/2024	150
Parking Structure Construction 2024 and Paving	8/24/2024	9/6/2024	10
Parking Structure Construction 2024 and Architectural Coating	9/7/2024	10/4/2024	20
Finishing/Landscaping	10/5/2024	11/1/2024	20

CalEEMod Construction Off-Road Equipment Inputs

**CalEEMod default used for construction equipment*

General Construction Hours: 8 hours btwn 7:00 AM to 4:00 PM (with 1 hr break), Mon-Fri

	Construction Equipment Details						
	Equipment	**model**	**# of Equipment**	**hr/day**	**hp**	**load factor***	**total trips**
Building Demolition							
	Concrete/Industrial Saws		1	8	81	0.73	
	Excavators		3	8	158	0.38	
	Rubber Tired Dozers		2	8	247	0.4	
	Worker Trips						15
	Vendor Trips						
	Hauling Trips						
	Water Trucks						4
Building Demolition Debris Haul							
	no additional equipment needed for Demo Haul						
	Worker Trips						0
	Vendor Trips						0
	Hauling Trips						649
Asphalt Demolition Debris Haul							
	no additional equipment needed for Demo Haul						
	Worker Trips						0
	Vendor Trips						0
	Hauling Trips						337
Site Preparation							
	Rubber Tired Dozers		3	8	247	0.4	
	Tractors/Loaders/Backhoes		4	8	97	0.37	
	Worker Trips						18
	Vendor Trips						
	Hauling Trips						
	Water Trucks						4
Rough Grading							
	Excavators		1	8	158	0.38	
	Graders		1	8	187	0.41	
	Rubber Tired Dozers		1	8	247	0.4	
	Tractors/Loaders/Backhoes		3	8	97	0.37	
	Worker Trips						15
	Vendor Trips						
	Hauling Trips						
	Water Trucks						4
Rough Grading Soil Haul (Import & Export)							
	no additional equipment needed for Demo Haul						
	Worker Trips						
	Vendor Trips						
	Hauling Trips						7346
Fine Grading/Utility Trenching							
	Excavators		1	8	158	0.38	
	Graders		1	8	187	0.41	
	Rubber Tired Dozers		1	8	247	0.4	
	Tractors/Loaders/Backhoes		3	8	97	0.37	
	Worker Trips						15
	Vendor Trips						
	Hauling Trips						4
Building Construction							
	Cranes[1]		1	1	231	0.29	
	Forklifts		3	8	89	0.2	
	Generator Sets		1	8	84	0.74	
	Tractors/Loaders/Backhoes		3	7	97	0.37	
	Welders		1	8	46	0.45	
	Worker Trips						138
	Vendor Trips						57
	Hauling Trips						

Parking Structure Construction							
	Cranes[1]		1	1	231	0.29	
	Forklifts		3	8	89	0.2	
	Generator Sets		1	8	84	0.74	
	Tractors/Loaders/Backhoes		3	7	97	0.37	
	Welders		1	8	46	0.45	
	Worker Trips						138
	Vendor Trips						57
	Hauling Trips						
Paving							
	Pavers		2	8	130	0.42	
	Paving equipment		2	8	132	0.36	
	Rollers		2	8	80	0.38	
	Worker Trips						15
	Vendor Trips						
	Hauling Trips						
Architectural Coating							
	Air Compressors		1	6	78	0.48	
	Worker Trips						28
	Vendor Trips						
	Hauling Trips						
Finishing/Landscaping							
	Excavator		1	8			
	Worker Trips						3
	Vendor Trips						
	Hauling Trips						

Notes:

[1] Assume that crane will only be used onsite for approximately 6 weeks total. For most conservative results, crane is assumed to operate 1 hour per day, 5 days per week for entire duration of the building and parking garagae construction phases. Averaged hours of use over duration of building construction phase and parking construction phase are rounded to the nearest hour.

Construction Trips Worksheet

Phase Name	Worker Trip Ends Per Day	Vendor Trip Ends Per Day	Haul Truck Trip Ends Per Day	Total Haul Truck Trip Ends	Start Date	End Date	Workdays
Demolition (Building & Asphalt)	15	0	0	0	5/1/2023	5/26/2023	20
Building Demolition Debris Haul	0	0	130	649	5/17/2023	5/23/2023	5
Asphalt Demolition Debris Haul	0	0	43	337	5/17/2023	5/26/2023	8
Site Preparation	18	0	0	0	5/27/2023	6/2/2023	5
Rough Grading	15	0	0	0	6/3/2023	6/30/2023	20
Rough Grading Soil Haul (Import & Export)	0	0	245	7346	6/3/2023	7/15/2023	30
Fine Grading/Trenching	15	0	1	4	7/1/2023	11/3/2023	90
Building Construction	138	57	0	0	11/4/2023	8/23/2024	210
Parking Structure Construction	138	57	0	0	1/28/2024	10/4/2024	180
Paving	15	0	0	0	8/24/2024	9/6/2024	10
Architectural Coating	28	0	0	0	9/7/2024	10/4/2024	20
Finishing/Landscaping	3	0	0	0	10/5/2024	11/1/2024	20

Construction Scenarios	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	15	0	0	0	5/1/2023	5/16/2023	12
Demolition, Building Demolition Debris Haul, and Asphalt Demolition Debris Haul	15	0	173	986	5/17/2023	5/23/2023	5
Demolition and Asphalt Demolition Debris Haul	15	0	43	337	5/24/2023	5/26/2023	3
Site Preparation	18	0	0	0	5/27/2023	6/2/2023	5
Rough Grading and Soil Haul	15	0	245	7346	6/3/2023	6/30/2023	20
Rough Grading Soil Haul and Fine Grading/Trenching	15	0	246	7350	7/1/2023	7/15/2023	10
Fine Grading/Trenching	15	0	1	4	7/16/2023	11/3/2023	80
Building Construction 2023	138	57	0	0	11/4/2023	12/31/2023	40
Building Construction 2024	138	57	0	0	1/1/2024	1/27/2024	20
Building Construction 2024 and Parking Structure Construction 2024	276	114	0	0	1/28/2024	8/23/2024	150
Parking Structure Construction 2024 and Paving	153	57	0	0	8/24/2024	9/6/2024	10
Parking Structure Construction 2024 and Architectural Coating	166	57	0	0	9/7/2024	10/4/2024	20
Finishing/Landscaping	3	0	0	0	10/5/2024	11/1/2024	20
Maximum Daily Trips	**276**	**114**	**246**	**7350**			

Pavement Volume to Weight Conversion: VP1 Apple Office Project

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	168,000	0.451	75,740	89	6,732,444	3,366
Total	168,000					3,366

Notes:

[1] Total square feet to be demolished provided by Applicant.

[2] Based on average thickness of 5.41 inches as provided for a previous roadway widening project.

[3] https://www.delmar.ca.us/DocumentCenter/View/5668/CalRecycle-Conversion-Table

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	Haul Truck (CY)[1]	Haul Truck (Ton)[1]	Round Trips	Total Trip Ends
Combined Building Demo	141,024	0.046	6,487	16	20	324	649

Notes:

[1] CalEEMod default

Changes to the CalEEMod Defaults - Fleet Mix Operation 2024

Trips 3,948

General Office Building

Default	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH	
FleetMix (Model Default)	0.572464	0.055653	0.18706	0.115672	0.020329	0.005102	0.007934	0.006404	0.0009	0.00038	0.024412	0.000914	0.002776	100%
Trips	2,260	220	739	457	80	20	31	25	4	2	96	4	11	3,948
Percent	84%			12%	4%									100%
without buses/MH	0.572464	0.055653	0.187060	0.115672	0.020329	0.005102	0.007934	0.006404	0	0	0.024412	0	0	100%
Percent	84%			12%	4%									100%
Adjusted without buses/MH	0.572464	0.055653	0.187060	0.115672	0.022870	0.005740	0.008926	0.007204	0.000000	0.000000	0.027463	0.000000	0.000000	
Percent adjusted	84%			12%	4%									100%
Assumed Mix	97.0%			2.00%	1.00%									100%
adjusted with Assumed	0.658989	0.064065	0.215333	0.020000	0.005112	0.001283	0.001995	0.001610	0.000000	0.000000	0.031614	0.000000	0.000000	100%
Percent Check:	97%			2%	1%									
Trips	2,602	253	850	79	20	5	8	6	0	0	125	0	0	3,948
	3,830			*79*	*39*									

Fleet mix for the project is based on the Caltrans Annual Average Daily Traffic near the project site during year 2019. Assumes a mix of approximately 97% passenger vehicles, 2% medium duty trucks, and 1% heavy duty trucks and buses.

Trips 3,948

Retail Space

Default	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH	
FleetMix (Model Default)	0.572464	0.055653	0.18706	0.115672	0.020329	0.005102	0.007934	0.006404	0.0009	0.00038	0.024412	0.000914	0.002776	100%
Trips	2,260	220	739	457	80	20	31	25	4	2	96	4	11	3,948
Percent	84%			12%	4%									100%
without buses/MH	0.572464	0.055653	0.187060	0.115672	0.020329	0.005102	0.007934	0.006404	0	0	0.024412	0	0	100%
Percent	84%			12%	4%									100%
Adjusted without buses/MH	0.572464	0.055653	0.187060	0.115672	0.022870	0.005740	0.008926	0.007204	0.000000	0.000000	0.027463	0.000000	0.000000	
Percent adjusted	84%			12%	4%									100%
Assumed Mix	97.0%			2.00%	1.00%									100%
adjusted with Assumed	0.658989	0.064065	0.215333	0.020000	0.005112	0.001283	0.001995	0.001610	0.000000	0.000000	0.031614	0.000000	0.000000	100%
Percent Check:	97%			2%	1%									
Trips	2,602	253	850	79	20	5	8	6	0	0	125	0	0	3,948
	3,830			*79*	*39*									

Fleet mix for the project is based on the Caltrans Annual Average Daily Traffic near the project site during year 2019. Assumes a mix of approximately 97% passenger vehicles, 2% medium duty trucks, and 1% heavy duty trucks and buses.

Changes to the CalEEMod Defaults - Fleet Mix Existing Baseline 2024

Trips 1,823

Default	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH	
FleetMix (Model Default)	0.567742	0.054883	0.190502	0.11688	0.020652	0.004894	0.008289	0.006425	0.000966	0.000407	0.024432	0.00095	0.002978	100%
Trips	1,035	100	347	213	38	9	15	12	2	1	45	2	5	1,823
Percent	84%			12%	5%									100%
without buses/MH	0.567742	0.054883	0.190502	0.116880	0.020652	0.004894	0.008289	0.006425	0	0	0.024432	0	0	99%
Percent	84%			12%	4%									99%
Adjusted without buses/MH	0.567742	0.054883	0.190502	0.116880	0.023371	0.005538	0.009380	0.007271	0.000000	0.000000	0.027649	0.000000	0.000000	
Percent adjusted	84%			12%	5%									100%
Assumed Mix	97.0%			2.00%	1.00%									100%
adjusted with Assumed	0.655002	0.063318	0.219781	0.020000	0.005130	0.001216	0.002059	0.001596	0.000000	0.000000	0.031898	0.000000	0.000000	100%
Percent Check:	97%			2%	1%									
Trips	1,194	115	401	36	9	2	4	3	0	0	58	0	0	1,823
	1,768			*36*	*18*									

Fleet mix for the project is based on the Caltrans Annual Average Daily Traffic near the project site during year 2019. Assumes a mix of approximately 97% passenger vehicles, 2% medium duty trucks, and 1% heavy duty trucks and buses.

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	0.73	4.59	4.95	0.01	0.59	0.17	0.76	0.19	0.16	0.35

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	0.64	3.47	4.07	0.01	0.25	0.16	0.41	0.10	0.15	0.25
Total Offsite	0.09	1.12	0.88	0.01	0.34	0.01	0.35	0.09	0.01	0.10
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
2023 Onsite	0.15	1.50	1.35	0.00	0.25	0.07	0.32	0.10	0.06	0.16
2023 Offsite	0.02	0.64	0.24	0.00	0.10	0.01	0.11	0.03	0.00	0.03
2024 Onsite	0.49	1.97	2.72	0.00	0.00	0.09	0.09	0.00	0.09	0.09
2024 Offsite	0.07	0.48	0.65	0.00	0.24	0.00	0.24	0.07	0.00	0.07

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 2023	0.17	2.14	1.59	0.01	0.35	0.07	0.42	0.13	0.07	0.20
Total 2024	0.56	2.45	3.37	0.01	0.24	0.10	0.34	0.07	0.09	0.16
Construction Total	0.73	4.59	4.95	0.01	0.59	0.17	0.76	0.19	0.16	0.35
Check	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.2 Demolition (Building + Asphalt) - 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					0.00	0.00	0.00	0.00	0.00	0.00
Offroad	0.02	0.21	0.20	0.00		0.01	0.01		0.01	0.01
Total	0.02	0.21	0.20	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 - 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					0.02	0.00	0.02	0.00	0.00	0.00
Off-Road	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	0.02	0.00	0.02	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	0.04	0.01	0.00	0.01	0.00	0.01	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	0.04	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00

3.4 Asphalt Demolition Debris Haul - 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					0.05	0.00	0.05	0.01	0.00	0.01
Off-Road	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	0.05	0.00	0.05	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	0.02	0.01	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	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.5 Site Preparation - 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						0.02	0.00	0.02	0.01	0.00	0.01
Off-Road		0.01	0.07	0.05	0.00		0.00	0.00		0.00	0.00
Total		0.01	0.07	0.05	0.00	0.02	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

3.6 Rough 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						0.03	0.00	0.03	0.01	0.00	0.01
Off-Road		0.02	0.18	0.15	0.00		0.01	0.01		0.01	0.01
Total		0.02	0.18	0.15	0.00	0.03	0.01	0.04	0.01	0.01	0.02

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

3.7 Rough Grading Soil Haul - 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						0.00	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
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		0.01	0.50	0.12	0.00	0.06	0.00	0.06	0.02	0.00	0.02
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		0.01	0.50	0.12	0.00	0.06	0.00	0.06	0.02	0.00	0.02

3.8 Fine Grading/Trenching - 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						0.14	0.00	0.14	0.07	0.00	0.07
Off-Road		0.08	0.81	0.66	0.00		0.03	0.03		0.03	0.03
Total		0.08	0.81	0.66	0.00	0.14	0.03	0.17	0.07	0.03	0.10

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	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.01	0.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00

3.9 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		0.03	0.23	0.30	0.00	0.00	0.01	0.01	0.00	0.01	0.01
Total		0.03	0.23	0.30	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	0.05	0.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Worker		0.01	0.00	0.06	0.00	0.02	0.00	0.02	0.01	0.00	0.01
Total		0.01	0.06	0.08	0.00	0.03	0.00	0.03	0.01	0.00	0.01

3.9 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
Category	tons/yr										
Off-Road		0.10	0.92	1.26	0.00	0.00	0.04	0.04	0.00	0.04	0.04
Total		0.10	0.92	1.26	0.00	0.00	0.04	0.04	0.00	0.04	0.04

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		0.01	0.22	0.07	0.00	0.03	0.00	0.03	0.01	0.00	0.01
Worker		0.03	0.02	0.24	0.00	0.09	0.00	0.09	0.02	0.00	0.02
Total		0.03	0.23	0.31	0.00	0.12	0.00	0.12	0.03	0.00	0.03

3.10 Parking Structure 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
Category	tons/yr										
Off-Road		0.11	0.97	1.34	0.00	0.00	0.05	0.05	0.00	0.04	0.04
Total		0.11	0.97	1.34	0.00	0.00	0.05	0.05	0.00	0.04	0.04

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		0.01	0.23	0.07	0.00	0.03	0.00	0.03	0.01	0.00	0.01
Worker		0.03	0.02	0.26	0.00	0.09	0.00	0.09	0.02	0.00	0.02
Total		0.03	0.25	0.33	0.00	0.12	0.00	0.12	0.03	0.00	0.04

3.11 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
Category	tons/yr										
Off-Road		0.00	0.05	0.07	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
Total		0.01	0.05	0.07	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

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
Category	tons/yr										
Architectural Coating		0.27				0.00	0.00	0.00	0.00	0.00	0.00
Off Road		0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.27	0.01	0.02	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	0.01	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

3.13 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	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.01	0.03	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	2023	2024	Calendar Days
395	175	220	551

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	4	23	25	0	3.00	0.85	4	0.99	0.80	2
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)
2023	0.77	9.63E-02	1.21E-02
2024	0.83	1.04E-01	1.31E-02

Onsite Construction PM2.5 Exhaust Emissions[2]

Average Daily Emissions (lbs/day)	Average Daily Emissions (lbs/hr)	Emission Rate (g/s)
0.71	8.92E-02	1.12E-02
0.79	9.86E-02	1.24E-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)
2023	5.85E-02	2.09E-03	2.62E-04	3.30E-05
2024	3.22E-02	1.15E-03	1.44E-04	1.81E-05

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)
5.58E-02	2.00E-03	2.49E-04	3.14E-05
3.05E-02	1.09E-03	1.37E-04	1.72E-05

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]
2023	175	0.67
2024	220	0.84

[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 (Building + Asphalt)	5/1/2023	5/26/2023	20	**25**
Building Demolition Debris Haul	5/17/2023	5/23/2023	5	**6**
Asphalt Demolition Debris Haul	5/17/2023	5/26/2023	8	**9**
Site Preparation	5/27/2023	6/2/2023	5	**6**
Rough Grading	6/3/2023	6/30/2023	20	**27**
Rough Grading Soil Haul (import & export)	6/3/2023	7/15/2023	30	**42**
Fine Grading/Trenching	7/1/2023	11/3/2023	90	**125**
Building Construction 2023	11/4/2023	12/31/2023	40	**57**
Building Construction 2024	1/1/2024	8/23/2024	170	**235**
Parking Structure Construction	1/28/2024	10/4/2024	180	**250**
Paving	8/24/2024	9/6/2024	10	**13**
Architectural Coating	9/7/2024	10/4/2024	20	**27**
Finishing/Landscaping	10/5/2024	11/1/2024	20	**27**

	Number of Construction Days Per Year		
2023	5/1/2023	12/31/2023	175
2024	1/1/2024	11/1/2024	220
		CONSTRUCTION DAYS	395

Total Construction Days Per Year		
1/1/2023	12/31/2023	260
1/1/2024	12/31/2024	262
	TOTAL DAYS	522

Criteria Air Pollutant Emissions Summary - Existing Buildout (Year 2024)

Existing Office Building

Mitigated Operational

		ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Category	tons/yr										
Area		1	0	0	0		0	0		0	0
Energy		0	0	0	0		0	0		0	0
Mobile		1	1	8	0	2	0	2	1	0	1
Waste							0	0		0	0
Water							0	0		0	0
Total		1	1	8	0	2	0	2	1	0	1
BAAQMD Threshold (T/YR)		10	10	NA	NA	NA	NA	15	NA	NA	10
Exceeds thresholds		No	No					No			No

Criteria Air Pollutant Emissions Summary - Existing Buildout (Year 2024)

Annual emissions divided by 365 days/year to obtain average daily emissions.

Proposed Project

lbs/day	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Area	4	0	0	0	0	0	0	0	0	0
Energy	0	1	1	0	0	0	0	0	0	0
Mobile	4	3	45	0	11	0	11	3	0	3
Waste	0	0	0	0	0	0	0	0	0	0
Water	0	0	0	0	0	0	0	0	0	0
Total	**8**	**4**	**46**	**0**	**11**	**0**	**11**	**3**	**0**	**3**
BAAQMD Threshold (Daily)	54	54					82			54
Exceeds Threshold	No	No					No			No

Criteria Air Pollutant Emissions Summary - Operations, 2024

Proposed Office Building

Mitigated Operational

Category	tons/yr	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Area		1	0	0	0		0	0		0	0
Energy		0	0	0	0		0	0		0	0
Mobile		2	1	16	0	4	0	4	1	0	1
Waste							0	0		0	0
Water							0	0		0	0
Total		3	1	16	0	4	0	4	1	0	1
BAAQMD Threshold (T/YR)		10	10	NA	NA	NA	NA	15	NA	NA	10
Exceeds thresholds		No	No					No			No

Criteria Air Pollutant Emissions Summary - Operations

Annual emissions divided by 365 days/year to obtain average daily emissions.

Proposed Project

lbs/day	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Area	6	0	0	0	0	0	0	0	0	0
Energy	0	1	1	0	0	0	0	0	0	0
Mobile	8	6	86	0	20	0	20	5	0	5
Waste	0	0	0	0	0	0	0	0	0	0
Water	0	0	0	0	0	0	0	0	0	0
Total	**15**	**8**	**87**	**0**	**20**	**0**	**20**	**5**	**0**	**6**
BAAQMD Threshold (Daily)	54	54					82			54
Exceeds Threshold	No	No					No			No

GHG Emissions Inventory

Operation*

	Existing Conditions (2021) $MTCO_2e$**	Percent of Emissions	Proposed Project (2024) $MTCO_2e$**	Percent of Emissions	Net Change	Percent Proportion
Area	0	0.0%	0	0.0%	0	0.0%
Energy	154	9.2%	249	7.7%	95	6.1%
Mobile	1,413	84.2%	2,762	85.2%	1,349	86.4%
Solid Waste	112	6.7%	224	6.9%	112	7.1%
Water	0	0.0%	6	0.2%	6	0.4%
Total	**1,679**	100%	**3,241**	100%	**1,562**	100%

*CalEEMod, Version 2020.4

** $MTCO_2e$=metric tons of carbon dioxide equivalent.

CalEEMod Construction Model

VP1 Apple Office Project - Santa Clara County, Annual

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

VP1 Apple Office Project

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	282.32	1000sqft	1.78	282,320.00	0
Enclosed Parking with Elevator	213.08	1000sqft	0.81	213,080.00	0
Other Non-Asphalt Surfaces	104.60	1000sqft	2.40	104,602.00	0
Parking Lot	129.59	1000sqft	2.98	129,591.00	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 - See assumptions file

Off-road Equipment -

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

Off-road Equipment - Crane is assumed to operate 1 hour per day, 5 days per week for duration of building construction phase, see assumptions file.

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

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Off-road Equipment -

Off-road Equipment -

Off-road Equipment - 1 excavator added based on equipment mix of projects of a similar size.

Off-road Equipment - Crane is assumed to operate 1 hour per day, 5 days per week for duration of the parking structure construction phase, see assumptions file.

Off-road Equipment -

Off-road Equipment -

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

Off-road Equipment -

Trips and VMT - Assume 4 vt/day/water truck, see assumptions file

Demolition -

Grading -

Architectural Coating - VOC content provided by Applicant, see assumptions file

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

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	141,160.00	5,327.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	423,480.00	189,048.00
tblArchitecturalCoating	ConstArea_Parking	26,836.00	7,775.00
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	157.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblAreaCoating	Area_Nonresidential_Exterior	141160	38865
tblAreaCoating	Area_Nonresidential_Interior	423480	116595
tblAreaCoating	Area_Parking	26836	16167
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	230.00	210.00
tblConstructionPhase	NumDays	230.00	180.00
tblConstructionPhase	NumDays	20.00	5.00

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tblConstructionPhase	NumDays	20.00	8.00
tblConstructionPhase	NumDays	20.00	30.00
tblConstructionPhase	NumDays	20.00	90.00
tblConstructionPhase	NumDays	20.00	10.00
tblConstructionPhase	NumDays	10.00	5.00
tblGrading	MaterialExported	0.00	58,393.00
tblGrading	MaterialImported	0.00	364.00
tblLandUse	LandUseSquareFeet	104,600.00	104,602.00
tblLandUse	LandUseSquareFeet	129,590.00	129,591.00
tblLandUse	LotAcreage	6.48	1.78
tblLandUse	LotAcreage	4.89	0.81
tblLandUse	LotAcreage	2.97	2.98
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	UsageHours	7.00	1.00
tblOffRoadEquipment	UsageHours	7.00	1.00
tblSolidWaste	SolidWasteGenerationRate	262.56	72.29
tblTripsAndVMT	HaulingTripNumber	333.00	649.00
tblTripsAndVMT	HaulingTripNumber	974.00	337.00

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tblTripsAndVMT	HaulingTripNumber	7,345.00	7,346.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	120.00	57.00
tblTripsAndVMT	VendorTripNumber	120.00	57.00
tblTripsAndVMT	WorkerTripNumber	56.00	28.00
tblTripsAndVMT	WorkerTripNumber	278.00	138.00
tblTripsAndVMT	WorkerTripNumber	278.00	138.00
tblWater	IndoorWaterUseRate	50,177,791.73	13,815,244.23
tblWater	OutdoorWaterUseRate	30,754,130.42	8,467,407.75

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					
2023	0.1693	2.1362	1.5862	5.6200e-003	0.6934	0.0725	0.7659	0.2656	0.0672	0.3329	0.0000	524.7851	524.7851	0.0769	0.0443	539.9114
2024	0.5600	2.4492	3.3686	7.7300e-003	0.2603	0.0954	0.3556	0.0707	0.0901	0.1609	0.0000	695.1266	695.1266	0.0873	0.0325	706.9951
Maximum	**0.5600**	**2.4492**	**3.3686**	**7.7300e-003**	**0.6934**	**0.0954**	**0.7659**	**0.2656**	**0.0901**	**0.3329**	**0.0000**	**695.1266**	**695.1266**	**0.0873**	**0.0443**	**706.9951**

Mitigated Construction

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	ROG	NOx	CO	SO2	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					
2023	0.1693	2.1362	1.5862	5.6200e-003	0.3517	0.0725	0.4242	0.1289	0.0672	0.1962	0.0000	524.7848	524.7848	0.0769	0.0443	539.9111
2024	0.5600	2.4492	3.3686	7.7300e-003	0.2410	0.0954	0.3363	0.0660	0.0901	0.1561	0.0000	695.1261	695.1261	0.0873	0.0325	706.9946
Maximum	**0.5600**	**2.4492**	**3.3686**	**7.7300e-003**	**0.3517**	**0.0954**	**0.4242**	**0.1289**	**0.0901**	**0.1962**	**0.0000**	**695.1261**	**695.1261**	**0.0873**	**0.0443**	**706.9946**

	ROG	NOx	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	37.86	0.00	32.19	42.06	0.00	28.65	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	5-1-2023	7-31-2023	1.6079	1.6079
2	8-1-2023	10-31-2023	0.6536	0.6536
3	11-1-2023	1-31-2024	0.5463	0.5463
4	2-1-2024	4-30-2024	0.9779	0.9779
5	5-1-2024	7-31-2024	0.9912	0.9912
6	8-1-2024	9-30-2024	0.7497	0.7497
		Highest	1.6079	1.6079

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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 (Building + Asphalt)	Demolition	5/1/2023	5/26/2023	5	20	a
2	Building Demolition Debris Haul	Demolition	5/17/2023	5/23/2023	5	5	b
3	Asphalt Demolition Debris Haul	Demolition	5/17/2023	5/26/2023	5	8	c
4	Site Preparation	Site Preparation	5/27/2023	6/2/2023	5	5	d
5	Rough Grading	Grading	6/3/2023	6/30/2023	5	20	e
6	Rough Grading Soil Haul	Grading	6/3/2023	7/15/2023	5	30	f
7	Fine Grading/Trenching	Grading	7/1/2023	11/3/2023	5	90	g
8	Building Construction	Building Construction	11/4/2023	8/23/2024	5	210	h
9	Parking Structure Construction	Building Construction	1/28/2024	10/4/2024	5	180	i
10	Paving	Paving	8/24/2024	9/6/2024	5	10	j
11	Architectural Coating	Architectural Coating	9/7/2024	10/4/2024	5	20	k
12	Finishing/Landscaping	Trenching	10/5/2024	11/1/2024	5	20	l

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 20

Acres of Paving: 6.19

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 189,048; Non-Residential Outdoor: 5,327; Striped Parking Area: 7,775

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OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition (Building + Asphalt)	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition (Building + Asphalt)	Excavators	3	8.00	158	0.38
Demolition (Building + Asphalt)	Rubber Tired Dozers	2	8.00	247	0.40
Building Demolition Debris Haul	Concrete/Industrial Saws	0	8.00	81	0.73
Building Demolition Debris Haul	Excavators	0	8.00	158	0.38
Building Demolition Debris Haul	Rubber Tired Dozers	0	8.00	247	0.40
Asphalt Demolition Debris Haul	Concrete/Industrial Saws	0	8.00	81	0.73
Asphalt Demolition Debris Haul	Excavators	0	8.00	158	0.38
Asphalt Demolition Debris Haul	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Rough Grading	Excavators	1	8.00	158	0.38
Rough Grading	Graders	1	8.00	187	0.41
Rough Grading	Rubber Tired Dozers	1	8.00	247	0.40
Rough Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Rough Grading Soil Haul	Excavators	0	8.00	158	0.38
Rough Grading Soil Haul	Graders	0	8.00	187	0.41
Rough Grading Soil Haul	Rubber Tired Dozers	0	8.00	247	0.40
Rough Grading Soil Haul	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Fine Grading/Trenching	Excavators	1	8.00	158	0.38
Fine Grading/Trenching	Graders	1	8.00	187	0.41
Fine Grading/Trenching	Rubber Tired Dozers	1	8.00	247	0.40
Fine Grading/Trenching	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	1.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20

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Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Parking Structure Construction	Cranes	1	1.00	231	0.29
Parking Structure Construction	Forklifts	3	8.00	89	0.20
Parking Structure Construction	Generator Sets	1	8.00	84	0.74
Parking Structure Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Parking Structure Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48
Finishing/Landscaping	Excavators	1	8.00	158	0.38

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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 (Building + Asphalt)	6	15.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Demolition Debris Haul	0	0.00	0.00	649.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Asphalt Demolition Debris Haul	0	0.00	0.00	337.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Rough Grading	6	15.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Rough Grading Soil Haul	0	0.00	0.00	7,346.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Fine Grading/Trenching	6	15.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	138.00	57.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Parking Structure Construction	9	138.00	57.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	28.00	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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3.2 Demolition (Building + Asphalt) - 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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0227	0.2148	0.1964	3.9000e-004		9.9800e-003	9.9800e-003		9.2800e-003	9.2800e-003	0.0000	33.9921	33.9921	9.5200e-003	0.0000	34.2301
Total	**0.0227**	**0.2148**	**0.1964**	**3.9000e-004**	**0.0000**	**9.9800e-003**	**9.9800e-003**	**0.0000**	**9.2800e-003**	**9.2800e-003**	**0.0000**	**33.9921**	**33.9921**	**9.5200e-003**	**0.0000**	**34.2301**

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	4.0000e-005	1.7800e-003	5.6000e-004	1.0000e-005	2.6000e-004	1.0000e-005	2.7000e-004	8.0000e-005	1.0000e-005	9.0000e-005	0.0000	0.7953	0.7953	2.0000e-005	1.2000e-004	0.8306
Worker	3.7000e-004	2.6000e-004	3.3500e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9057	0.9057	3.0000e-005	3.0000e-005	0.9139
Total	**4.1000e-004**	**2.0400e-003**	**3.9100e-003**	**2.0000e-005**	**1.4500e-003**	**2.0000e-005**	**1.4700e-003**	**4.0000e-004**	**2.0000e-005**	**4.1000e-004**	**0.0000**	**1.7010**	**1.7010**	**5.0000e-005**	**1.5000e-004**	**1.7444**

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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	0.0227	0.2148	0.1964	3.9000e-004		9.9800e-003	9.9800e-003		9.2800e-003	9.2800e-003	0.0000	33.9920	33.9920	9.5200e-003	0.0000	34.2300
Total	**0.0227**	**0.2148**	**0.1964**	**3.9000e-004**	**0.0000**	**9.9800e-003**	**9.9800e-003**	**0.0000**	**9.2800e-003**	**9.2800e-003**	**0.0000**	**33.9920**	**33.9920**	**9.5200e-003**	**0.0000**	**34.2300**

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	1.7800e-003	5.6000e-004	1.0000e-005	2.5000e-004	1.0000e-005	2.6000e-004	7.0000e-005	1.0000e-005	8.0000e-005	0.0000	0.7953	0.7953	2.0000e-005	1.2000e-004	0.8306
Worker	3.7000e-004	2.6000e-004	3.3500e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1000e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.9057	0.9057	3.0000e-005	3.0000e-005	0.9139
Total	**4.1000e-004**	**2.0400e-003**	**3.9100e-003**	**2.0000e-005**	**1.3500e-003**	**2.0000e-005**	**1.3600e-003**	**3.6000e-004**	**2.0000e-005**	**3.8000e-004**	**0.0000**	**1.7010**	**1.7010**	**5.0000e-005**	**1.5000e-004**	**1.7444**

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3.3 Building Demolition Debris Haul - 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					0.0360	0.0000	0.0360	5.4500e-003	0.0000	5.4500e-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**	**0.0360**	**0.0000**	**0.0360**	**5.4500e-003**	**0.0000**	**5.4500e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	6.8000e-004	0.0441	0.0102	2.0000e-004	5.5100e-003	3.6000e-004	5.8600e-003	1.5100e-003	3.4000e-004	1.8600e-003	0.0000	19.4328	19.4328	6.6000e-004	3.0800e-003	20.3674
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	**6.8000e-004**	**0.0441**	**0.0102**	**2.0000e-004**	**5.5100e-003**	**3.6000e-004**	**5.8600e-003**	**1.5100e-003**	**3.4000e-004**	**1.8600e-003**	**0.0000**	**19.4328**	**19.4328**	**6.6000e-004**	**3.0800e-003**	**20.3674**

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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					0.0154	0.0000	0.0154	2.3300e-003	0.0000	2.3300e-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**	**0.0154**	**0.0000**	**0.0154**	**2.3300e-003**	**0.0000**	**2.3300e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	6.8000e-004	0.0441	0.0102	2.0000e-004	5.1400e-003	3.6000e-004	5.4900e-003	1.4200e-003	3.4000e-004	1.7600e-003	0.0000	19.4328	19.4328	6.6000e-004	3.0800e-003	20.3674
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	**6.8000e-004**	**0.0441**	**0.0102**	**2.0000e-004**	**5.1400e-003**	**3.6000e-004**	**5.4900e-003**	**1.4200e-003**	**3.4000e-004**	**1.7600e-003**	**0.0000**	**19.4328**	**19.4328**	**6.6000e-004**	**3.0800e-003**	**20.3674**

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3.4 Asphalt Demolition Debris Haul - 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					0.1054	0.0000	0.1054	0.0160	0.0000	0.0160	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**	**0.1054**	**0.0000**	**0.1054**	**0.0160**	**0.0000**	**0.0160**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	3.5000e-004	0.0229	5.3100e-003	1.0000e-004	2.8600e-003	1.9000e-004	3.0400e-003	7.9000e-004	1.8000e-004	9.6000e-004	0.0000	10.0907	10.0907	3.4000e-004	1.6000e-003	10.5760
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	**3.5000e-004**	**0.0229**	**5.3100e-003**	**1.0000e-004**	**2.8600e-003**	**1.9000e-004**	**3.0400e-003**	**7.9000e-004**	**1.8000e-004**	**9.6000e-004**	**0.0000**	**10.0907**	**10.0907**	**3.4000e-004**	**1.6000e-003**	**10.5760**

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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					0.0451	0.0000	0.0451	6.8200e-003	0.0000	6.8200e-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**	**0.0451**	**0.0000**	**0.0451**	**6.8200e-003**	**0.0000**	**6.8200e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	3.5000e-004	0.0229	5.3100e-003	1.0000e-004	2.6700e-003	1.9000e-004	2.8500e-003	7.4000e-004	1.8000e-004	9.2000e-004	0.0000	10.0907	10.0907	3.4000e-004	1.6000e-003	10.5760
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	**3.5000e-004**	**0.0229**	**5.3100e-003**	**1.0000e-004**	**2.6700e-003**	**1.9000e-004**	**2.8500e-003**	**7.4000e-004**	**1.8000e-004**	**9.2000e-004**	**0.0000**	**10.0907**	**10.0907**	**3.4000e-004**	**1.6000e-003**	**10.5760**

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3.5 Site Preparation - 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					0.0491	0.0000	0.0491	0.0253	0.0000	0.0253	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.6500e-003	0.0688	0.0456	1.0000e-004		3.1700e-003	3.1700e-003		2.9100e-003	2.9100e-003	0.0000	8.3627	8.3627	2.7000e-003	0.0000	8.4303
Total	**6.6500e-003**	**0.0688**	**0.0456**	**1.0000e-004**	**0.0491**	**3.1700e-003**	**0.0523**	**0.0253**	**2.9100e-003**	**0.0282**	**0.0000**	**8.3627**	**8.3627**	**2.7000e-003**	**0.0000**	**8.4303**

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	4.5000e-004	1.4000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.1988	0.1988	0.0000	3.0000e-005	0.2076
Worker	1.1000e-004	8.0000e-005	1.0000e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.2717	0.2717	1.0000e-005	1.0000e-005	0.2742
Total	**1.2000e-004**	**5.3000e-004**	**1.1400e-003**	**0.0000**	**4.3000e-004**	**0.0000**	**4.3000e-004**	**1.1000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**0.4705**	**0.4705**	**1.0000e-005**	**4.0000e-005**	**0.4818**

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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					0.0210	0.0000	0.0210	0.0108	0.0000	0.0108	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.6500e-003	0.0688	0.0456	1.0000e-004		3.1700e-003	3.1700e-003		2.9100e-003	2.9100e-003	0.0000	8.3627	8.3627	2.7000e-003	0.0000	8.4303
Total	**6.6500e-003**	**0.0688**	**0.0456**	**1.0000e-004**	**0.0210**	**3.1700e-003**	**0.0242**	**0.0108**	**2.9100e-003**	**0.0137**	**0.0000**	**8.3627**	**8.3627**	**2.7000e-003**	**0.0000**	**8.4303**

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	4.5000e-004	1.4000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.1988	0.1988	0.0000	3.0000e-005	0.2076
Worker	1.1000e-004	8.0000e-005	1.0000e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2717	0.2717	1.0000e-005	1.0000e-005	0.2742
Total	**1.2000e-004**	**5.3000e-004**	**1.1400e-003**	**0.0000**	**3.9000e-004**	**0.0000**	**3.9000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.4705**	**0.4705**	**1.0000e-005**	**4.0000e-005**	**0.4818**

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3.6 Rough 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					0.0708	0.0000	0.0708	0.0343	0.0000	0.0343	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0171	0.1794	0.1475	3.0000e-004		7.7500e-003	7.7500e-003		7.1300e-003	7.1300e-003	0.0000	26.0606	26.0606	8.4300e-003	0.0000	26.2713
Total	**0.0171**	**0.1794**	**0.1475**	**3.0000e-004**	**0.0708**	**7.7500e-003**	**0.0786**	**0.0343**	**7.1300e-003**	**0.0414**	**0.0000**	**26.0606**	**26.0606**	**8.4300e-003**	**0.0000**	**26.2713**

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	4.0000e-005	1.7800e-003	5.6000e-004	1.0000e-005	2.6000e-004	1.0000e-005	2.7000e-004	8.0000e-005	1.0000e-005	9.0000e-005	0.0000	0.7953	0.7953	2.0000e-005	1.2000e-004	0.8306
Worker	3.7000e-004	2.6000e-004	3.3500e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9057	0.9057	3.0000e-005	3.0000e-005	0.9139
Total	**4.1000e-004**	**2.0400e-003**	**3.9100e-003**	**2.0000e-005**	**1.4500e-003**	**2.0000e-005**	**1.4700e-003**	**4.0000e-004**	**2.0000e-005**	**4.1000e-004**	**0.0000**	**1.7010**	**1.7010**	**5.0000e-005**	**1.5000e-004**	**1.7444**

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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					0.0303	0.0000	0.0303	0.0146	0.0000	0.0146	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0171	0.1794	0.1475	3.0000e-004		7.7500e-003	7.7500e-003		7.1300e-003	7.1300e-003	0.0000	26.0606	26.0606	8.4300e-003	0.0000	26.2713
Total	**0.0171**	**0.1794**	**0.1475**	**3.0000e-004**	**0.0303**	**7.7500e-003**	**0.0380**	**0.0146**	**7.1300e-003**	**0.0218**	**0.0000**	**26.0606**	**26.0606**	**8.4300e-003**	**0.0000**	**26.2713**

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	1.7800e-003	5.6000e-004	1.0000e-005	2.5000e-004	1.0000e-005	2.6000e-004	7.0000e-005	1.0000e-005	8.0000e-005	0.0000	0.7953	0.7953	2.0000e-005	1.2000e-004	0.8306
Worker	3.7000e-004	2.6000e-004	3.3500e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1000e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.9057	0.9057	3.0000e-005	3.0000e-005	0.9139
Total	**4.1000e-004**	**2.0400e-003**	**3.9100e-003**	**2.0000e-005**	**1.3500e-003**	**2.0000e-005**	**1.3600e-003**	**3.6000e-004**	**2.0000e-005**	**3.8000e-004**	**0.0000**	**1.7010**	**1.7010**	**5.0000e-005**	**1.5000e-004**	**1.7444**

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

3.7 Rough Grading Soil Haul - 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					3.3200e-003	0.0000	3.3200e-003	5.0000e-004	0.0000	5.0000e-004	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**	**3.3200e-003**	**0.0000**	**3.3200e-003**	**5.0000e-004**	**0.0000**	**5.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	7.6800e-003	0.4992	0.1158	2.2200e-003	0.0623	4.0400e-003	0.0664	0.0171	3.8600e-003	0.0210	0.0000	219.9584	219.9584	7.5000e-003	0.0349	230.5380
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	**7.6800e-003**	**0.4992**	**0.1158**	**2.2200e-003**	**0.0623**	**4.0400e-003**	**0.0664**	**0.0171**	**3.8600e-003**	**0.0210**	**0.0000**	**219.9584**	**219.9584**	**7.5000e-003**	**0.0349**	**230.5380**

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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					1.4200e-003	0.0000	1.4200e-003	2.2000e-004	0.0000	2.2000e-004	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**	**1.4200e-003**	**0.0000**	**1.4200e-003**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	7.6800e-003	0.4992	0.1158	2.2200e-003	0.0581	4.0400e-003	0.0622	0.0161	3.8600e-003	0.0200	0.0000	219.9584	219.9584	7.5000e-003	0.0349	230.5380
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	**7.6800e-003**	**0.4992**	**0.1158**	**2.2200e-003**	**0.0581**	**4.0400e-003**	**0.0622**	**0.0161**	**3.8600e-003**	**0.0200**	**0.0000**	**219.9584**	**219.9584**	**7.5000e-003**	**0.0349**	**230.5380**

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

3.8 Fine Grading/Trenching - 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					0.3187	0.0000	0.3187	0.1541	0.0000	0.1541	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0770	0.8071	0.6638	1.3300e-003		0.0349	0.0349		0.0321	0.0321	0.0000	117.2728	117.2728	0.0379	0.0000	118.2210
Total	**0.0770**	**0.8071**	**0.6638**	**1.3300e-003**	**0.3187**	**0.0349**	**0.3536**	**0.1541**	**0.0321**	**0.1862**	**0.0000**	**117.2728**	**117.2728**	**0.0379**	**0.0000**	**118.2210**

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-004	8.0200e-003	2.5300e-003	4.0000e-005	1.1800e-003	5.0000e-005	1.2300e-003	3.4000e-004	5.0000e-005	3.9000e-004	0.0000	3.5790	3.5790	8.0000e-005	5.3000e-004	3.7375
Worker	1.6900e-003	1.1700e-003	0.0151	4.0000e-005	5.3500e-003	3.0000e-005	5.3800e-003	1.4200e-003	2.0000e-005	1.4500e-003	0.0000	4.0756	4.0756	1.2000e-004	1.1000e-004	4.1124
Total	**1.8900e-003**	**9.1900e-003**	**0.0176**	**8.0000e-005**	**6.5300e-003**	**8.0000e-005**	**6.6100e-003**	**1.7600e-003**	**7.0000e-005**	**1.8400e-003**	**0.0000**	**7.6545**	**7.6545**	**2.0000e-004**	**6.4000e-004**	**7.8499**

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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					0.1363	0.0000	0.1363	0.0659	0.0000	0.0659	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0770	0.8071	0.6638	1.3300e-003		0.0349	0.0349		0.0321	0.0321	0.0000	117.2726	117.2726	0.0379	0.0000	118.2208
Total	**0.0770**	**0.8071**	**0.6638**	**1.3300e-003**	**0.1363**	**0.0349**	**0.1711**	**0.0659**	**0.0321**	**0.0980**	**0.0000**	**117.2726**	**117.2726**	**0.0379**	**0.0000**	**118.2208**

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-004	8.0200e-003	2.5300e-003	4.0000e-005	1.1100e-003	5.0000e-005	1.1600e-003	3.2000e-004	5.0000e-005	3.7000e-004	0.0000	3.5790	3.5790	8.0000e-005	5.3000e-004	3.7375
Worker	1.6900e-003	1.1700e-003	0.0151	4.0000e-005	4.9400e-003	3.0000e-005	4.9600e-003	1.3200e-003	2.0000e-005	1.3500e-003	0.0000	4.0756	4.0756	1.2000e-004	1.1000e-004	4.1124
Total	**1.8900e-003**	**9.1900e-003**	**0.0176**	**8.0000e-005**	**6.0500e-003**	**8.0000e-005**	**6.1200e-003**	**1.6400e-003**	**7.0000e-005**	**1.7200e-003**	**0.0000**	**7.6545**	**7.6545**	**2.0000e-004**	**6.4000e-004**	**7.8499**

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3.9 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	0.0262	0.2305	0.2974	4.5000e-004		0.0116	0.0116		0.0110	0.0110	0.0000	38.7567	38.7567	8.5700e-003	0.0000	38.9709
Total	**0.0262**	**0.2305**	**0.2974**	**4.5000e-004**		**0.0116**	**0.0116**		**0.0110**	**0.0110**	**0.0000**	**38.7567**	**38.7567**	**8.5700e-003**	**0.0000**	**38.9709**

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	1.2500e-003	0.0508	0.0160	2.3000e-004	7.5000e-003	3.0000e-004	7.8000e-003	2.1700e-003	2.9000e-004	2.4500e-003	0.0000	22.6667	22.6667	4.8000e-004	3.3300e-003	23.6709
Worker	6.8900e-003	4.8000e-003	0.0616	1.8000e-004	0.0219	1.1000e-004	0.0220	5.8200e-003	1.0000e-004	5.9200e-003	0.0000	16.6647	16.6647	4.8000e-004	4.6000e-004	16.8150
Total	**8.1400e-003**	**0.0556**	**0.0776**	**4.1000e-004**	**0.0294**	**4.1000e-004**	**0.0298**	**7.9900e-003**	**3.9000e-004**	**8.3700e-003**	**0.0000**	**39.3313**	**39.3313**	**9.6000e-004**	**3.7900e-003**	**40.4859**

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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	0.0262	0.2305	0.2974	4.5000e-004		0.0116	0.0116		0.0110	0.0110	0.0000	38.7566	38.7566	8.5700e-003	0.0000	38.9709
Total	**0.0262**	**0.2305**	**0.2974**	**4.5000e-004**		**0.0116**	**0.0116**		**0.0110**	**0.0110**	**0.0000**	**38.7566**	**38.7566**	**8.5700e-003**	**0.0000**	**38.9709**

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	1.2500e-003	0.0508	0.0160	2.3000e-004	7.0300e-003	3.0000e-004	7.3300e-003	2.0500e-003	2.9000e-004	2.3400e-003	0.0000	22.6667	22.6667	4.8000e-004	3.3300e-003	23.6709
Worker	6.8900e-003	4.8000e-003	0.0616	1.8000e-004	0.0202	1.1000e-004	0.0203	5.4000e-003	1.0000e-004	5.5000e-003	0.0000	16.6647	16.6647	4.8000e-004	4.6000e-004	16.8150
Total	**8.1400e-003**	**0.0556**	**0.0776**	**4.1000e-004**	**0.0272**	**4.1000e-004**	**0.0276**	**7.4500e-003**	**3.9000e-004**	**7.8400e-003**	**0.0000**	**39.3313**	**39.3313**	**9.6000e-004**	**3.7900e-003**	**40.4859**

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3.9 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	0.1039	0.9193	1.2610	1.9200e-003		0.0428	0.0428		0.0405	0.0405	0.0000	164.7542	164.7542	0.0362	0.0000	165.6580
Total	**0.1039**	**0.9193**	**1.2610**	**1.9200e-003**		**0.0428**	**0.0428**		**0.0405**	**0.0405**	**0.0000**	**164.7542**	**164.7542**	**0.0362**	**0.0000**	**165.6580**

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	5.1800e-003	0.2159	0.0667	9.7000e-004	0.0319	1.2800e-003	0.0332	9.2200e-003	1.2200e-003	0.0104	0.0000	94.9165	94.9165	2.0000e-003	0.0139	99.1144
Worker	0.0275	0.0183	0.2444	7.5000e-004	0.0930	4.4000e-004	0.0935	0.0247	4.0000e-004	0.0252	0.0000	68.5611	68.5611	1.8500e-003	1.8400e-003	69.1558
Total	**0.0327**	**0.2341**	**0.3111**	**1.7200e-003**	**0.1249**	**1.7200e-003**	**0.1266**	**0.0340**	**1.6200e-003**	**0.0356**	**0.0000**	**163.4776**	**163.4776**	**3.8500e-003**	**0.0158**	**168.2702**

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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	0.1039	0.9193	1.2610	1.9200e-003		0.0428	0.0428		0.0405	0.0405	0.0000	164.7540	164.7540	0.0362	0.0000	165.6578
Total	**0.1039**	**0.9193**	**1.2610**	**1.9200e-003**		**0.0428**	**0.0428**		**0.0405**	**0.0405**	**0.0000**	**164.7540**	**164.7540**	**0.0362**	**0.0000**	**165.6578**

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	5.1800e-003	0.2159	0.0667	9.7000e-004	0.0299	1.2800e-003	0.0312	8.7200e-003	1.2200e-003	9.9500e-003	0.0000	94.9165	94.9165	2.0000e-003	0.0139	99.1144
Worker	0.0275	0.0183	0.2444	7.5000e-004	0.0858	4.4000e-004	0.0862	0.0230	4.0000e-004	0.0234	0.0000	68.5611	68.5611	1.8500e-003	1.8400e-003	69.1558
Total	**0.0327**	**0.2341**	**0.3111**	**1.7200e-003**	**0.1157**	**1.7200e-003**	**0.1174**	**0.0317**	**1.6200e-003**	**0.0333**	**0.0000**	**163.4776**	**163.4776**	**3.8500e-003**	**0.0158**	**168.2702**

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3.10 Parking Structure 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	0.1101	0.9734	1.3352	2.0400e-003		0.0454	0.0454		0.0429	0.0429	0.0000	174.4456	174.4456	0.0383	0.0000	175.4026
Total	**0.1101**	**0.9734**	**1.3352**	**2.0400e-003**		**0.0454**	**0.0454**		**0.0429**	**0.0429**	**0.0000**	**174.4456**	**174.4456**	**0.0383**	**0.0000**	**175.4026**

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	5.4800e-003	0.2286	0.0706	1.0300e-003	0.0338	1.3500e-003	0.0351	9.7600e-003	1.3000e-003	0.0111	0.0000	100.4998	100.4998	2.1200e-003	0.0147	104.9447
Worker	0.0291	0.0193	0.2588	7.9000e-004	0.0985	4.6000e-004	0.0990	0.0262	4.3000e-004	0.0266	0.0000	72.5941	72.5941	1.9600e-003	1.9500e-003	73.2238
Total	**0.0346**	**0.2479**	**0.3294**	**1.8200e-003**	**0.1323**	**1.8100e-003**	**0.1341**	**0.0360**	**1.7300e-003**	**0.0377**	**0.0000**	**173.0939**	**173.0939**	**4.0800e-003**	**0.0167**	**178.1684**

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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	0.1101	0.9734	1.3352	2.0400e-003		0.0454	0.0454		0.0429	0.0429	0.0000	174.4454	174.4454	0.0383	0.0000	175.4023
Total	**0.1101**	**0.9734**	**1.3352**	**2.0400e-003**		**0.0454**	**0.0454**		**0.0429**	**0.0429**	**0.0000**	**174.4454**	**174.4454**	**0.0383**	**0.0000**	**175.4023**

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	5.4800e-003	0.2286	0.0706	1.0300e-003	0.0316	1.3500e-003	0.0330	9.2400e-003	1.3000e-003	0.0105	0.0000	100.4998	100.4998	2.1200e-003	0.0147	104.9447
Worker	0.0291	0.0193	0.2588	7.9000e-004	0.0908	4.6000e-004	0.0913	0.0243	4.3000e-004	0.0247	0.0000	72.5941	72.5941	1.9600e-003	1.9500e-003	73.2238
Total	**0.0346**	**0.2479**	**0.3294**	**1.8200e-003**	**0.1225**	**1.8100e-003**	**0.1243**	**0.0336**	**1.7300e-003**	**0.0353**	**0.0000**	**173.0939**	**173.0939**	**4.0800e-003**	**0.0167**	**178.1684**

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3.11 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	4.9400e-003	0.0476	0.0731	1.1000e-004		2.3400e-003	2.3400e-003		2.1600e-003	2.1600e-003	0.0000	10.0133	10.0133	3.2400e-003	0.0000	10.0942
Paving	3.9000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.8400e-003**	**0.0476**	**0.0731**	**1.1000e-004**		**2.3400e-003**	**2.3400e-003**		**2.1600e-003**	**2.1600e-003**	**0.0000**	**10.0133**	**10.0133**	**3.2400e-003**	**0.0000**	**10.0942**

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	1.8000e-004	1.2000e-004	1.5600e-003	0.0000	5.9000e-004	0.0000	6.0000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.4384	0.4384	1.0000e-005	1.0000e-005	0.4422
Total	**1.8000e-004**	**1.2000e-004**	**1.5600e-003**	**0.0000**	**5.9000e-004**	**0.0000**	**6.0000e-004**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**0.4384**	**0.4384**	**1.0000e-005**	**1.0000e-005**	**0.4422**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.9400e-003	0.0476	0.0731	1.1000e-004		2.3400e-003	2.3400e-003		2.1600e-003	2.1600e-003	0.0000	10.0133	10.0133	3.2400e-003	0.0000	10.0942
Paving	3.9000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.8400e-003**	**0.0476**	**0.0731**	**1.1000e-004**		**2.3400e-003**	**2.3400e-003**		**2.1600e-003**	**2.1600e-003**	**0.0000**	**10.0133**	**10.0133**	**3.2400e-003**	**0.0000**	**10.0942**

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	1.8000e-004	1.2000e-004	1.5600e-003	0.0000	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4384	0.4384	1.0000e-005	1.0000e-005	0.4422
Total	**1.8000e-004**	**1.2000e-004**	**1.5600e-003**	**0.0000**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4384**	**0.4384**	**1.0000e-005**	**1.0000e-005**	**0.4422**

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

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	0.2655					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8100e-003	0.0122	0.0181	3.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5569
Total	**0.2673**	**0.0122**	**0.0181**	**3.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5569**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.6000e-004	4.4000e-004	5.8300e-003	2.0000e-005	2.2200e-003	1.0000e-005	2.2300e-003	5.9000e-004	1.0000e-005	6.0000e-004	0.0000	1.6366	1.6366	4.0000e-005	4.0000e-005	1.6508
Total	**6.6000e-004**	**4.4000e-004**	**5.8300e-003**	**2.0000e-005**	**2.2200e-003**	**1.0000e-005**	**2.2300e-003**	**5.9000e-004**	**1.0000e-005**	**6.0000e-004**	**0.0000**	**1.6366**	**1.6366**	**4.0000e-005**	**4.0000e-005**	**1.6508**

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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					
Archit. Coating	0.2655					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8100e-003	0.0122	0.0181	3.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5568
Total	**0.2673**	**0.0122**	**0.0181**	**3.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5568**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.6000e-004	4.4000e-004	5.8300e-003	2.0000e-005	2.0500e-003	1.0000e-005	2.0600e-003	5.5000e-004	1.0000e-005	5.6000e-004	0.0000	1.6366	1.6366	4.0000e-005	4.0000e-005	1.6508
Total	**6.6000e-004**	**4.4000e-004**	**5.8300e-003**	**2.0000e-005**	**2.0500e-003**	**1.0000e-005**	**2.0600e-003**	**5.5000e-004**	**1.0000e-005**	**5.6000e-004**	**0.0000**	**1.6366**	**1.6366**	**4.0000e-005**	**4.0000e-005**	**1.6508**

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

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	1.8000e-003	0.0140	0.0327	5.0000e-005		6.9000e-004	6.9000e-004		6.4000e-004	6.4000e-004	0.0000	4.5383	4.5383	1.4700e-003	0.0000	4.5750
Total	**1.8000e-003**	**0.0140**	**0.0327**	**5.0000e-005**		**6.9000e-004**	**6.9000e-004**		**6.4000e-004**	**6.4000e-004**	**0.0000**	**4.5383**	**4.5383**	**1.4700e-003**	**0.0000**	**4.5750**

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	7.0000e-005	5.0000e-005	6.2000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1754	0.1754	0.0000	0.0000	0.1769
Total	**7.0000e-005**	**5.0000e-005**	**6.2000e-004**	**0.0000**	**2.4000e-004**	**0.0000**	**2.4000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.1754**	**0.1754**	**0.0000**	**0.0000**	**0.1769**

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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	1.8000e-003	0.0140	0.0327	5.0000e-005		6.9000e-004	6.9000e-004		6.4000e-004	6.4000e-004	0.0000	4.5383	4.5383	1.4700e-003	0.0000	4.5750
Total	**1.8000e-003**	**0.0140**	**0.0327**	**5.0000e-005**		**6.9000e-004**	**6.9000e-004**		**6.4000e-004**	**6.4000e-004**	**0.0000**	**4.5383**	**4.5383**	**1.4700e-003**	**0.0000**	**4.5750**

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	7.0000e-005	5.0000e-005	6.2000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1754	0.1754	0.0000	0.0000	0.1769
Total	**7.0000e-005**	**5.0000e-005**	**6.2000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.1754**	**0.1754**	**0.0000**	**0.0000**	**0.1769**

CalEEMod Existing Conditions Model

VP1 Apple Office Project, Existing Current (2021) - Santa Clara County, Annual

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

VP1 Apple Office Project, Existing Current (2021)

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	141.02	1000sqft	3.24	141,024.00	0
Other Non-Asphalt Surfaces	64.86	1000sqft	1.49	64,857.00	0
Parking Lot	141.29	1000sqft	3.24	141,292.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2021
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 -

Vehicle Trips - Assume 100% primary trips, see assumptions file

Area Coating - Based on square footage in site plan, see assumptions file

Energy Use -

Water And Wastewater - Assume 100% aerobic treatment, see assumptions file

Solid Waste - Based on per capital disposal for employees -Cal Recycle, 2020, see assumptions file

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

Fleet Mix - See fleet mix adjustment in assumptions file

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	12369	8478
tblFleetMix	HHD	6.4250e-003	1.5960e-003
tblFleetMix	LDA	0.57	0.66
tblFleetMix	LDT1	0.05	0.06
tblFleetMix	LDT2	0.19	0.22
tblFleetMix	LHD1	0.02	5.1300e-003
tblFleetMix	LHD2	4.8940e-003	1.2160e-003
tblFleetMix	MCY	0.02	0.03
tblFleetMix	MDV	0.12	0.02
tblFleetMix	MH	2.9780e-003	0.00
tblFleetMix	MHD	8.2890e-003	2.0590e-003
tblFleetMix	OBUS	9.6600e-004	0.00
tblFleetMix	SBUS	9.5000e-004	0.00
tblFleetMix	UBUS	4.0700e-004	0.00
tblLandUse	LandUseSquareFeet	141,020.00	141,024.00
tblLandUse	LandUseSquareFeet	64,860.00	64,857.00
tblLandUse	LandUseSquareFeet	141,290.00	141,292.00
tblSolidWaste	SolidWasteGenerationRate	131.15	223.00
tblVehicleTrips	CW_TL	9.50	15.60
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	ST_TR	2.21	0.00
tblVehicleTrips	SU_TR	0.70	0.00
tblVehicleTrips	WD_TR	9.74	12.93

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tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	IndoorWaterUseRate	25,064,013.14	15,704.00
tblWater	OutdoorWaterUseRate	15,361,814.51	5,731,957.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0321	0.3147	0.2196	4.0000e-004	1.1900e-003	0.0155	0.0167	3.2000e-004	0.0144	0.0147	0.0000	34.9664	34.9664	9.6000e-003	3.0000e-005	35.2153
Maximum	**0.0321**	**0.3147**	**0.2196**	**4.0000e-004**	**1.1900e-003**	**0.0155**	**0.0167**	**3.2000e-004**	**0.0144**	**0.0147**	**0.0000**	**34.9664**	**34.9664**	**9.6000e-003**	**3.0000e-005**	**35.2153**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0321	0.3147	0.2196	4.0000e-004	1.1900e-003	0.0155	0.0167	3.2000e-004	0.0144	0.0147	0.0000	34.9664	34.9664	9.6000e-003	3.0000e-005	35.2152
Maximum	**0.0321**	**0.3147**	**0.2196**	**4.0000e-004**	**1.1900e-003**	**0.0155**	**0.0167**	**3.2000e-004**	**0.0144**	**0.0147**	**0.0000**	**34.9664**	**34.9664**	**9.6000e-003**	**3.0000e-005**	**35.2152**

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

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.6409	3.0000e-005	3.2000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.2000e-003	6.2000e-003	2.0000e-005	0.0000	6.6200e-003
Energy	0.0152	0.1380	0.1159	8.3000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	152.9550	152.9550	2.8800e-003	2.7500e-003	153.8476
Mobile	0.8060	0.7211	8.5633	0.0152	1.7435	0.0108	1.7542	0.4632	0.0100	0.4732	0.0000	1,394.0578	1,394.0578	0.0981	0.0550	1,412.9039
Waste						0.0000	0.0000		0.0000	0.0000	45.2670	0.0000	45.2670	2.6752	0.0000	112.1470
Water						0.0000	0.0000		0.0000	0.0000	5.5600e-003	0.0183	0.0238	2.0000e-005	1.0000e-005	0.0279
Total	**1.4620**	**0.8592**	**8.6824**	**0.0160**	**1.7435**	**0.0213**	**1.7647**	**0.4632**	**0.0205**	**0.4837**	**45.2725**	**1,547.0372**	**1,592.3097**	**2.7763**	**0.0578**	**1,678.9330**

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Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.6409	3.0000e-005	3.2000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.2000e-003	6.2000e-003	2.0000e-005	0.0000	6.6200e-003
Energy	0.0152	0.1380	0.1159	8.3000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	152.9550	152.9550	2.8800e-003	2.7500e-003	153.8476
Mobile	0.8060	0.7211	8.5633	0.0152	1.7435	0.0108	1.7542	0.4632	0.0100	0.4732	0.0000	1,394.0578	1,394.0578	0.0981	0.0550	1,412.9039
Waste						0.0000	0.0000		0.0000	0.0000	45.2670	0.0000	45.2670	2.6752	0.0000	112.1470
Water						0.0000	0.0000		0.0000	0.0000	5.5600e-003	0.0183	0.0238	2.0000e-005	1.0000e-005	0.0279
Total	**1.4620**	**0.8592**	**8.6824**	**0.0160**	**1.7435**	**0.0213**	**1.7647**	**0.4632**	**0.0205**	**0.4837**	**45.2725**	**1,547.0372**	**1,592.3097**	**2.7763**	**0.0578**	**1,678.9330**

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

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Mitigated	0.8060	0.7211	8.5633	0.0152	1.7435	0.0108	1.7542	0.4632	0.0100	0.4732	0.0000	1,394.0578	1,394.0578	0.0981	0.0550	1,412.9039
Unmitigated	0.8060	0.7211	8.5633	0.0152	1.7435	0.0108	1.7542	0.4632	0.0100	0.4732	0.0000	1,394.0578	1,394.0578	0.0981	0.0550	1,412.9039

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	1,823.39	0.00	0.00	4,759,300	4,759,300
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	1,823.39	0.00	0.00	4,759,300	4,759,300

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	15.60	7.30	7.30	33.00	48.00	19.00	100	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.655002	0.063318	0.219781	0.020000	0.005130	0.001216	0.002059	0.001596	0.000000	0.000000	0.031898	0.000000	0.000000
Other Non-Asphalt Surfaces	0.567742	0.054883	0.190502	0.116880	0.020652	0.004894	0.008289	0.006425	0.000966	0.000407	0.024432	0.000950	0.002978
Parking Lot	0.567742	0.054883	0.190502	0.116880	0.020652	0.004894	0.008289	0.006425	0.000966	0.000407	0.024432	0.000950	0.002978

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

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2.7444	2.7444	0.0000	0.0000	2.7444
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2.7444	2.7444	0.0000	0.0000	2.7444
NaturalGas Mitigated	0.0152	0.1380	0.1159	8.3000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	150.2105	150.2105	2.8800e-003	2.7500e-003	151.1032
NaturalGas Unmitigated	0.0152	0.1380	0.1159	8.3000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	150.2105	150.2105	2.8800e-003	2.7500e-003	151.1032

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	2.81484e+006	0.0152	0.1380	0.1159	8.3000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	150.2105	150.2105	2.8800e-003	2.7500e-003	151.1032
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0152**	**0.1380**	**0.1159**	**8.3000e-004**		**0.0105**	**0.0105**		**0.0105**	**0.0105**	**0.0000**	**150.2105**	**150.2105**	**2.8800e-003**	**2.7500e-003**	**151.1032**

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Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	2.81484e+006	0.0152	0.1380	0.1159	8.3000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	150.2105	150.2105	2.8800e-003	2.7500e-003	151.1032
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0152**	**0.1380**	**0.1159**	**8.3000e-004**		**0.0105**	**0.0105**		**0.0105**	**0.0105**	**0.0000**	**150.2105**	**150.2105**	**2.8800e-003**	**2.7500e-003**	**151.1032**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	2.90086e+006	2.6316	0.0000	0.0000	2.6316
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	124337	0.1128	0.0000	0.0000	0.1128
Total		**2.7444**	**0.0000**	**0.0000**	**2.7444**

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

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	2.90086e+006	2.6316	0.0000	0.0000	2.6316
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	124337	0.1128	0.0000	0.0000	0.1128
Total		**2.7444**	**0.0000**	**0.0000**	**2.7444**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.6409	3.0000e-005	3.2000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.2000e-003	6.2000e-003	2.0000e-005	0.0000	6.6200e-003
Unmitigated	0.6409	3.0000e-005	3.2000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.2000e-003	6.2000e-003	2.0000e-005	0.0000	6.6200e-003

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

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0765					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.5641					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-004	3.0000e-005	3.2000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.2000e-003	6.2000e-003	2.0000e-005	0.0000	6.6200e-003
Total	**0.6409**	**3.0000e-005**	**3.2000e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**6.2000e-003**	**6.2000e-003**	**2.0000e-005**	**0.0000**	**6.6200e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0765					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.5641					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-004	3.0000e-005	3.2000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.2000e-003	6.2000e-003	2.0000e-005	0.0000	6.6200e-003
Total	**0.6409**	**3.0000e-005**	**3.2000e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**6.2000e-003**	**6.2000e-003**	**2.0000e-005**	**0.0000**	**6.6200e-003**

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

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0238	2.0000e-005	1.0000e-005	0.0279
Unmitigated	0.0238	2.0000e-005	1.0000e-005	0.0279

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	0.015704 / 5.73196	0.0238	2.0000e-005	1.0000e-005	0.0279
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0238**	**2.0000e-005**	**1.0000e-005**	**0.0279**

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

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	0.015704 / 5.73196	0.0238	2.0000e-005	1.0000e-005	0.0279
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0238**	**2.0000e-005**	**1.0000e-005**	**0.0279**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	45.2670	2.6752	0.0000	112.1470
Unmitigated	45.2670	2.6752	0.0000	112.1470

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

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	223	45.2670	2.6752	0.0000	112.1470
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**45.2670**	**2.6752**	**0.0000**	**112.1470**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	223	45.2670	2.6752	0.0000	112.1470
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**45.2670**	**2.6752**	**0.0000**	**112.1470**

CalEEMod Operation Model

Baseline Conditions (Year 2024)

VP1 Apple Office Project, Baseline Conditions (2024) - Santa Clara County, Annual

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

VP1 Apple Office Project, Baseline Conditions (2024)

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	141.02	1000sqft	3.24	141,024.00	0
Other Non-Asphalt Surfaces	64.86	1000sqft	1.49	64,857.00	0
Parking Lot	141.29	1000sqft	3.24	141,292.00	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 -

Vehicle Trips - Assume 100% primary trips, see assumptions file

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Area Coating - Based on square footage in site plan, see assumptions file

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

Energy Use -

Water And Wastewater - Assume 100% aerobic treatment, see assumptions file

Solid Waste - Based on per capital disposal for employees -Cal Recycle, 2020, see assumptions file

Fleet Mix - See fleet mix adjustment in assumptions file

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	12369	8478
tblFleetMix	HHD	6.4040e-003	1.5960e-003
tblFleetMix	LDA	0.57	0.66
tblFleetMix	LDT1	0.06	0.06
tblFleetMix	LDT2	0.19	0.22
tblFleetMix	LHD1	0.02	5.1300e-003
tblFleetMix	LHD2	5.1020e-003	1.2160e-003
tblFleetMix	MCY	0.02	0.03
tblFleetMix	MDV	0.12	0.02
tblFleetMix	MH	2.7760e-003	0.00
tblFleetMix	MHD	7.9340e-003	2.0590e-003
tblFleetMix	OBUS	9.0000e-004	0.00
tblFleetMix	SBUS	9.1400e-004	0.00
tblFleetMix	UBUS	3.8000e-004	0.00
tblLandUse	LandUseSquareFeet	141,020.00	141,024.00
tblLandUse	LandUseSquareFeet	64,860.00	64,857.00
tblLandUse	LandUseSquareFeet	141,290.00	141,292.00
tblSolidWaste	SolidWasteGenerationRate	131.15	223.00
tblVehicleTrips	CW_TL	9.50	19.50
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PR_TP	77.00	100.00

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tblVehicleTrips	ST_TR	2.21	0.00
tblVehicleTrips	SU_TR	0.70	0.00
tblVehicleTrips	WD_TR	9.74	12.93
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	IndoorWaterUseRate	25,064,013.14	15,704.00
tblWater	OutdoorWaterUseRate	15,361,814.51	5,731,957.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.6409	3.0000e-005	3.1900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.2000e-003	6.2000e-003	2.0000e-005	0.0000	6.6100e-003
Energy	0.0152	0.1380	0.1159	8.3000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	152.9550	152.9550	2.8800e-003	2.7500e-003	153.8476
Mobile	0.7628	0.6193	8.2370	0.0156	1.9670	9.5700e-003	1.9765	0.5225	8.8400e-003	0.5314	0.0000	1,454.7552	1,454.7552	0.0939	0.0516	1,472.4795
Waste						0.0000	0.0000		0.0000	0.0000	45.2670	0.0000	45.2670	2.6752	0.0000	112.1470
Water						0.0000	0.0000		0.0000	0.0000	5.5600e-003	0.0183	0.0238	2.0000e-005	1.0000e-005	0.0279
Total	**1.4188**	**0.7573**	**8.3561**	**0.0164**	**1.9670**	**0.0201**	**1.9870**	**0.5225**	**0.0193**	**0.5419**	**45.2725**	**1,607.7346**	**1,653.0072**	**2.7720**	**0.0544**	**1,738.5086**

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Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.6409	3.0000e-005	3.1900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.2000e-003	6.2000e-003	2.0000e-005	0.0000	6.6100e-003
Energy	0.0152	0.1380	0.1159	8.3000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	152.9550	152.9550	2.8800e-003	2.7500e-003	153.8476
Mobile	0.7628	0.6193	8.2370	0.0156	1.9670	9.5700e-003	1.9765	0.5225	8.8400e-003	0.5314	0.0000	1,454.7552	1,454.7552	0.0939	0.0516	1,472.4795
Waste						0.0000	0.0000		0.0000	0.0000	45.2670	0.0000	45.2670	2.6752	0.0000	112.1470
Water						0.0000	0.0000		0.0000	0.0000	5.5600e-003	0.0183	0.0238	2.0000e-005	1.0000e-005	0.0279
Total	**1.4188**	**0.7573**	**8.3561**	**0.0164**	**1.9670**	**0.0201**	**1.9870**	**0.5225**	**0.0193**	**0.5419**	**45.2725**	**1,607.7346**	**1,653.0072**	**2.7720**	**0.0544**	**1,738.5086**

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

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4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.7628	0.6193	8.2370	0.0156	1.9670	9.5700e-003	1.9765	0.5225	8.8400e-003	0.5314	0.0000	1,454.7552	1,454.7552	0.0939	0.0516	1,472.4795
Unmitigated	0.7628	0.6193	8.2370	0.0156	1.9670	9.5700e-003	1.9765	0.5225	8.8400e-003	0.5314	0.0000	1,454.7552	1,454.7552	0.0939	0.0516	1,472.4795

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	1,823.39	0.00	0.00	5,369,442	5,369,442
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	1,823.39	0.00	0.00	5,369,442	5,369,442

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	19.50	7.30	7.30	33.00	48.00	19.00	100	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.655002	0.063318	0.219781	0.020000	0.005130	0.001216	0.002059	0.001596	0.000000	0.000000	0.031898	0.000000	0.000000
Other Non-Asphalt Surfaces	0.572464	0.055653	0.187060	0.115672	0.020329	0.005102	0.007934	0.006404	0.000900	0.000380	0.024412	0.000914	0.002776
Parking Lot	0.572464	0.055653	0.187060	0.115672	0.020329	0.005102	0.007934	0.006404	0.000900	0.000380	0.024412	0.000914	0.002776

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5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2.7444	2.7444	0.0000	0.0000	2.7444
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2.7444	2.7444	0.0000	0.0000	2.7444
NaturalGas Mitigated	0.0152	0.1380	0.1159	8.3000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	150.2105	150.2105	2.8800e-003	2.7500e-003	151.1032
NaturalGas Unmitigated	0.0152	0.1380	0.1159	8.3000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	150.2105	150.2105	2.8800e-003	2.7500e-003	151.1032

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	2.81484e+006	0.0152	0.1380	0.1159	8.3000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	150.2105	150.2105	2.8800e-003	2.7500e-003	151.1032
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0152**	**0.1380**	**0.1159**	**8.3000e-004**		**0.0105**	**0.0105**		**0.0105**	**0.0105**	**0.0000**	**150.2105**	**150.2105**	**2.8800e-003**	**2.7500e-003**	**151.1032**

Mitigated

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	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	2.81484e+006	0.0152	0.1380	0.1159	8.3000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	150.2105	150.2105	2.8800e-003	2.7500e-003	151.1032
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0152**	**0.1380**	**0.1159**	**8.3000e-004**		**0.0105**	**0.0105**		**0.0105**	**0.0105**	**0.0000**	**150.2105**	**150.2105**	**2.8800e-003**	**2.7500e-003**	**151.1032**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	2.90086e+006	2.6316	0.0000	0.0000	2.6316
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	124337	0.1128	0.0000	0.0000	0.1128
Total		**2.7444**	**0.0000**	**0.0000**	**2.7444**

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Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	2.90086e+006	2.6316	0.0000	0.0000	2.6316
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	124337	0.1128	0.0000	0.0000	0.1128
Total		**2.7444**	**0.0000**	**0.0000**	**2.7444**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.6409	3.0000e-005	3.1900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.2000e-003	6.2000e-003	2.0000e-005	0.0000	6.6100e-003
Unmitigated	0.6409	3.0000e-005	3.1900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.2000e-003	6.2000e-003	2.0000e-005	0.0000	6.6100e-003

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6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0765					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.5641					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.9000e-004	3.0000e-005	3.1900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.2000e-003	6.2000e-003	2.0000e-005	0.0000	6.6100e-003
Total	**0.6409**	**3.0000e-005**	**3.1900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**6.2000e-003**	**6.2000e-003**	**2.0000e-005**	**0.0000**	**6.6100e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0765					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.5641					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.9000e-004	3.0000e-005	3.1900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.2000e-003	6.2000e-003	2.0000e-005	0.0000	6.6100e-003
Total	**0.6409**	**3.0000e-005**	**3.1900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**6.2000e-003**	**6.2000e-003**	**2.0000e-005**	**0.0000**	**6.6100e-003**

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7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0238	2.0000e-005	1.0000e-005	0.0279
Unmitigated	0.0238	2.0000e-005	1.0000e-005	0.0279

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	0.015704 / 5.73196	0.0238	2.0000e-005	1.0000e-005	0.0279
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0238**	**2.0000e-005**	**1.0000e-005**	**0.0279**

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Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	0.015704 / 5.73196	0.0238	2.0000e-005	1.0000e-005	0.0279
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0238**	**2.0000e-005**	**1.0000e-005**	**0.0279**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	45.2670	2.6752	0.0000	112.1470
Unmitigated	45.2670	2.6752	0.0000	112.1470

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8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	223	45.2670	2.6752	0.0000	112.1470
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**45.2670**	**2.6752**	**0.0000**	**112.1470**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	223	45.2670	2.6752	0.0000	112.1470
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**45.2670**	**2.6752**	**0.0000**	**112.1470**

CalEEMod Operations Model

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	280.02	1000sqft	1.73	280,020.00	0
Enclosed Parking with Elevator	213.08	1000sqft	0.81	213,080.00	0
Other Non-Asphalt Surfaces	104.60	1000sqft	2.40	104,602.00	0
Parking Lot	129.59	1000sqft	2.98	129,590.00	0
Convenience Market (24 hour)	2.30	1000sqft	0.05	2,300.00	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 -

Vehicle Trips - Assume normal office operations of similar Apple Campus 2 buildings in which offices and retail space will be assumed to be closed on weekends, assume 100% primary trips, see assumptions file

Area Coating - Based on applicant info, see assumptions file

Water And Wastewater - Assume 100% aerobic treatment, see assumptions file

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Solid Waste - This calculation includes General Office Building and Commercial Retail space, based on CalRecycle 2020, see assumptions file

Energy Mitigation - PV system installed based on Applicant

Fleet Mix - See fleet mix adjustment in assumptions file

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	141160	5327
tblAreaCoating	Area_Nonresidential_Interior	423480	189048
tblAreaCoating	Area_Parking	26836	7775
tblFleetMix	HHD	6.4040e-003	1.6100e-003
tblFleetMix	HHD	6.4040e-003	1.6100e-003
tblFleetMix	LDA	0.57	0.66
tblFleetMix	LDA	0.57	0.66
tblFleetMix	LDT1	0.06	0.06
tblFleetMix	LDT1	0.06	0.06
tblFleetMix	LDT2	0.19	0.22
tblFleetMix	LDT2	0.19	0.22
tblFleetMix	LHD1	0.02	5.1120e-003
tblFleetMix	LHD1	0.02	5.1120e-003
tblFleetMix	LHD2	5.1020e-003	1.2830e-003
tblFleetMix	LHD2	5.1020e-003	1.2830e-003
tblFleetMix	MCY	0.02	0.03
tblFleetMix	MCY	0.02	0.03
tblFleetMix	MDV	0.12	0.02
tblFleetMix	MDV	0.12	0.02
tblFleetMix	MH	2.7760e-003	0.00
tblFleetMix	MH	2.7760e-003	0.00
tblFleetMix	MHD	7.9340e-003	1.9950e-003
tblFleetMix	MHD	7.9340e-003	1.9950e-003

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tblFleetMix	OBUS	9.0000e-004	0.00
tblFleetMix	OBUS	9.0000e-004	0.00
tblFleetMix	SBUS	9.1400e-004	0.00
tblFleetMix	SBUS	9.1400e-004	0.00
tblFleetMix	UBUS	3.8000e-004	0.00
tblFleetMix	UBUS	3.8000e-004	0.00
tblLandUse	LandUseSquareFeet	104,600.00	104,602.00
tblLandUse	LotAcreage	6.43	1.73
tblLandUse	LotAcreage	4.89	0.81
tblLandUse	LotAcreage	2.97	2.98
tblSolidWaste	SolidWasteGenerationRate	6.91	0.00
tblSolidWaste	SolidWasteGenerationRate	260.42	445.00
tblVehicleTrips	CW_TL	9.50	15.51
tblVehicleTrips	CW_TL	9.50	15.51
tblVehicleTrips	DV_TP	15.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	PB_TP	61.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PR_TP	24.00	100.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	ST_TR	1,084.17	0.00
tblVehicleTrips	ST_TR	2.21	0.00
tblVehicleTrips	SU_TR	901.17	0.00
tblVehicleTrips	SU_TR	0.70	0.00
tblVehicleTrips	WD_TR	762.28	142.17
tblVehicleTrips	WD_TR	9.74	12.93
tblWater	AerobicPercent	87.46	100.00

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tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	IndoorWaterUseRate	170,366.80	179,945.00
tblWater	IndoorWaterUseRate	49,769,004.11	9,965,230.00
tblWater	OutdoorWaterUseRate	104,418.36	0.00
tblWater	OutdoorWaterUseRate	30,503,583.17	0.00
tblWater	OutdoorWaterUseRate	0.00	813,595.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.1805	6.0000e-005	6.6900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0130	0.0130	3.0000e-005	0.0000	0.0139
Energy	0.0245	0.2226	0.1870	1.3400e-003		0.0169	0.0169		0.0169	0.0169	0.0000	247.8388	247.8388	4.6500e-003	4.4400e-003	249.2791
Mobile	1.5058	1.1859	15.7260	0.0292	3.6814	0.0182	3.6996	0.9780	0.0168	0.9948	0.0000	2,727.8667	2,727.8667	0.1823	0.0998	2,762.1585
Waste						0.0000	0.0000		0.0000	0.0000	90.3310	0.0000	90.3310	5.3384	0.0000	223.7912
Water						0.0000	0.0000		0.0000	0.0000	3.5894	0.0524	3.6418	0.0124	7.8100e-003	6.2767
Total	**2.7108**	**1.4086**	**15.9197**	**0.0305**	**3.6814**	**0.0351**	**3.7166**	**0.9780**	**0.0338**	**1.0117**	**93.9204**	**2,975.7709**	**3,069.6912**	**5.5378**	**0.1120**	**3,241.5193**

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Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.1805	6.0000e-005	6.6900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0130	0.0130	3.0000e-005	0.0000	0.0139
Energy	0.0245	0.2226	0.1870	1.3400e-003		0.0169	0.0169		0.0169	0.0169	0.0000	247.0887	247.0887	4.6500e-003	4.4400e-003	248.5290
Mobile	1.5058	1.1859	15.7260	0.0292	3.6814	0.0182	3.6996	0.9780	0.0168	0.9948	0.0000	2,727.8667	2,727.8667	0.1823	0.0998	2,762.1585
Waste						0.0000	0.0000		0.0000	0.0000	90.3310	0.0000	90.3310	5.3384	0.0000	223.7912
Water						0.0000	0.0000		0.0000	0.0000	3.5894	0.0524	3.6418	0.0124	7.8100e-003	6.2767
Total	**2.7108**	**1.4086**	**15.9197**	**0.0305**	**3.6814**	**0.0351**	**3.7166**	**0.9780**	**0.0338**	**1.0117**	**93.9204**	**2,975.0208**	**3,068.9412**	**5.5378**	**0.1120**	**3,240.7693**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.00	0.00	0.02

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	11/23/2021	12/20/2021	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 6.19

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40

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	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0317	0.3144	0.2157	3.9000e-004		0.0155	0.0155		0.0144	0.0144	0.0000	34.0008	34.0008	9.5700e-003	0.0000	34.2400
Total	**0.0317**	**0.3144**	**0.2157**	**3.9000e-004**		**0.0155**	**0.0155**		**0.0144**	**0.0144**	**0.0000**	**34.0008**	**34.0008**	**9.5700e-003**	**0.0000**	**34.2400**

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Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3000e-004	3.3000e-004	3.9300e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9656	0.9656	3.0000e-005	3.0000e-005	0.9752
Total	**4.3000e-004**	**3.3000e-004**	**3.9300e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.2000e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.9656**	**0.9656**	**3.0000e-005**	**3.0000e-005**	**0.9752**

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	0.0317	0.3144	0.2157	3.9000e-004		0.0155	0.0155		0.0144	0.0144	0.0000	34.0007	34.0007	9.5700e-003	0.0000	34.2400
Total	**0.0317**	**0.3144**	**0.2157**	**3.9000e-004**		**0.0155**	**0.0155**		**0.0144**	**0.0144**	**0.0000**	**34.0007**	**34.0007**	**9.5700e-003**	**0.0000**	**34.2400**

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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	4.3000e-004	3.3000e-004	3.9300e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9656	0.9656	3.0000e-005	3.0000e-005	0.9752
Total	**4.3000e-004**	**3.3000e-004**	**3.9300e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.2000e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.9656**	**0.9656**	**3.0000e-005**	**3.0000e-005**	**0.9752**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.5058	1.1859	15.7260	0.0292	3.6814	0.0182	3.6996	0.9780	0.0168	0.9948	0.0000	2,727.8667	2,727.8667	0.1823	0.0998	2,762.1585
Unmitigated	1.5058	1.1859	15.7260	0.0292	3.6814	0.0182	3.6996	0.9780	0.0168	0.9948	0.0000	2,727.8667	2,727.8667	0.1823	0.0998	2,762.1585

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4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market (24 hour)	326.99	0.00	0.00	626,911	626,911
Enclosed Parking with Elevator	0.00	0.00	0.00		
General Office Building	3,620.66	0.00	0.00	9,422,467	9,422,467
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	3,947.65	0.00	0.00	10,049,378	10,049,378

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market (24 hour)	15.51	7.30	7.30	0.90	80.10	19.00	100	0	0
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
General Office Building	15.51	7.30	7.30	33.00	48.00	19.00	100	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market (24 hour)	0.658989	0.064065	0.215333	0.020000	0.005112	0.001283	0.001995	0.001610	0.000000	0.000000	0.031614	0.000000	0.000000
Enclosed Parking with Elevator	0.572464	0.055653	0.187060	0.115672	0.020329	0.005102	0.007934	0.006404	0.000900	0.000380	0.024412	0.000914	0.002776
General Office Building	0.658989	0.064065	0.215333	0.020000	0.005112	0.001283	0.001995	0.001610	0.000000	0.000000	0.031614	0.000000	0.000000
Other Non-Asphalt Surfaces	0.572464	0.055653	0.187060	0.115672	0.020329	0.005102	0.007934	0.006404	0.000900	0.000380	0.024412	0.000914	0.002776
Parking Lot	0.572464	0.055653	0.187060	0.115672	0.020329	0.005102	0.007934	0.006404	0.000900	0.000380	0.024412	0.000914	0.002776

5.0 Energy Detail

Historical Energy Use: N

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5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

Percent of Electricity Use Generated with Renewable Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	4.7260	4.7260	0.0000	0.0000	4.7260
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	5.4761	5.4761	0.0000	0.0000	5.4761
NaturalGas Mitigated	0.0245	0.2226	0.1870	1.3400e-003		0.0169	0.0169		0.0169	0.0169	0.0000	242.3627	242.3627	4.6500e-003	4.4400e-003	243.8030
NaturalGas Unmitigated	0.0245	0.2226	0.1870	1.3400e-003		0.0169	0.0169		0.0169	0.0169	0.0000	242.3627	242.3627	4.6500e-003	4.4400e-003	243.8030

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Convenience Market (24 hour)	5382	3.0000e-005	2.6000e-004	2.2000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.2872	0.2872	1.0000e-005	1.0000e-005	0.2889
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	4.53632e+006	0.0245	0.2224	0.1868	1.3300e-003		0.0169	0.0169		0.0169	0.0169	0.0000	242.0755	242.0755	4.6400e-003	4.4400e-003	243.5141
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0245**	**0.2226**	**0.1870**	**1.3300e-003**		**0.0169**	**0.0169**		**0.0169**	**0.0169**	**0.0000**	**242.3627**	**242.3627**	**4.6500e-003**	**4.4500e-003**	**243.8030**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Convenience Market (24 hour)	5382	3.0000e-005	2.6000e-004	2.2000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.2872	0.2872	1.0000e-005	1.0000e-005	0.2889
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	4.53632e+006	0.0245	0.2224	0.1868	1.3300e-003		0.0169	0.0169		0.0169	0.0169	0.0000	242.0755	242.0755	4.6400e-003	4.4400e-003	243.5141
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0245**	**0.2226**	**0.1870**	**1.3300e-003**		**0.0169**	**0.0169**		**0.0169**	**0.0169**	**0.0000**	**242.3627**	**242.3627**	**4.6500e-003**	**4.4500e-003**	**243.8030**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market (24 hour)	23897	0.0217	0.0000	0.0000	0.0217
Enclosed Parking with Elevator	1.15916e+006	1.0516	0.0000	0.0000	1.0516
General Office Building	4.80794e+006	4.3617	0.0000	0.0000	4.3617
Parking Lot	45356.5	0.0412	0.0000	0.0000	0.0412
Total		**5.4761**	**0.0000**	**0.0000**	**5.4761**

Mitigated

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	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market (24 hour)	-82297.9	-0.0747	0.0000	0.0000	-0.0747
Enclosed Parking with Elevator	996197	0.9037	0.0000	0.0000	0.9037
General Office Building	4.46255e+006	4.0484	0.0000	0.0000	4.0484
Other Non-Asphalt Surfaces	-105000	-0.0953	0.0000	0.0000	-0.0953
Parking Lot	-61911.3	-0.0562	0.0000	0.0000	-0.0562
Total		**4.7260**	**0.0000**	**0.0000**	**4.7260**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.1805	6.0000e-005	6.6900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0130	0.0130	3.0000e-005	0.0000	0.0139
Unmitigated	1.1805	6.0000e-005	6.6900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0130	0.0130	3.0000e-005	0.0000	0.0139

6.2 Area by SubCategory

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Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0484					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.1315					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.2000e-004	6.0000e-005	6.6900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0130	0.0130	3.0000e-005	0.0000	0.0139
Total	**1.1805**	**6.0000e-005**	**6.6900e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0130**	**0.0130**	**3.0000e-005**	**0.0000**	**0.0139**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0484					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.1315					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.2000e-004	6.0000e-005	6.6900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0130	0.0130	3.0000e-005	0.0000	0.0139
Total	**1.1805**	**6.0000e-005**	**6.6900e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0130**	**0.0130**	**3.0000e-005**	**0.0000**	**0.0139**

VP1 Apple Office Project, Operation (2024) - Santa Clara County, Annual

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

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	3.6418	0.0124	7.8100e-003	6.2767
Unmitigated	3.6418	0.0124	7.8100e-003	6.2767

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market (24 hour)	0.179945 / 0	0.0646	2.2000e-004	1.4000e-004	0.1113
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	9.96523 / 0	3.5746	0.0121	7.6700e-003	6.1629
Other Non-Asphalt Surfaces	0 / 0.813595	2.5800e-003	0.0000	0.0000	2.5800e-003
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**3.6418**	**0.0124**	**7.8100e-003**	**6.2767**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market (24 hour)	0.179945 / 0	0.0646	2.2000e-004	1.4000e-004	0.1113
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	9.96523 / 0	3.5746	0.0121	7.6700e-003	6.1629
Other Non-Asphalt Surfaces	0 / 0.813595	2.5800e-003	0.0000	0.0000	2.5800e-003
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**3.6418**	**0.0124**	**7.8100e-003**	**6.2767**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	90.3310	5.3384	0.0000	223.7912
Unmitigated	90.3310	5.3384	0.0000	223.7912

8.2 Waste by Land Use

VP1 Apple Office Project, Operation (2024) - Santa Clara County, Annual

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

Unmitigated

	Waste Disposed	Total CO_2	CH_4	N_2O	CO_2e
Land Use	tons	MT/yr			
Convenience Market (24 hour)	0	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	445	90.3310	5.3384	0.0000	223.7912
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**90.3310**	**5.3384**	**0.0000**	**223.7912**

Mitigated

	Waste Disposed	Total CO_2	CH_4	N_2O	CO_2e
Land Use	tons	MT/yr			
Convenience Market (24 hour)	0	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	445	90.3310	5.3384	0.0000	223.7912
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**90.3310**	**5.3384**	**0.0000**	**223.7912**

Energy Calculations

Existing Conditions (Year 2021) - Vehicle Fuel Usage

Land Use

Vehicle type	Fleet percent	VMT
	General Office Building	General Office Building
LDA	65.50%	3,117,351
LDT1	6.33%	301,349
LDT2	21.98%	1,046,004
MDV	2.00%	95,186
LHD1	0.51%	24,415
LHD2	0.12%	5,787
MHD	0.21%	9,799
HHD	0.16%	7,596
OBUS	0.00%	0
UBUS	0.00%	0
MCY	3.19%	151,812
SBUS	0.00%	0
MH	0.00%	0
	100.00%	4,759,300

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	1,823.39	0.00	0.00	4,759,300	4,759,300
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	1,823.39	0.00	0.00	4,759,300	4,759,300

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.655002	0.063318	0.219781	0.020000	0.005130	0.001216	0.002059	0.001596	0.000000	0.000000	0.031898	0.000000	0.000000
Other Non-Asphalt Surfaces	0.567742	0.054883	0.190502	0.116880	0.020652	0.004894	0.008289	0.006425	0.000966	0.000407	0.024432	0.000950	0.002978
Parking Lot	0.567742	0.054883	0.190502	0.116880	0.020652	0.004894	0.008289	0.006425	0.000966	0.000407	0.024432	0.000950	0.002978

EXISTING CONDITIONS

Vehicle type	Gas percent	Diesel percent	CNG percent	Electricity percent	
LDA	91.24%	0.26%	0.00%	8.49%	
LDT1	99.63%	0.03%	0.00%	0.34%	
LDT2	99.35%	0.35%	0.00%	0.30%	
MDV	97.93%	1.66%	0.00%	0.41%	
LHD1	66.21%	33.79%	0.00%	0.00%	
LHD2	35.74%	64.26%	0.00%	0.00%	
MHD	13.67%	85.59%	0.73%	0.00%	<< Equal to T6 (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
HHD	0.01%	95.48%	4.51%	0.00%	<< Equal to T7 (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
OBUS	26.81%	72.77%	0.42%	0.00%	<< Motor coach, all other buses, and OBUS (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
UBUS	8.18%	83.35%	8.13%	0.34%	
MCY	100.00%	0.00%	0.00%	0.00%	
SBUS	32.11%	65.50%	2.38%	0.00%	
MH	72.57%	27.43%	0.00%	0.00%	

EXISTING CONDITIONS

Vehicle type	Gasoline			Diesel			CNG			Electricity		
	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	m/kWh	kWh
LDA	2,844,398	28.61	99,408	8,228	42.72	193	0	0.00	0	264,725	2.66	99,490
LDT1	300,238	24.23	12,389	83	24.44	3	0	0.00	0	1,028	2.61	393
LDT2	1,039,220	22.85	45,471	3,644	31.41	116	0	0.00	0	3,139	3.01	1,041
MDV	93,212	18.83	4,951	1,583	24.16	66	0	0.00	0	391	2.96	132
LHD1	16,165	9.10	1,777	8,250	15.69	526	0	0.00	0	0	0.00	0
LHD2	2,068	8.19	253	3,719	12.90	288	0	0.00	0	0	0.00	0
MHD	1,340	4.57	293	8,388	8.35	1,005	72	7.02	10	0	0.00	0
HHD	1	3.30	0	7,252	5.67	1,279	343	4.94	69	0	0.00	0
OBUS	0	4.66	0	0	7.97	0	0	7.39	0	0	0.00	0
UBUS	0	8.81	0	0	9.23	0	0	6.04	0	0	0.57	0
MCY	151,812	41.45	3,662	0	0.00	0	0	0.00	0	0	0.00	0
SBUS	0	9.74	0	0	8.10	0	0	5.41	0	0	0.00	0
MH	0	4.41	0	0	9.40	0	0	0.00	0	0	0.00	0
	4,448,453		**168,203**	**41,148**		**3,475**	**415**		**80**	**269,284**		**101,057**

Operation - Vehicle Fuel Usage

Land Use

Vehicle type	Fleet percent Convenience Market	VMT Convenience Market	Fleet percent General Office Building	VMT General Office Building	Total
LDA	65.90%	413,127	65.90%	6,209,302	6,622,430
LDT1	6.41%	40,163	6.41%	603,650	643,813
LDT2	21.53%	134,995	21.53%	2,028,968	2,163,963
MDV	2.00%	12,538	2.00%	188,449	200,988
LHD1	0.51%	3,205	0.51%	48,168	51,372
LHD2	0.13%	804	0.13%	12,089	12,893
MHD	0.20%	1,251	0.20%	18,798	20,049
HHD	0.16%	1,009	0.16%	15,170	16,179
OBUS	0.00%	0	0.00%	0	0
UBUS	0.00%	0	0.00%	0	0
MCY	3.16%	19,819	3.16%	297,882	317,701
SBUS	0.00%	0	0.00%	0	0
MH	0.00%	0	0.00%	0	0
	100.00%	626,911	100.00%	9,422,467	10,049,388

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market (24 hour)	326.99	0.00	0.00	626,911	626,911
Enclosed Parking with Elevator	0.00	0.00	0.00		
General Office Building	3,620.66	0.00	0.00	9,422,467	9,422,467
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	3,947.65	0.00	0.00	10,049,378	10,049,378

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market (24 hour)	0.658989	0.064065	0.215333	0.020000	0.005112	0.001283	0.001995	0.001610	0.000000	0.000000	0.031614	0.000000	0.000000
Enclosed Parking with Elevator	0.572464	0.055653	0.187060	0.115672	0.020329	0.005102	0.007934	0.006404	0.000900	0.000380	0.024412	0.000914	0.002776
General Office Building	0.658989	0.064065	0.215333	0.020000	0.005112	0.001283	0.001995	0.001610	0.000000	0.000000	0.031614	0.000000	0.000000
Other Non-Asphalt Surfaces	0.572464	0.055653	0.187060	0.115672	0.020329	0.005102	0.007934	0.006404	0.000900	0.000380	0.024412	0.000914	0.002776
Parking Lot	0.572464	0.055653	0.187060	0.115672	0.020329	0.005102	0.007934	0.006404	0.000900	0.000380	0.024412	0.000914	0.002776

PROPOSED CONDITIONS

Vehicle type	Gas percent	Diesel percent	CNG percent	Electricity percent	
LDA	88.63%	0.20%	0.00%	11.17%	
LDT1	99.41%	0.02%	0.00%	0.57%	
LDT2	98.63%	0.36%	0.00%	1.01%	
MDV	96.95%	1.52%	0.00%	1.52%	
LHD1	64.19%	35.36%	0.00%	0.45%	
LHD2	33.10%	66.44%	0.00%	0.45%	
MHD	14.00%	84.84%	0.84%	0.32%	<< Equal to T6 (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
HHD	0.01%	94.45%	5.29%	0.26%	<< Equal to T7 (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
OBUS	24.17%	75.18%	0.57%	0.11%	<< Motor coach, all other buses, and OBUS (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
UBUS	8.18%	83.15%	8.27%	0.40%	
MCY	100.00%	0.00%	0.00%	0.00%	
SBUS	34.89%	62.36%	2.49%	0.26%	
MH	69.86%	30.14%	0.00%	0.00%	

PROPOSED CONDITIONS

Vehicle type	Gasoline			Diesel			CNG			Electricity		
	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	m/kWh	kWh
LDA	5,869,152	29.99	195,675	13,351	43.63	306	0	0.00	0	739,927	2.67	277,285
LDT1	640,028	25.24	25,358	129	24.45	5	0	0.00	0	3,656	2.70	1,357
LDT2	2,134,346	24.18	88,258	7,812	32.63	239	0	0.00	0	21,805	2.89	7,547
MDV	194,866	19.93	9,780	3,061	24.82	123	0	0.00	0	3,060	2.78	1,099
LHD1	32,975	9.72	3,392	18,164	16.00	1,135	0	0.00	0	233	1.53	153
LHD2	4,268	8.65	493	8,567	13.32	643	0	0.00	0	58	1.55	38
MHD	2,806	4.79	586	17,009	8.45	2,012	169	7.16	24	65	0.90	72
HHD	2	3.93	0	15,281	5.88	2,599	855	5.09	168	42	0.55	77
OBUS	0	4.82	0	0	8.10	0	0	7.68	0	0	0.00	0
UBUS	0	9.28	0	0	9.22	0	0	6.04	0	0	0.57	0
MCY	317,701	42.14	7,539	0	0.00	0	0	0.00	0	0	0.00	0
SBUS	0	9.92	0	0	8.18	0	0	5.51	0	0	0.95	0
MH	0	4.42	0	0	9.39	0	0	0.00	0	0	0.00	0
	9,196,144		**331,082**	**83,373**		**7,063**	**1,024**		**192**	**768,847**		**287,626**

Operation-Related Vehicle Fuel/Energy Usage

PROJECT LAND USE COMMUTE

Vehicle Type	Gas		Diesel		CNG		Electricity	
	VMT	Gallons	VMT	Gallons	VMT	Gallons	VMT	kWh
Existing Passenger Vehicles	4,448,453	168,203	41,148	3,475	415	80	269,284	101,057
Proposed Passenger Vehicles	9,196,144	331,082	83,373	7,063	1,024	192	768,847	287,626
Net Change	**4,747,691**	**162,879**	**42,225**	**3,589**	**609**	**112**	**499,563**	**186,569**

EMFAC Fuel Usage: Year 2021

Vehicle type		GAS			DSL			NG			ELEC	
	VMT/day	Gallons/day	Miles/gallon	VMT/day	Gallons/day	Miles/gallon	VMT/day	Gallons/day	Miles/gallon	VMT/day	kWh/day	Miles/kWh
All other buses	0	0	0.00	49,405	5,778	8.55	355	48	7.39	0	0	0.00
LDA	22,621,029	790,575	28.61	65,439	1,532	42.72	0	0	0.00	2,105,313	791,230	2.66
LDT1	1,810,612	74,711	24.23	503	21	24.44	0	0	0.00	6,199	2,372	2.61
LDT2	9,665,133	422,896	22.85	33,893	1,079	31.41	0	0	0.00	29,197	9,684	3.01
LHD1	672,783	73,958	9.10	343,383	21,881	15.69	0	0	0.00	0	0	0.00
LHD2	87,553	10,693	8.19	157,443	12,203	12.90	0	0	0.00	0	0	0.00
MCY	160,382	3,869	41.45	0	0	0.00	0	0	0.00	0	0	0.00
MDV	5,065,073	269,019	18.83	86,018	3,560	24.16	0	0	0.00	21,269	7,186	2.96
MH	23,630	5,358	4.41	8,934	950	9.40	0	0	0.00	0	0	0.00
Motor coach	0	0	0.00	11,679	2,121	5.51	0	0	0.00	0	0	0.00
OBUS	22,503	4,830	4.66	0	0	0.00	0	0	0.00	0	0	0.00
PTO	0	0	0.00	24,993	5,248	4.76	0	0	0.00	0	0	0.00
SBUS	7,565	777	9.74	15,431	1,904	8.10	561	104	5.41	0	0	0.00
T6	67,829	14,832	4.57	424,633	50,857	8.35	3,645	519	7.02	0	0	0.00
T7	108	33	3.30	949,282	167,379	5.67	44,859	9,074	4.94	0	0	0.00
UBUS	4,770	541	8.81	48,603	5,267	9.23	4,738	784	6.04	199	347	0.57
Total	**40,208,971**	**1,672,093**	**24.05**	**2,219,639**	**279,780**	**7.93**	**54,158**	**10,529**	**5.14**	**2,162,177**	**810,819**	**2.67**

Source: EMFAC2021 (v1.0.1) Emissions Inventory
Region Type: Sub-Area
Region: Santa Clara (SF)
Calendar Year: 2021
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	Fuel Consumptio	Energy Consumpt
Santa Clara (SF)	2021	All Other Buses	Aggregate	Aggregate	Diesel	753.1575293	49405.18401	49405.18401	0	6703.102011	5.777878175	0
Santa Clara (SF)	2021	All Other Buses	Aggregate	Aggregate	Natural Gas	5.469370639	354.9736968	354.9736968	0	48.67739869	0.048056971	0
Santa Clara (SF)	2021	LDA	Aggregate	Aggregate	Gasoline	606787.9769	22328684.33	22328684.33	0	2819030.851	780.6858842	0
Santa Clara (SF)	2021	LDA	Aggregate	Aggregate	Diesel	2097.284571	65438.92679	65438.92679	0	9106.700913	1.531676911	0
Santa Clara (SF)	2021	LDA	Aggregate	Aggregate	Electricity	45687.59288	1848394.432	0	1848394.432	228454.0271	0	713632.807
Santa Clara (SF)	2021	LDA	Aggregate	Aggregate	Plug-in Hybrid	12325.74943	549262.6478	292344.2183	256918.4295	50966.97387	9.889487832	77597.02311
Santa Clara (SF)	2021	LDT1	Aggregate	Aggregate	Gasoline	56250.20079	1810348.739	1810348.739	0	251042.1447	74.70242986	0
Santa Clara (SF)	2021	LDT1	Aggregate	Aggregate	Diesel	32.08332827	503.068528	503.068528	0	96.1477587	0.020586637	0
Santa Clara (SF)	2021	LDT1	Aggregate	Aggregate	Electricity	176.8773976	5945.758431	0	5945.758431	835.4181192	0	2295.553484
Santa Clara (SF)	2021	LDT1	Aggregate	Aggregate	Plug-in Hybrid	10.8247161	516.8070657	263.2287822	253.5782836	44.76020107	0.008934833	76.58819948
Santa Clara (SF)	2021	LDT2	Aggregate	Aggregate	Gasoline	269286.0936	9644865.293	9644865.293	0	1261290.796	422.2047138	0
Santa Clara (SF)	2021	LDT2	Aggregate	Aggregate	Diesel	883.6520453	33892.88704	33892.88704	0	4258.527289	1.07901186	0
Santa Clara (SF)	2021	LDT2	Aggregate	Aggregate	Electricity	295.5133619	10300.33172	0	10300.33172	1512.362029	0	3976.778176
Santa Clara (SF)	2021	LDT2	Aggregate	Aggregate	Plug-in Hybrid	845.8397775	39165.02709	20268.10602	18896.92107	3497.54748	0.690805468	5707.433382
Santa Clara (SF)	2021	LHD1	Aggregate	Aggregate	Gasoline	18933.42146	672783.0793	672783.0793	0	282079.7689	73.9582791	0
Santa Clara (SF)	2021	LHD1	Aggregate	Aggregate	Diesel	9139.777162	343382.9252	343382.9252	0	114966.8989	21.88118037	0
Santa Clara (SF)	2021	LHD2	Aggregate	Aggregate	Gasoline	2465.999662	87553.13797	87553.13797	0	36739.72062	10.69316918	0
Santa Clara (SF)	2021	LHD2	Aggregate	Aggregate	Diesel	4074.911372	157442.8322	157442.8322	0	51257.25882	12.20264652	0
Santa Clara (SF)	2021	MCY	Aggregate	Aggregate	Gasoline	27304.17111	160382.2212	160382.2212	0	54608.34222	3.869155128	0
Santa Clara (SF)	2021	MDV	Aggregate	Aggregate	Gasoline	147596.411	5051242.336	5051242.336	0	682293.6698	268.5401362	0
Santa Clara (SF)	2021	MDV	Aggregate	Aggregate	Diesel	2291.713788	86017.73007	86017.73007	0	11013.96254	3.56015193	0
Santa Clara (SF)	2021	MDV	Aggregate	Aggregate	Electricity	256.6989907	9069.305494	0	9069.305494	1316.884036	0	3501.500451
Santa Clara (SF)	2021	MDV	Aggregate	Aggregate	Plug-in Hybrid	609.3867768	26030.39053	13830.97191	12199.41861	2519.814322	0.478586587	3684.588022
Santa Clara (SF)	2021	MH	Aggregate	Aggregate	Gasoline	2769.699029	23630.01423	23630.01423	0	277.0806908	5.358089555	0
Santa Clara (SF)	2021	MH	Aggregate	Aggregate	Diesel	922.1828121	8933.6317	8933.6317	0	92.21828121	0.950306588	0
Santa Clara (SF)	2021	Motor Coach	Aggregate	Aggregate	Diesel	81.53049559	11679.1	11679.1	0	1873.570789	2.120919284	0
Santa Clara (SF)	2021	OBUS	Aggregate	Aggregate	Gasoline	483.6838018	22502.67818	22502.67818	0	9677.545507	4.829767036	0
Santa Clara (SF)	2021	PTO	Aggregate	Aggregate	Diesel	0	24993.17659	24993.17659	0	0	5.248193576	0
Santa Clara (SF)	2021	SBUS	Aggregate	Aggregate	Gasoline	153.6366592	7565.400387	7565.400387	0	614.546637	0.777123714	0
Santa Clara (SF)	2021	SBUS	Aggregate	Aggregate	Diesel	657.673104	15431.13438	15431.13438	0	9523.106546	1.904488696	0
Santa Clara (SF)	2021	SBUS	Aggregate	Aggregate	Natural Gas	21.69727028	560.930124	560.930124	0	314.1764736	0.10359294	0
Santa Clara (SF)	2021	T6 CAIRP Class 4	Aggregate	Aggregate	Diesel	3.191002305	212.8721668	212.8721668	0	73.32923298	0.024297722	0
Santa Clara (SF)	2021	T6 CAIRP Class 5	Aggregate	Aggregate	Diesel	4.310174367	292.0223334	292.0223334	0	99.04780695	0.033186661	0
Santa Clara (SF)	2021	T6 CAIRP Class 6	Aggregate	Aggregate	Diesel	12.45959208	763.062712	763.062712	0	286.3214259	0.086247965	0
Santa Clara (SF)	2021	T6 CAIRP Class 7	Aggregate	Aggregate	Diesel	22.93216118	4786.315022	4786.315022	0	526.9810638	0.502883669	0
Santa Clara (SF)	2021	T6 Instate Delivery Class 4	Aggregate	Aggregate	Diesel	612.8301517	20829.51569	20829.51569	0	8745.086265	2.567432606	0
Santa Clara (SF)	2021	T6 Instate Delivery Class 4	Aggregate	Aggregate	Natural Gas	1.830674252	63.44725924	63.44725924	0	26.12372157	0.009899292	0
Santa Clara (SF)	2021	T6 Instate Delivery Class 5	Aggregate	Aggregate	Diesel	675.9474262	24019.11183	24019.11183	0	9645.769772	2.977356034	0
Santa Clara (SF)	2021	T6 Instate Delivery Class 5	Aggregate	Aggregate	Natural Gas	2.756833047	88.24103156	88.24103156	0	39.34000758	0.013771781	0
Santa Clara (SF)	2021	T6 Instate Delivery Class 6	Aggregate	Aggregate	Diesel	1326.288643	45819.37235	45819.37235	0	18926.13894	5.662933295	0
Santa Clara (SF)	2021	T6 Instate Delivery Class 6	Aggregate	Aggregate	Natural Gas	5.671909136	178.9246539	178.9246539	0	80.93814338	0.027907575	0
Santa Clara (SF)	2021	T6 Instate Delivery Class 7	Aggregate	Aggregate	Diesel	177.0745972	9667.778262	9667.778262	0	2526.854502	1.181915766	0
Santa Clara (SF)	2021	T6 Instate Delivery Class 7	Aggregate	Aggregate	Natural Gas	2.079798146	115.789164	115.789164	0	29.67871955	0.017000265	0
Santa Clara (SF)	2021	T6 Instate Other Class 4	Aggregate	Aggregate	Diesel	1153.641255	44696.31364	44696.31364	0	13336.09291	5.3051215	0
Santa Clara (SF)	2021	T6 Instate Other Class 4	Aggregate	Aggregate	Natural Gas	2.999170231	128.8153801	128.8153801	0	34.67040788	0.017548595	0
Santa Clara (SF)	2021	T6 Instate Other Class 5	Aggregate	Aggregate	Diesel	2099.734608	92823.44359	92823.44359	0	24272.93207	11.01065155	0
Santa Clara (SF)	2021	T6 Instate Other Class 5	Aggregate	Aggregate	Natural Gas	6.797922762	278.3236265	278.3236265	0	78.58398713	0.037898623	0
Santa Clara (SF)	2021	T6 Instate Other Class 6	Aggregate	Aggregate	Diesel	2089.072098	87626.8249	87626.8249	0	24149.67345	10.28171777	0
Santa Clara (SF)	2021	T6 Instate Other Class 6	Aggregate	Aggregate	Natural Gas	7.569347646	304.7325574	304.7325574	0	87.50165879	0.041603751	0
Santa Clara (SF)	2021	T6 Instate Other Class 7	Aggregate	Aggregate	Diesel	760.0843419	37161.59994	37161.59994	0	8786.574992	4.324156076	0
Santa Clara (SF)	2021	T6 Instate Other Class 7	Aggregate	Aggregate	Natural Gas	12.7679093	724.0727401	724.0727401	0	147.5970315	0.093315473	0
Santa Clara (SF)	2021	T6 Instate Tractor Class 6	Aggregate	Aggregate	Diesel	9.003860786	413.3960528	413.3960528	0	104.0846307	0.048106618	0
Santa Clara (SF)	2021	T6 Instate Tractor Class 6	Aggregate	Aggregate	Natural Gas	0.00822374	0.545394258	0.545394258	0	0.095066433	7.10783E-05	0
Santa Clara (SF)	2021	T6 Instate Tractor Class 7	Aggregate	Aggregate	Diesel	236.9637473	14889.04709	14889.04709	0	2739.300919	1.655480794	0
Santa Clara (SF)	2021	T6 Instate Tractor Class 7	Aggregate	Aggregate	Natural Gas	2.756433892	193.6099982	193.6099982	0	31.86437579	0.024445495	0
Santa Clara (SF)	2021	T6 OOS Class 4	Aggregate	Aggregate	Diesel	1.778086599	117.8152097	117.8152097	0	40.86043004	0.013443158	0
Santa Clara (SF)	2021	T6 OOS Class 5	Aggregate	Aggregate	Diesel	2.393321106	161.6212817	161.6212817	0	54.99851901	0.018366402	0
Santa Clara (SF)	2021	T6 OOS Class 6	Aggregate	Aggregate	Diesel	6.935725289	422.3210332	422.3210332	0	159.3829671	0.047731996	0
Santa Clara (SF)	2021	T6 OOS Class 7	Aggregate	Aggregate	Diesel	12.32729318	3070.799063	3070.799063	0	283.2811972	0.321736515	0
Santa Clara (SF)	2021	T6 Public Class 4	Aggregate	Aggregate	Diesel	143.7498453	4747.57382	4747.57382	0	737.4367066	0.635908823	0
Santa Clara (SF)	2021	T6 Public Class 4	Aggregate	Aggregate	Natural Gas	5.360182228	229.9653441	229.9653441	0	27.49773483	0.036009087	0
Santa Clara (SF)	2021	T6 Public Class 5	Aggregate	Aggregate	Diesel	214.1930194	8160.979498	8160.979498	0	1098.81019	1.060764155	0
Santa Clara (SF)	2021	T6 Public Class 5	Aggregate	Aggregate	Natural Gas	11.9992102	509.6634785	509.6634785	0	61.55594832	0.077058852	0
Santa Clara (SF)	2021	T6 Public Class 6	Aggregate	Aggregate	Diesel	134.102726	4453.114651	4453.114651	0	687.9469845	0.60375566	0
Santa Clara (SF)	2021	T6 Public Class 6	Aggregate	Aggregate	Natural Gas	4.301227559	183.6421442	183.6421442	0	22.06529738	0.027852201	0
Santa Clara (SF)	2021	T6 Public Class 7	Aggregate	Aggregate	Diesel	313.2921679	13581.62819	13581.62819	0	1607.188821	1.808098164	0
Santa Clara (SF)	2021	T6 Public Class 7	Aggregate	Aggregate	Natural Gas	9.366051128	558.3149312	558.3149312	0	48.04784229	0.083180183	0
Santa Clara (SF)	2021	T6 Utility Class 5	Aggregate	Aggregate	Diesel	99.8421442	4080.449273	4080.449273	0	1277.979446	0.47330999	0
Santa Clara (SF)	2021	T6 Utility Class 5	Aggregate	Aggregate	Natural Gas	1.338996223	54.31770076	54.31770076	0	17.13915166	0.007528796	0
Santa Clara (SF)	2021	T6 Utility Class 6	Aggregate	Aggregate	Diesel	19.22872506	771.8002691	771.8002691	0	246.1276808	0.089934857	0
Santa Clara (SF)	2021	T6 Utility Class 6	Aggregate	Aggregate	Natural Gas	0.236629894	9.586990271	9.586990271	0	3.028862647	0.001313654	0
Santa Clara (SF)	2021	T6 Utility Class 7	Aggregate	Aggregate	Diesel	21.81231847	1064.624707	1064.624707	0	279.1976764	0.122748127	0
Santa Clara (SF)	2021	T6 Utility Class 7	Aggregate	Aggregate	Natural Gas	0.493812058	22.5445299	22.5445299	0	6.320794347	0.003079515	0
Santa Clara (SF)	2021	T6TS	Aggregate	Aggregate	Gasoline	1442.735201	67829.4691	67829.4691	0	28866.2459	14.83176809	0
Santa Clara (SF)	2021	T7 CAIRP Class 8	Aggregate	Aggregate	Diesel	960.9184699	199974.4842	199974.4842	0	22081.90644	33.72757296	0
Santa Clara (SF)	2021	T7 CAIRP Class 8	Aggregate	Aggregate	Natural Gas	1.717438777	379.9869222	379.9869222	0	39.46674308	0.067879723	0
Santa Clara (SF)	2021	T7 NNOOS Class 8	Aggregate	Aggregate	Diesel	878.8053948	237882.7441	237882.7441	0	20194.94797	40.28997061	0
Santa Clara (SF)	2021	T7 NOOS Class 8	Aggregate	Aggregate	Diesel	361.1500246	86438.74259	86438.74259	0	8299.227565	14.66875617	0
Santa Clara (SF)	2021	T7 Other Port Class 8	Aggregate	Aggregate	Diesel	103.885508	17544.32334	17544.32334	0	1699.566912	3.028295891	0
Santa Clara (SF)	2021	T7 POAK Class 8	Aggregate	Aggregate	Diesel	653.5390099	63384.10999	63384.10999	0	10691.8982	11.19477942	0
Santa Clara (SF)	2021	T7 POAK Class 8	Aggregate	Aggregate	Natural Gas	1.335804021	129.4575643	129.4575643	0	21.85375378	0.027241111	0
Santa Clara (SF)	2021	T7 Public Class 8	Aggregate	Aggregate	Diesel	664.7820953	28624.69901	28624.69901	0	3410.332149	5.631034306	0
Santa Clara (SF)	2021	T7 Public Class 8	Aggregate	Aggregate	Natural Gas	2.2761641	115.1922149	115.1922149	0	11.67672183	0.025932599	0

Santa Clara (SF)	2021	T7 Single Concrete/Transit Mix Cl	Aggregate	Aggregate	Diesel	407.3324501	28422.88674	28422.88674	0	3837.07168	4.932688584	0
Santa Clara (SF)	2021	T7 Single Concrete/Transit Mix Cl	Aggregate	Aggregate	Natural Gas	24.00395211	1825.541497	1825.541497	0	226.1172289	0.325803229	0
Santa Clara (SF)	2021	T7 Single Dump Class 8	Aggregate	Aggregate	Diesel	640.1766996	40608.21374	40608.21374	0	6030.46451	7.020367498	0
Santa Clara (SF)	2021	T7 Single Dump Class 8	Aggregate	Aggregate	Natural Gas	38.42709938	2671.479405	2671.479405	0	361.9832762	0.494188348	0
Santa Clara (SF)	2021	T7 Single Other Class 8	Aggregate	Aggregate	Diesel	834.3643452	49272.82146	49272.82146	0	7859.712131	8.507855526	0
Santa Clara (SF)	2021	T7 Single Other Class 8	Aggregate	Aggregate	Natural Gas	47.31385162	3069.690178	3069.690178	0	445.6964823	0.564593486	0
Santa Clara (SF)	2021	T7 SWCV Class 8	Aggregate	Aggregate	Diesel	351.7052735	22814.48213	22814.48213	0	1617.844258	9.382079701	0
Santa Clara (SF)	2021	T7 SWCV Class 8	Aggregate	Aggregate	Natural Gas	299.1089674	19341.06305	19341.06305	0	1375.90125	4.5029636	0
Santa Clara (SF)	2021	T7 Tractor Class 8	Aggregate	Aggregate	Diesel	2021.265662	171050.0568	171050.0568	0	29368.99007	28.41810602	0
Santa Clara (SF)	2021	T7 Tractor Class 8	Aggregate	Aggregate	Natural Gas	190.3025413	17326.90504	17326.90504	0	2765.095926	3.065010317	0
Santa Clara (SF)	2021	T7 Utility Class 8	Aggregate	Aggregate	Diesel	67.72773785	3264.863138	3264.863138	0	866.9150444	0.577662395	0
Santa Clara (SF)	2021	T7IS	Aggregate	Aggregate	Gasoline	4.911670528	108.3320922	108.3320922	0	98.27270392	0.032870405	0
Santa Clara (SF)	2021	UBUS	Aggregate	Aggregate	Gasoline	45.67500002	4769.829538	4769.829538	0	182.7000001	0.541359028	0
Santa Clara (SF)	2021	UBUS	Aggregate	Aggregate	Diesel	434.6268787	48602.55774	48602.55774	0	1738.507515	5.266914309	0
Santa Clara (SF)	2021	UBUS	Aggregate	Aggregate	Electricity	5.046756939	199.0027319	0	199.0027319	20.18702775	0	346.910342
Santa Clara (SF)	2021	UBUS	Aggregate	Aggregate	Natural Gas	41.43636456	4737.889242	4737.889242	0	165.7454582	0.784118952	0

EMFAC Fuel Usage: Year 2023

Vehicle type	GAS			DSL			NG			ELEC		
	VMT/day	Gallons/day	Miles/gallon	VMT/day	Gallons/day	Miles/gallon	VMT/day	Gallons/day	Miles/gallon	VMT/day	kWh/day	Miles/kWh
All other buses	0	0	0.00	49,867	5,767	8.65	410	54	7.58	0	0	0.00
LDA	22,726,901	770,216	29.51	56,221	1,299	43.28	0	0	0.00	2,612,147	979,593	2.67
LDT1	1,745,424	70,152	24.88	392	16	24.43	0	0	0.00	8,172	3,062	2.67
LDT2	10,178,109	428,910	23.73	36,937	1,148	32.17	0	0	0.00	79,060	27,151	2.91
LHD1	711,085	74,668	9.52	384,085	24,160	15.90	0	0	0.00	0	0	0.00
LHD2	90,793	10,677	8.50	176,769	13,401	13.19	0	0	0.00	0	0	0.00
MCY	164,895	3,931	41.95	0	0	0.00	0	0	0.00	0	0	0.00
MDV	5,378,872	275,184	19.55	86,834	3,534	24.57	0	0	0.00	61,185	21,848	2.80
MH	22,547	5,107	4.42	9,345	995	9.39	0	0	0.00	0	0	0.00
Motor coach	0	0	0.00	11,779	2,151	5.48	0	0	0.00	0	0	0.00
OBUS	20,830	4,374	4.76	0	0	0.00	0	0	0.00	0	0	0.00
PTO	0	0	0.00	25,406	5,188	4.90	0	0	0.00	12	25	0.48
SBUS	8,309	842	9.86	15,393	1,888	8.15	596	109	5.48	4	4	0.95
T6	70,786	14,992	4.72	431,550	51,225	8.42	4,048	567	7.14	102	109	0.94
T7	114	31	3.68	965,883	166,461	5.80	53,296	10,517	5.07	400	730	0.55
UBUS	4,798	517	9.27	48,830	5,294	9.22	4,830	799	6.04	199	347	0.57
Total	**41,123,463**	**1,659,602**	**24.78**	**2,299,290**	**282,527**	**8.14**	**63,179**	**12,046**	**5.24**	**2,761,280**	**1,032,869**	**2.67**

Source: EMFAC2021 (v1.0.1) Emissions Inventory
Region Type: Sub-Area
Region: Santa Clara (SF)
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	Fuel Consumptio	Energy Consumpt
Santa Clara (SF)	2023	All Other Buses	Aggregate	Aggregate	Diesel	787.7498085	49867.13684	49867.13684	0	7010.973296	5.767368866	0
Santa Clara (SF)	2023	All Other Buses	Aggregate	Aggregate	Natural Gas	6.145600435	409.546615	409.546615	0	54.69584387	0.054019102	0
Santa Clara (SF)	2023	LDA	Aggregate	Aggregate	Gasoline	601938.3153	22370251.09	22370251.09	0	2795479.204	758.1523908	0
Santa Clara (SF)	2023	LDA	Aggregate	Aggregate	Diesel	1871.124679	56220.79718	56220.79718	0	8000.531418	1.29892798	0
Santa Clara (SF)	2023	LDA	Aggregate	Aggregate	Electricity	53751.14791	2268185.318	0	2268185.318	265250.078	0	875706.7364
Santa Clara (SF)	2023	LDA	Aggregate	Aggregate	Plug-in Hybrid	15805.32023	700610.9132	356649.6534	343961.2598	65354.99917	12.06393978	103886.5521
Santa Clara (SF)	2023	LDT1	Aggregate	Aggregate	Gasoline	53782.25287	1744480.187	1744480.187	0	239737.9214	70.12001518	0
Santa Clara (SF)	2023	LDT1	Aggregate	Aggregate	Diesel	26.04713722	391.8698325	391.8698325	0	75.17736541	0.016037369	0
Santa Clara (SF)	2023	LDT1	Aggregate	Aggregate	Electricity	194.8940713	7068.184366	0	7068.184366	916.4831754	0	2728.902534
Santa Clara (SF)	2023	LDT1	Aggregate	Aggregate	Plug-in Hybrid	43.27677362	2048.369176	944.157857	1104.211319	178.9494589	0.03210507	333.5047292
Santa Clara (SF)	2023	LDT2	Aggregate	Aggregate	Gasoline	280180.4214	10140966.51	10140966.51	0	1311795.544	427.6416304	0
Santa Clara (SF)	2023	LDT2	Aggregate	Aggregate	Diesel	978.4966958	36936.87393	36936.87393	0	4673.40093	1.148123535	0
Santa Clara (SF)	2023	LDT2	Aggregate	Aggregate	Electricity	1105.878915	38931.70292	0	38931.70292	5663.050709	0	15030.85053
Santa Clara (SF)	2023	LDT2	Aggregate	Aggregate	Plug-in Hybrid	1696.549844	77270.65796	37142.67878	40127.97918	7015.233604	1.268124945	12119.84572
Santa Clara (SF)	2023	LHD1	Aggregate	Aggregate	Gasoline	19180.96188	711085.4725	711085.4725	0	285767.7523	74.66781372	0
Santa Clara (SF)	2023	LHD1	Aggregate	Aggregate	Diesel	9807.464999	384084.7884	384084.7884	0	123365.5719	24.16048678	0
Santa Clara (SF)	2023	LHD2	Aggregate	Aggregate	Gasoline	2494.382223	90793.03842	90793.03842	0	37162.5785	10.67729528	0
Santa Clara (SF)	2023	LHD2	Aggregate	Aggregate	Diesel	4479.531561	176769.2012	176769.2012	0	56346.87178	13.40074061	0
Santa Clara (SF)	2023	MCY	Aggregate	Aggregate	Gasoline	27894.49523	164894.5081	164894.5081	0	55788.99047	3.930936692	0
Santa Clara (SF)	2023	MDV	Aggregate	Aggregate	Gasoline	153799.1108	5358084.151	5358084.151	0	712433.9369	274.4637038	0
Santa Clara (SF)	2023	MDV	Aggregate	Aggregate	Diesel	2374.917965	86834.44186	86834.44186	0	11267.05043	3.53404257	0
Santa Clara (SF)	2023	MDV	Aggregate	Aggregate	Electricity	1130.115411	40073.70084	0	40073.70084	5799.833494	0	15471.75599
Santa Clara (SF)	2023	MDV	Aggregate	Aggregate	Plug-in Hybrid	986.0895201	41899.13712	20787.34912	21111.78799	4077.480166	0.720324533	6376.389206
Santa Clara (SF)	2023	MH	Aggregate	Aggregate	Gasoline	2522.744687	22546.87041	22546.87041	0	252.3753785	5.106865714	0
Santa Clara (SF)	2023	MH	Aggregate	Aggregate	Diesel	959.1578086	9344.849437	9344.849437	0	95.91578086	0.995112486	0
Santa Clara (SF)	2023	Motor Coach	Aggregate	Aggregate	Diesel	82.67107969	11778.52162	11778.52162	0	1899.781411	2.150975826	0
Santa Clara (SF)	2023	OBUS	Aggregate	Aggregate	Gasoline	458.8974004	20830.07544	20830.07544	0	9181.619188	4.374109066	0
Santa Clara (SF)	2023	PTO	Aggregate	Aggregate	Diesel	0	25406.07084	25406.07084	0	0	5.187764905	0
Santa Clara (SF)	2023	PTO	Aggregate	Aggregate	Electricity	0	11.88456368	0	11.88456368	0	0	24.61909671
Santa Clara (SF)	2023	SBUS	Aggregate	Aggregate	Gasoline	166.986694	8309.307836	8309.307836	0	667.946776	0.842317687	0
Santa Clara (SF)	2023	SBUS	Aggregate	Aggregate	Diesel	667.1184919	15392.68347	15392.68347	0	9659.875763	1.88782318	0
Santa Clara (SF)	2023	SBUS	Aggregate	Aggregate	Electricity	0.302373247	3.510494287	0	3.510494287	4.378364621	0	3.69814983
Santa Clara (SF)	2023	SBUS	Aggregate	Aggregate	Natural Gas	23.50761997	595.8705457	595.8705457	0	340.3903371	0.108660666	0
Santa Clara (SF)	2023	T6 CAIRP Class 4	Aggregate	Aggregate	Diesel	3.27664237	216.5646971	216.5646971	0	75.29724167	0.024491717	0
Santa Clara (SF)	2023	T6 CAIRP Class 4	Aggregate	Aggregate	Electricity	0.003916745	0.142403946	0	0.142403946	0.090006809	0	0.154691061
Santa Clara (SF)	2023	T6 CAIRP Class 5	Aggregate	Aggregate	Diesel	4.399091842	297.1175597	297.1175597	0	101.0911305	0.033555023	0
Santa Clara (SF)	2023	T6 CAIRP Class 5	Aggregate	Aggregate	Electricity	0.004404624	0.165613928	0	0.165613928	0.101218265	0	0.179903681
Santa Clara (SF)	2023	T6 CAIRP Class 6	Aggregate	Aggregate	Diesel	13.84237926	775.9106329	775.9106329	0	318.0978753	0.086418551	0
Santa Clara (SF)	2023	T6 CAIRP Class 6	Aggregate	Aggregate	Electricity	0.030915016	0.898805074	0	0.898805074	0.710427058	0	0.976357143
Santa Clara (SF)	2023	T6 CAIRP Class 7	Aggregate	Aggregate	Diesel	23.91619133	4869.891794	4869.891794	0	549.5940767	0.509195141	0
Santa Clara (SF)	2023	T6 CAIRP Class 7	Aggregate	Aggregate	Electricity	0.0256923	2.649641922	0	2.649641922	0.59040905	0	2.878262364
Santa Clara (SF)	2023	T6 Instate Delivery Class 4	Aggregate	Aggregate	Diesel	627.4953331	21194.8178	21194.8178	0	8954.358403	2.586051212	0
Santa Clara (SF)	2023	T6 Instate Delivery Class 4	Aggregate	Aggregate	Electricity	0.36598452	6.703723252	0	6.703723252	5.222599101	0	7.161447301
Santa Clara (SF)	2023	T6 Instate Delivery Class 4	Aggregate	Aggregate	Natural Gas	1.809059061	67.83229102	67.83229102	0	25.81527279	0.010183471	0
Santa Clara (SF)	2023	T6 Instate Delivery Class 5	Aggregate	Aggregate	Diesel	705.901652	24475.07202	24475.07202	0	10073.21657	2.995511501	0
Santa Clara (SF)	2023	T6 Instate Delivery Class 5	Aggregate	Aggregate	Electricity	0.356927115	6.512580538	0	6.512580538	5.093349934	0	6.957253539
Santa Clara (SF)	2023	T6 Instate Delivery Class 5	Aggregate	Aggregate	Natural Gas	1.602172761	60.06699147	60.06699147	0	22.8630053	0.008773071	0
Santa Clara (SF)	2023	T6 Instate Delivery Class 6	Aggregate	Aggregate	Diesel	1366.158021	46700.99001	46700.99001	0	19495.07496	5.700650365	0
Santa Clara (SF)	2023	T6 Instate Delivery Class 6	Aggregate	Aggregate	Electricity	0.978692649	17.87469436	0	17.87469436	13.96594411	0	19.09516203
Santa Clara (SF)	2023	T6 Instate Delivery Class 6	Aggregate	Aggregate	Natural Gas	2.916219062	108.1007368	108.1007368	0	41.61444602	0.015713212	0
Santa Clara (SF)	2023	T6 Instate Delivery Class 7	Aggregate	Aggregate	Diesel	177.4021507	9755.82205	9755.82205	0	2531.52869	1.167433756	0
Santa Clara (SF)	2023	T6 Instate Delivery Class 7	Aggregate	Aggregate	Electricity	0.038040266	0.818592732	0	0.818592732	0.542834589	0	0.87448549
Santa Clara (SF)	2023	T6 Instate Delivery Class 7	Aggregate	Aggregate	Natural Gas	3.628580607	203.179689	203.179689	0	51.77984527	0.029616174	0
Santa Clara (SF)	2023	T6 Instate Other Class 4	Aggregate	Aggregate	Diesel	1110.728396	45522.58969	45522.58969	0	12840.02025	5.367891098	0
Santa Clara (SF)	2023	T6 Instate Other Class 4	Aggregate	Aggregate	Electricity	0.111101184	2.308976173	0	2.308976173	1.284329688	0	2.447701971
Santa Clara (SF)	2023	T6 Instate Other Class 4	Aggregate	Aggregate	Natural Gas	2.325008826	107.7639423	107.7639423	0	26.87710203	0.014520043	0
Santa Clara (SF)	2023	T6 Instate Other Class 5	Aggregate	Aggregate	Diesel	2154.06213	94555.62503	94555.62503	0	24900.95822	11.14747034	0
Santa Clara (SF)	2023	T6 Instate Other Class 5	Aggregate	Aggregate	Electricity	0.989647919	20.58264926	0	20.58264926	11.44032995	0	21.81927719
Santa Clara (SF)	2023	T6 Instate Other Class 5	Aggregate	Aggregate	Natural Gas	4.594202822	202.8063304	202.8063304	0	53.10898462	0.026453593	0
Santa Clara (SF)	2023	T6 Instate Other Class 6	Aggregate	Aggregate	Diesel	2098.165215	89307.26622	89307.26622	0	24254.78989	10.43791702	0
Santa Clara (SF)	2023	T6 Instate Other Class 6	Aggregate	Aggregate	Electricity	1.347868768	28.17793138	0	28.17793138	15.58136296	0	29.87089212
Santa Clara (SF)	2023	T6 Instate Other Class 6	Aggregate	Aggregate	Natural Gas	4.148606277	180.2177392	180.2177392	0	47.95788857	0.023661747	0
Santa Clara (SF)	2023	T6 Instate Other Class 7	Aggregate	Aggregate	Diesel	774.2349652	37567.50132	37567.50132	0	8950.156198	4.340788217	0
Santa Clara (SF)	2023	T6 Instate Other Class 7	Aggregate	Aggregate	Electricity	0.270807434	8.50081278	0	8.50081278	3.130533935	0	9.011550849
Santa Clara (SF)	2023	T6 Instate Other Class 7	Aggregate	Aggregate	Natural Gas	18.90639883	992.1884528	992.1884528	0	218.5579704	0.128063464	0
Santa Clara (SF)	2023	T6 Instate Tractor Class 6	Aggregate	Aggregate	Diesel	8.639745232	419.9542091	419.9542091	0	99.87545489	0.048377505	0
Santa Clara (SF)	2023	T6 Instate Tractor Class 6	Aggregate	Aggregate	Electricity	0.006054795	0.178395526	0	0.178395526	0.069993432	0	0.189113723
Santa Clara (SF)	2023	T6 Instate Tractor Class 6	Aggregate	Aggregate	Natural Gas	0.01883776	1.266079639	1.266079639	0	0.217764506	0.000158319	0
Santa Clara (SF)	2023	T6 Instate Tractor Class 7	Aggregate	Aggregate	Diesel	242.7709829	15021.29184	15021.29184	0	2806.432563	1.654636241	0
Santa Clara (SF)	2023	T6 Instate Tractor Class 7	Aggregate	Aggregate	Electricity	0.065792281	2.435640077	0	2.435640077	0.760558763	0	2.581975979
Santa Clara (SF)	2023	T6 Instate Tractor Class 7	Aggregate	Aggregate	Natural Gas	4.995163126	330.6466639	330.6466639	0	57.74408573	0.041739058	0
Santa Clara (SF)	2023	T6 OOS Class 4	Aggregate	Aggregate	Diesel	1.830878571	119.937674	119.937674	0	42.07358955	0.013554927	0
Santa Clara (SF)	2023	T6 OOS Class 5	Aggregate	Aggregate	Diesel	2.447585774	164.5329212	164.5329212	0	56.24552108	0.018575897	0
Santa Clara (SF)	2023	T6 OOS Class 6	Aggregate	Aggregate	Diesel	7.726848604	429.9292303	429.9292303	0	177.5629809	0.047841154	0
Santa Clara (SF)	2023	T6 OOS Class 7	Aggregate	Aggregate	Diesel	12.56357918	3126.120117	3126.120117	0	288.7110496	0.325106036	0
Santa Clara (SF)	2023	T6 Public Class 4	Aggregate	Aggregate	Diesel	140.3730228	4755.755873	4755.755873	0	720.1136072	0.623832732	0
Santa Clara (SF)	2023	T6 Public Class 4	Aggregate	Aggregate	Electricity	0.003788101	0.068675509	0	0.068675509	0.019432956	0	0.081098947
Santa Clara (SF)	2023	T6 Public Class 4	Aggregate	Aggregate	Natural Gas	6.454176233	273.383003	273.383003	0	33.10992407	0.042266091	0
Santa Clara (SF)	2023	T6 Public Class 5	Aggregate	Aggregate	Diesel	219.493286	8209.379387	8209.379387	0	1126.000557	1.057449763	0
Santa Clara (SF)	2023	T6 Public Class 5	Aggregate	Aggregate	Electricity	0.007565133	0.137152711	0	0.137152711	0.038809134	0	0.161963713
Santa Clara (SF)	2023	T6 Public Class 5	Aggregate	Aggregate	Natural Gas	13.22127145	551.1303779	551.1303779	0	67.82512254	0.083121756	0
Santa Clara (SF)	2023	T6 Public Class 6	Aggregate	Aggregate	Diesel	130.7316917	4459.505024	4459.505024	0	670.6535786	0.590869921	0
Santa Clara (SF)	2023	T6 Public Class 6	Aggregate	Aggregate	Electricity	0.041715719	0.757231603	0	0.757231603	0.214001636	0	0.894215223

Santa Clara (SF)	2023	T6 Public Class 6	Aggregate	Aggregate	Natural Gas	5.321600906	224.625502	224.625502	0	27.29981265	0.033766489	0
Santa Clara (SF)	2023	T6 Public Class 7	Aggregate	Aggregate	Diesel	305.0640365	13628.39037	13628.39037	0	1564.978507	1.769756232	0
Santa Clara (SF)	2023	T6 Public Class 7	Aggregate	Aggregate	Electricity	0.065466326	1.876820077	0	1.876820077	0.335842253	0	2.216337875
Santa Clara (SF)	2023	T6 Public Class 7	Aggregate	Aggregate	Natural Gas	11.71803607	656.4528919	656.4528919	0	60.11352502	0.096732362	0
Santa Clara (SF)	2023	T6 Utility Class 5	Aggregate	Aggregate	Diesel	101.2524935	4121.286864	4121.286864	0	1296.031917	0.468113463	0
Santa Clara (SF)	2023	T6 Utility Class 5	Aggregate	Aggregate	Natural Gas	1.427742328	56.40026347	56.40026347	0	18.2751018	0.007747007	0
Santa Clara (SF)	2023	T6 Utility Class 6	Aggregate	Aggregate	Diesel	19.26028007	778.3047964	778.3047964	0	246.5315849	0.088087194	0
Santa Clara (SF)	2023	T6 Utility Class 6	Aggregate	Aggregate	Natural Gas	0.282829146	11.19350302	11.19350302	0	3.620213065	0.001526655	0
Santa Clara (SF)	2023	T6 Utility Class 7	Aggregate	Aggregate	Diesel	21.81733058	1076.823332	1076.823332	0	279.2618315	0.121381779	0
Santa Clara (SF)	2023	T6 Utility Class 7	Aggregate	Aggregate	Electricity	0.035454452	1.011842165	0	1.011842165	0.453816985	0	1.133327363
Santa Clara (SF)	2023	T6 Utility Class 7	Aggregate	Aggregate	Natural Gas	0.47109173	20.61921379	20.61921379	0	6.029974142	0.002802551	0
Santa Clara (SF)	2023	T6TS	Aggregate	Aggregate	Gasoline	1418.702832	70785.85764	70785.85764	0	28385.40626	14.99216178	0
Santa Clara (SF)	2023	T7 CAIRP Class 8	Aggregate	Aggregate	Diesel	1006.264259	204654.1798	204654.1798	0	23123.95267	33.91272703	0
Santa Clara (SF)	2023	T7 CAIRP Class 8	Aggregate	Aggregate	Electricity	2.191624685	228.629324	0	228.629324	50.36353527	0	417.4602445
Santa Clara (SF)	2023	T7 CAIRP Class 8	Aggregate	Aggregate	Natural Gas	2.18323623	454.417362	454.417362	0	50.17076857	0.08086137	0
Santa Clara (SF)	2023	T7 NNOOS Class 8	Aggregate	Aggregate	Diesel	906.2530019	243798.8163	243798.8163	0	20825.69398	40.03653941	0
Santa Clara (SF)	2023	T7 NOOS Class 8	Aggregate	Aggregate	Diesel	379.4320339	88588.44809	88588.44809	0	8719.348139	14.71130852	0
Santa Clara (SF)	2023	T7 Other Port Class 8	Aggregate	Aggregate	Diesel	101.3433552	19017.96884	19017.96884	0	1657.977291	3.208235074	0
Santa Clara (SF)	2023	T7 Other Port Class 8	Aggregate	Aggregate	Electricity	0.04403981	4.845770497	0	4.845770497	0.720491296	0	8.819143543
Santa Clara (SF)	2023	T7 POAK Class 8	Aggregate	Aggregate	Diesel	663.9991296	66785.41963	66785.41963	0	10863.02576	11.46899232	0
Santa Clara (SF)	2023	T7 POAK Class 8	Aggregate	Aggregate	Electricity	0.405368352	17.11902281	0	17.11902281	6.631826243	0	31.15606065
Santa Clara (SF)	2023	T7 POAK Class 8	Aggregate	Aggregate	Natural Gas	0.276126077	26.82738	26.82738	0	4.517422617	0.004774917	0
Santa Clara (SF)	2023	T7 Public Class 8	Aggregate	Aggregate	Diesel	668.8774141	28897.03584	28897.03584	0	3431.341134	5.573678775	0
Santa Clara (SF)	2023	T7 Public Class 8	Aggregate	Aggregate	Electricity	0.280411926	8.048595439	0	8.048595439	1.438513179	0	15.79603306
Santa Clara (SF)	2023	T7 Public Class 8	Aggregate	Aggregate	Natural Gas	2.685262845	133.1357043	133.1357043	0	13.77539839	0.029193227	0
Santa Clara (SF)	2023	T7 Single Concrete/Transit Mix Cl	Aggregate	Aggregate	Diesel	400.578244	28685.46454	28685.46454	0	3773.447059	4.911340595	0
Santa Clara (SF)	2023	T7 Single Concrete/Transit Mix Cl	Aggregate	Aggregate	Electricity	0.687105987	26.20855553	0	26.20855553	6.472538399	0	47.7822374
Santa Clara (SF)	2023	T7 Single Concrete/Transit Mix Cl	Aggregate	Aggregate	Natural Gas	25.74231275	1881.302524	1881.302524	0	242.4925862	0.330097562	0
Santa Clara (SF)	2023	T7 Single Dump Class 8	Aggregate	Aggregate	Diesel	659.7426707	41015.02264	41015.02264	0	6214.775958	7.103907708	0
Santa Clara (SF)	2023	T7 Single Dump Class 8	Aggregate	Aggregate	Natural Gas	41.67996919	2757.651654	2757.651654	0	392.6253097	0.507810698	0
Santa Clara (SF)	2023	T7 Single Other Class 8	Aggregate	Aggregate	Diesel	902.636725	50408.84902	50408.84902	0	8502.837949	8.609841957	0
Santa Clara (SF)	2023	T7 Single Other Class 8	Aggregate	Aggregate	Electricity	1.058697412	33.64448269	0	33.64448269	9.972929617	0	61.33907905
Santa Clara (SF)	2023	T7 Single Other Class 8	Aggregate	Aggregate	Natural Gas	54.42547465	3201.760637	3201.760637	0	512.6879712	0.578370881	0
Santa Clara (SF)	2023	T7 SWCV Class 8	Aggregate	Aggregate	Diesel	314.2352098	20392.91624	20392.91624	0	1445.481965	8.326207053	0
Santa Clara (SF)	2023	T7 SWCV Class 8	Aggregate	Aggregate	Electricity	0.193254273	5.225674486	0	5.225674486	0.888969656	0	9.722632351
Santa Clara (SF)	2023	T7 SWCV Class 8	Aggregate	Aggregate	Natural Gas	343.2858777	22194.99079	22194.99079	0	1579.115038	4.954695056	0
Santa Clara (SF)	2023	T7 Tractor Class 8	Aggregate	Aggregate	Diesel	2160.227312	170340.6719	170340.6719	0	31388.10285	28.02806259	0
Santa Clara (SF)	2023	T7 Tractor Class 8	Aggregate	Aggregate	Electricity	1.819731701	75.28742821	0	75.28742821	26.44070162	0	137.0765584
Santa Clara (SF)	2023	T7 Tractor Class 8	Aggregate	Aggregate	Natural Gas	283.4583069	22645.88085	22645.88085	0	4118.649199	4.031580489	0
Santa Clara (SF)	2023	T7 Utility Class 8	Aggregate	Aggregate	Diesel	71.46925856	3298.141477	3298.141477	0	914.8065096	0.570242142	0
Santa Clara (SF)	2023	T7 Utility Class 8	Aggregate	Aggregate	Electricity	0.021476041	0.611944939	0	0.611944939	0.274893321	0	1.152168881
Santa Clara (SF)	2023	T7IS	Aggregate	Aggregate	Gasoline	3.454008773	114.3092811	114.3092811	0	69.10780752	0.031050824	0
Santa Clara (SF)	2023	UBUS	Aggregate	Aggregate	Gasoline	45.94708812	4798.243635	4798.243635	0	183.7883525	0.51741281	0
Santa Clara (SF)	2023	UBUS	Aggregate	Aggregate	Diesel	436.6680996	48829.71129	48829.71129	0	1746.672398	5.293673869	0
Santa Clara (SF)	2023	UBUS	Aggregate	Aggregate	Electricity	5.046756939	199.0027319	0	199.0027319	20.18702775	0	346.910342
Santa Clara (SF)	2023	UBUS	Aggregate	Aggregate	Natural Gas	42.26113832	4829.672688	4829.672688	0	169.0445533	0.799417876	0

EMFAC Fuel Usage: Year 2024

Vehicle type	GAS			DSL			NG			ELEC		
	VMT/day	Gallons/day	Miles/gallon	VMT/day	Gallons/day	Miles/gallon	VMT/day	Gallons/day	Miles/gallon	VMT/day	kWh/day	Miles/kWh
All other buses	0	0	0.00	50,130	5,754	8.71	469	61	7.68	0	0	0.00
LDA	22,671,912	755,873	29.99	51,573	1,182	43.63	0	0	0.00	2,858,258	1,071,122	2.67
LDT1	1,708,278	67,682	25.24	344	14	24.45	0	0	0.00	9,759	3,621	2.70
LDT2	10,367,135	428,695	24.18	37,944	1,163	32.63	0	0	0.00	105,914	36,657	2.89
LHD1	722,529	74,319	9.72	398,004	24,876	16.00	0	0	0.00	5,111	3,345	1.53
LHD2	91,453	10,569	8.65	183,558	13,776	13.32	0	0	0.00	1,253	808	1.55
MCY	166,022	3,940	42.14	0	0	0.00	0	0	0.00	0	0	0.00
MDV	5,493,355	275,693	19.93	86,293	3,476	24.82	0	0	0.00	86,263	30,985	2.78
MH	22,012	4,984	4.42	9,498	1,012	9.39	0	0	0.00	0	0	0.00
Motor coach	0	0	0.00	11,819	2,149	5.50	0	0	0.00	0	0	0.00
OBUS	19,894	4,131	4.82	0	0	0.00	0	0	0.00	93	102	0.90
PTO	0	0	0.00	25,538	5,159	4.95	0	0	0.00	128	265	0.48
SBUS	8,585	866	9.92	15,345	1,876	8.18	612	111	5.51	64	68	0.95
T6	71,600	14,960	4.79	434,044	51,336	8.45	4,304	601	7.16	1,660	1,841	0.90
T7	115	29	3.93	975,558	165,951	5.88	54,591	10,722	5.09	2,666	4,887	0.55
UBUS	4,812	519	9.28	48,918	5,304	9.22	4,865	805	6.04	235	410	0.57
Total	**41,347,705**	**1,642,259**	**25.18**	**2,328,566**	**283,029**	**8.23**	**64,842**	**12,301**	**5.27**	**3,071,404**	**1,154,111**	**2.66**

Source: EMFAC2021 (v1.0.1) Emissions Inventory
Region Type: Sub-Area
Region: Santa Clara (SF)
Calendar Year: 2024
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	Fuel Consumptio	Energy Consumption
Santa Clara (SF)	2024	All Other Buses	Aggregate	Aggregate	Diesel	808.4286685	50130.33539	50130.33539	0	7195.01515	5.753841967	0
Santa Clara (SF)	2024	All Other Buses	Aggregate	Aggregate	Natural Gas	7.057369964	469.3876372	469.3876372	0	62.81059268	0.061129651	0
Santa Clara (SF)	2024	LDA	Aggregate	Aggregate	Gasoline	600108.1665	22290343.74	22290343.74	0	2786616.833	742.9542167	0
Santa Clara (SF)	2024	LDA	Aggregate	Aggregate	Diesel	1750.023523	51573.47594	51573.47594	0	7442.609511	1.182172407	0
Santa Clara (SF)	2024	LDA	Aggregate	Aggregate	Electricity	57627.40336	2472767.413	0	2472767.413	282732.9828	0	954692.31
Santa Clara (SF)	2024	LDA	Aggregate	Aggregate	Plug-in Hybrid	17457.09878	767059.2064	381568.6693	385490.5371	72185.10346	12.91853974	116429.6317
Santa Clara (SF)	2024	LDT1	Aggregate	Aggregate	Gasoline	52693.36611	1706864.169	1706864.169	0	234793.4065	67.63364027	0
Santa Clara (SF)	2024	LDT1	Aggregate	Aggregate	Diesel	23.46232522	343.9307557	343.9307557	0	66.44458855	0.014069193	0
Santa Clara (SF)	2024	LDT1	Aggregate	Aggregate	Electricity	211.0028132	8008.645616	0	8008.645616	994.4346051	0	3091.998197
Santa Clara (SF)	2024	LDT1	Aggregate	Aggregate	Plug-in Hybrid	67.64577844	3164.460326	1414.302062	1750.158264	279.7152939	0.048157412	528.5999589
Santa Clara (SF)	2024	LDT2	Aggregate	Aggregate	Gasoline	285585.4354	10322758.41	10322758.41	0	1336438.482	427.1777266	0
Santa Clara (SF)	2024	LDT2	Aggregate	Aggregate	Diesel	1015.452853	37944.25501	37944.25501	0	4835.433637	1.162718893	0
Santa Clara (SF)	2024	LDT2	Aggregate	Aggregate	Electricity	1597.566708	55532.59168	0	55532.59168	8150.926864	0	21440.16374
Santa Clara (SF)	2024	LDT2	Aggregate	Aggregate	Plug-in Hybrid	2116.579549	94757.7077	44376.61329	50381.09441	8752.056437	1.517647285	15216.59211
Santa Clara (SF)	2024	LHD1	Aggregate	Aggregate	Gasoline	19314.14241	722529.3133	722529.3133	0	287751.9438	74.31877246	0
Santa Clara (SF)	2024	LHD1	Aggregate	Aggregate	Diesel	10107.73681	398004.1011	398004.1011	0	127142.6136	24.8758044	0
Santa Clara (SF)	2024	LHD1	Aggregate	Aggregate	Electricity	70.82835563	5110.544281	0	5110.544281	989.4272741	0	3345.3755
Santa Clara (SF)	2024	LHD2	Aggregate	Aggregate	Gasoline	2506.905697	91452.57471	91452.57471	0	37349.15959	10.56883592	0
Santa Clara (SF)	2024	LHD2	Aggregate	Aggregate	Diesel	4663.455482	183558.3761	183558.3761	0	58660.40334	13.77648219	0
Santa Clara (SF)	2024	LHD2	Aggregate	Aggregate	Electricity	18.33259331	1253.286273	0	1253.286273	242.6680052	0	808.0021761
Santa Clara (SF)	2024	MCY	Aggregate	Aggregate	Gasoline	28171.50953	166022.3441	166022.3441	0	56343.01906	3.939891772	0
Santa Clara (SF)	2024	MDV	Aggregate	Aggregate	Gasoline	156642.427	5468053.925	5468053.925	0	726101.0934	274.8145048	0
Santa Clara (SF)	2024	MDV	Aggregate	Aggregate	Diesel	2400.614538	86292.68513	86292.68513	0	11318.82209	3.47644065	0
Santa Clara (SF)	2024	MDV	Aggregate	Aggregate	Electricity	1678.684452	58660.62986	0	58660.62986	8578.49571	0	22647.84465
Santa Clara (SF)	2024	MDV	Aggregate	Aggregate	Plug-in Hybrid	1250.857088	52904.03132	25301.52107	27602.51025	5172.294058	0.878127631	8336.780782
Santa Clara (SF)	2024	MH	Aggregate	Aggregate	Gasoline	2420.569841	22012.30271	22012.30271	0	242.1538069	4.983865157	0
Santa Clara (SF)	2024	MH	Aggregate	Aggregate	Diesel	977.3606104	9498.302477	9498.302477	0	97.73606104	1.01191714	0
Santa Clara (SF)	2024	Motor Coach	Aggregate	Aggregate	Diesel	84.7088877	11818.71536	11818.71536	0	1946.610239	2.149164979	0
Santa Clara (SF)	2024	OBUS	Aggregate	Aggregate	Gasoline	443.1467338	19894.31417	19894.31417	0	8866.47985	4.131308494	0
Santa Clara (SF)	2024	OBUS	Aggregate	Aggregate	Electricity	1.087481377	92.50104822	0	92.50104822	21.7583274	0	102.4770081
Santa Clara (SF)	2024	PTO	Aggregate	Aggregate	Diesel	0	25537.63759	25537.63759	0	0	5.159458023	0
Santa Clara (SF)	2024	PTO	Aggregate	Aggregate	Electricity	0	128.0724498	0	128.0724498	0	0	265.3044834
Santa Clara (SF)	2024	SBUS	Aggregate	Aggregate	Gasoline	172.6947868	8584.865553	8584.865553	0	690.7791473	0.865530502	0
Santa Clara (SF)	2024	SBUS	Aggregate	Aggregate	Diesel	670.5958444	15345.26177	15345.26177	0	9710.227827	1.876081188	0
Santa Clara (SF)	2024	SBUS	Aggregate	Aggregate	Electricity	2.064666287	64.35501341	0	64.35501341	23.64639413	0	67.79514863
Santa Clara (SF)	2024	SBUS	Aggregate	Aggregate	Natural Gas	24.39950467	612.0940704	612.0940704	0	353.3048277	0.111007992	0
Santa Clara (SF)	2024	T6 CAIRP Class 4	Aggregate	Aggregate	Diesel	3.328145584	217.4041975	217.4041975	0	76.48078551	0.02438361	0
Santa Clara (SF)	2024	T6 CAIRP Class 4	Aggregate	Aggregate	Electricity	0.017014511	1.246201009	0	1.246201009	0.390993455	0	1.353727623
Santa Clara (SF)	2024	T6 CAIRP Class 5	Aggregate	Aggregate	Diesel	4.442495396	298.458622	298.458622	0	102.0885442	0.033466402	0
Santa Clara (SF)	2024	T6 CAIRP Class 5	Aggregate	Aggregate	Electricity	0.019456265	1.490406271	0	1.490406271	0.44710497	0	1.619003776
Santa Clara (SF)	2024	T6 CAIRP Class 6	Aggregate	Aggregate	Diesel	14.48042474	777.4252367	777.4252367	0	332.7601606	0.085852905	0
Santa Clara (SF)	2024	T6 CAIRP Class 6	Aggregate	Aggregate	Electricity	0.115434367	6.350155761	0	6.350155761	2.652681759	0	6.898069577
Santa Clara (SF)	2024	T6 CAIRP Class 7	Aggregate	Aggregate	Diesel	24.43022825	4898.412741	4898.412741	0	561.4066453	0.505914038	0
Santa Clara (SF)	2024	T6 CAIRP Class 7	Aggregate	Aggregate	Electricity	0.093570193	17.82268187	0	17.82268187	2.150243026	0	19.36048567
Santa Clara (SF)	2024	T6 Instate Delivery Class 4	Aggregate	Aggregate	Diesel	634.4377986	21302.87024	21302.87024	0	9053.427386	2.586568046	0
Santa Clara (SF)	2024	T6 Instate Delivery Class 4	Aggregate	Aggregate	Electricity	1.874927136	73.99764353	0	73.99764353	26.75521023	0	79.05013448
Santa Clara (SF)	2024	T6 Instate Delivery Class 4	Aggregate	Aggregate	Natural Gas	2.195385962	83.21655869	83.21655869	0	31.32815768	0.01234443	0
Santa Clara (SF)	2024	T6 Instate Delivery Class 5	Aggregate	Aggregate	Diesel	718.8192389	24623.62838	24623.62838	0	10257.55054	3.003350515	0
Santa Clara (SF)	2024	T6 Instate Delivery Class 5	Aggregate	Aggregate	Electricity	1.648008405	64.12022158	0	64.12022158	23.51707994	0	68.49829126
Santa Clara (SF)	2024	T6 Instate Delivery Class 5	Aggregate	Aggregate	Natural Gas	1.947737833	73.97759496	73.97759496	0	27.79421888	0.010730061	0
Santa Clara (SF)	2024	T6 Instate Delivery Class 6	Aggregate	Aggregate	Diesel	1385.299821	46980.44671	46980.44671	0	19768.22845	5.712124819	0
Santa Clara (SF)	2024	T6 Instate Delivery Class 6	Aggregate	Aggregate	Electricity	3.385248639	128.5564251	0	128.5564251	48.30749808	0	137.3341394
Santa Clara (SF)	2024	T6 Instate Delivery Class 6	Aggregate	Aggregate	Natural Gas	3.631895172	137.8780495	137.8780495	0	51.82714411	0.019894948	0
Santa Clara (SF)	2024	T6 Instate Delivery Class 7	Aggregate	Aggregate	Diesel	179.1996389	9846.451639	9846.451639	0	2557.178846	1.177598494	0
Santa Clara (SF)	2024	T6 Instate Delivery Class 7	Aggregate	Aggregate	Natural Gas	3.602323031	202.6823025	202.6823025	0	51.40514966	0.029532356	0
Santa Clara (SF)	2024	T6 Instate Other Class 4	Aggregate	Aggregate	Diesel	1110.945399	45768.82709	45768.82709	0	12842.52882	5.382815782	0
Santa Clara (SF)	2024	T6 Instate Other Class 4	Aggregate	Aggregate	Electricity	3.108095442	140.6851052	0	140.6851052	35.92958331	0	149.1376192
Santa Clara (SF)	2024	T6 Instate Other Class 4	Aggregate	Aggregate	Natural Gas	2.853241183	132.3563639	132.3563639	0	32.98346807	0.017586928	0
Santa Clara (SF)	2024	T6 Instate Other Class 5	Aggregate	Aggregate	Diesel	2184.026866	95221.49311	95221.49311	0	25247.35057	11.20353279	0
Santa Clara (SF)	2024	T6 Instate Other Class 5	Aggregate	Aggregate	Electricity	3.525688637	161.6745604	0	161.6745604	40.75696065	0	171.3881437
Santa Clara (SF)	2024	T6 Instate Other Class 5	Aggregate	Aggregate	Natural Gas	5.434173406	245.7668725	245.7668725	0	62.81904457	0.031691189	0
Santa Clara (SF)	2024	T6 Instate Other Class 6	Aggregate	Aggregate	Diesel	2116.183918	89853.22047	89853.22047	0	24463.0861	10.47500015	0
Santa Clara (SF)	2024	T6 Instate Other Class 6	Aggregate	Aggregate	Electricity	5.209690621	231.5269381	0	231.5269381	60.22402358	0	245.4373281
Santa Clara (SF)	2024	T6 Instate Other Class 6	Aggregate	Aggregate	Natural Gas	5.207174141	233.6364843	233.6364843	0	60.19493307	0.030188569	0
Santa Clara (SF)	2024	T6 Instate Other Class 7	Aggregate	Aggregate	Diesel	799.6658086	37841.60696	37841.60696	0	9244.136748	4.359717031	0
Santa Clara (SF)	2024	T6 Instate Other Class 7	Aggregate	Aggregate	Electricity	1.339815522	92.05562011	0	92.05562011	15.48826743	0	97.58642179
Santa Clara (SF)	2024	T6 Instate Other Class 7	Aggregate	Aggregate	Natural Gas	19.23696007	980.3840703	980.3840703	0	222.3792584	0.126683652	0
Santa Clara (SF)	2024	T6 Instate Tractor Class 6	Aggregate	Aggregate	Diesel	8.556321888	421.1964875	421.1964875	0	98.91108103	0.048188789	0
Santa Clara (SF)	2024	T6 Instate Tractor Class 6	Aggregate	Aggregate	Electricity	0.034609066	2.210091761	0	2.210091761	0.400080799	0	2.342876475
Santa Clara (SF)	2024	T6 Instate Tractor Class 6	Aggregate	Aggregate	Natural Gas	0.026178722	1.770952085	1.770952085	0	0.302626026	0.000218812	0
Santa Clara (SF)	2024	T6 Instate Tractor Class 7	Aggregate	Aggregate	Diesel	248.9877268	15154.88118	15154.88118	0	2878.298121	1.664762017	0
Santa Clara (SF)	2024	T6 Instate Tractor Class 7	Aggregate	Aggregate	Electricity	0.093356738	7.25809171	0	7.25809171	1.079203896	0	7.694165746
Santa Clara (SF)	2024	T6 Instate Tractor Class 7	Aggregate	Aggregate	Natural Gas	5.067853091	329.9235596	329.9235596	0	58.58438173	0.041658362	0
Santa Clara (SF)	2024	T6 OOS Class 4	Aggregate	Aggregate	Diesel	1.868040823	121.0132021	121.0132021	0	42.9275781	0.013507047	0
Santa Clara (SF)	2024	T6 OOS Class 5	Aggregate	Aggregate	Diesel	2.481882082	166.0083523	166.0083523	0	57.03365025	0.018539317	0
Santa Clara (SF)	2024	T6 OOS Class 6	Aggregate	Aggregate	Diesel	8.128898212	433.7845741	433.7845741	0	186.8020809	0.047588773	0
Santa Clara (SF)	2024	T6 OOS Class 7	Aggregate	Aggregate	Diesel	12.75969097	3154.15326	3154.15326	0	293.2176986	0.323369844	0
Santa Clara (SF)	2024	T6 Public Class 4	Aggregate	Aggregate	Diesel	138.3085514	4742.735974	4742.735974	0	709.5228687	0.616185918	0
Santa Clara (SF)	2024	T6 Public Class 4	Aggregate	Aggregate	Electricity	0.638800924	27.68091726	0	27.68091726	3.277048738	0	32.68841061
Santa Clara (SF)	2024	T6 Public Class 4	Aggregate	Aggregate	Natural Gas	6.928309451	291.1045084	291.1045084	0	35.54222749	0.044829904	0
Santa Clara (SF)	2024	T6 Public Class 5	Aggregate	Aggregate	Diesel	221.5489458	8210.34963	8210.34963	0	1136.546092	1.052656748	0
Santa Clara (SF)	2024	T6 Public Class 5	Aggregate	Aggregate	Electricity	0.843905972	36.46950986	0	36.46950986	4.329237638	0	43.06686452
Santa Clara (SF)	2024	T6 Public Class 5	Aggregate	Aggregate	Natural Gas	13.82896159	570.1170055	570.1170055	0	70.94257295	0.08591589	0
Santa Clara (SF)	2024	T6 Public Class 6	Aggregate	Aggregate	Diesel	128.8250087	4447.105972	4447.105972	0	660.8722947	0.582858165	0
Santa Clara (SF)	2024	T6 Public Class 6	Aggregate	Aggregate	Electricity	0.6191835	25.70413868	0	25.70413868	3.176411356	0	30.35403169
Santa Clara (SF)	2024	T6 Public Class 6	Aggregate	Aggregate	Natural Gas	5.780531989	242.1791583	242.1791583	0	29.6541291	0.036311142	0
Santa Clara (SF)	2024	T6 Public Class 7	Aggregate	Aggregate	Diesel	301.4444364	13590.05173	13590.05173	0	1546.409959	1.744512156	0
Santa Clara (SF)	2024	T6 Public Class 7	Aggregate	Aggregate	Electricity	1.380752514	91.7636359	0	91.7636359	7.083260394	0	108.3637288
Santa Clara (SF)	2024	T6 Public Class 7	Aggregate	Aggregate	Natural Gas	12.81129542	696.7002652	696.7002652	0	65.72194548	0.102376386	0
Santa Clara (SF)	2024	T6 Utility Class 5	Aggregate	Aggregate	Diesel	101.3496958	4117.843186	4117.843186	0	1297.276106	0.465650551	0

Santa Clara (SF)	2024	T6 Utility Class 5	Aggregate	Aggregate	Electricity	0.781021381	33.978473	0	33.978473	9.997073675	0	38.05804358
Santa Clara (SF)	2024	T6 Utility Class 5	Aggregate	Aggregate	Natural Gas	1.344532413	52.70809581	52.70809581	0	17.21001488	0.007200102	0
Santa Clara (SF)	2024	T6 Utility Class 6	Aggregate	Aggregate	Diesel	19.23599189	777.7357488	777.7357488	0	246.2206962	0.087639958	0
Santa Clara (SF)	2024	T6 Utility Class 6	Aggregate	Aggregate	Electricity	0.145737857	6.340351169	0	6.340351169	1.865444565	0	7.101595211
Santa Clara (SF)	2024	T6 Utility Class 6	Aggregate	Aggregate	Natural Gas	0.266674953	10.49491273	10.49491273	0	3.4134394	0.001424527	0
Santa Clara (SF)	2024	T6 Utility Class 7	Aggregate	Aggregate	Diesel	21.77302834	1076.488565	1076.488565	0	278.6947628	0.120617494	0
Santa Clara (SF)	2024	T6 Utility Class 7	Aggregate	Aggregate	Electricity	0.174265519	10.33920585	0	10.33920585	2.230598641	0	11.58056593
Santa Clara (SF)	2024	T6 Utility Class 7	Aggregate	Aggregate	Natural Gas	0.431256952	18.68444543	18.68444543	0	5.520088984	0.002528524	0
Santa Clara (SF)	2024	T6TS	Aggregate	Aggregate	Gasoline	1414.551675	71600.35148	71600.35148	0	28302.34992	14.95972983	0
Santa Clara (SF)	2024	T6TS	Aggregate	Aggregate	Electricity	5.86743085	499.0830329	0	499.0830329	117.3955565	0	582.1504206
Santa Clara (SF)	2024	T7 CAIRP Class 8	Aggregate	Aggregate	Diesel	1023.529883	206293.0271	206293.0271	0	23520.71671	33.7732886	0
Santa Clara (SF)	2024	T7 CAIRP Class 8	Aggregate	Aggregate	Electricity	6.238437827	1107.385686	0	1107.385686	143.3593013	0	2022.0044
Santa Clara (SF)	2024	T7 CAIRP Class 8	Aggregate	Aggregate	Natural Gas	2.329348177	474.4702335	474.4702335	0	53.52842111	0.084191057	0
Santa Clara (SF)	2024	T7 NNOOS Class 8	Aggregate	Aggregate	Diesel	921.2314611	246811.7997	246811.7997	0	21169.89898	39.70465453	0
Santa Clara (SF)	2024	T7 NOOS Class 8	Aggregate	Aggregate	Diesel	388.1022222	89683.26687	89683.26687	0	8918.589066	14.66744398	0
Santa Clara (SF)	2024	T7 Other Port Class 8	Aggregate	Aggregate	Diesel	107.2245115	19735.48995	19735.48995	0	1754.193008	3.320312421	0
Santa Clara (SF)	2024	T7 Other Port Class 8	Aggregate	Aggregate	Electricity	0.186127947	39.70313629	0	39.70313629	3.045053206	0	72.25840726
Santa Clara (SF)	2024	T7 POAK Class 8	Aggregate	Aggregate	Diesel	689.4275811	68391.97782	68391.97782	0	11279.03523	11.72171204	0
Santa Clara (SF)	2024	T7 POAK Class 8	Aggregate	Aggregate	Electricity	1.59968582	126.5767064	0	126.5767064	26.17086002	0	230.3654586
Santa Clara (SF)	2024	T7 POAK Class 8	Aggregate	Aggregate	Natural Gas	0.342244758	33.07113049	33.07113049	0	5.599124245	0.005825247	0
Santa Clara (SF)	2024	T7 Public Class 8	Aggregate	Aggregate	Diesel	670.4398094	28942.50982	28942.50982	0	3439.356222	5.533060238	0
Santa Clara (SF)	2024	T7 Public Class 8	Aggregate	Aggregate	Electricity	2.254791911	141.5795849	0	141.5795849	11.56708251	0	277.8616244
Santa Clara (SF)	2024	T7 Public Class 8	Aggregate	Aggregate	Natural Gas	2.870352085	140.7081652	140.7081652	0	14.7249062	0.03057411	0
Santa Clara (SF)	2024	T7 Single Concrete/Transit Mix C	Aggregate	Aggregate	Diesel	408.1790286	28702.03899	28702.03899	0	3845.04645	4.867218796	0
Santa Clara (SF)	2024	T7 Single Concrete/Transit Mix C	Aggregate	Aggregate	Electricity	3.614491914	256.0499498	0	256.0499498	34.04851383	0	466.8185347
Santa Clara (SF)	2024	T7 Single Concrete/Transit Mix C	Aggregate	Aggregate	Natural Gas	26.26248282	1875.457005	1875.457005	0	247.3925881	0.326087263	0
Santa Clara (SF)	2024	T7 Single Dump Class 8	Aggregate	Aggregate	Diesel	679.562021	41217.69999	41217.69999	0	6401.474238	7.139089704	0
Santa Clara (SF)	2024	T7 Single Dump Class 8	Aggregate	Aggregate	Electricity	1.343535761	101.2579346	0	101.2579346	12.65610687	0	184.608826
Santa Clara (SF)	2024	T7 Single Dump Class 8	Aggregate	Aggregate	Natural Gas	43.50263608	2797.926328	2797.926328	0	409.7948319	0.514578791	0
Santa Clara (SF)	2024	T7 Single Other Class 8	Aggregate	Aggregate	Diesel	944.6411268	50775.23976	50775.23976	0	8898.519415	8.637741776	0
Santa Clara (SF)	2024	T7 Single Other Class 8	Aggregate	Aggregate	Electricity	4.593637967	287.6905724	0	287.6905724	43.27206965	0	524.5042678
Santa Clara (SF)	2024	T7 Single Other Class 8	Aggregate	Aggregate	Natural Gas	57.62813317	3244.285374	3244.285374	0	542.8570144	0.5836213	0
Santa Clara (SF)	2024	T7 SWCV Class 8	Aggregate	Aggregate	Diesel	293.9981196	19080.16688	19080.16688	0	1352.39135	7.76723316	0
Santa Clara (SF)	2024	T7 SWCV Class 8	Aggregate	Aggregate	Electricity	1.871813884	112.2231148	0	112.2231148	8.610343864	0	208.7967953
Santa Clara (SF)	2024	T7 SWCV Class 8	Aggregate	Aggregate	Natural Gas	366.0903861	23674.41365	23674.41365	0	1684.015776	5.182716586	0
Santa Clara (SF)	2024	T7 Tractor Class 8	Aggregate	Aggregate	Diesel	2287.042579	172614.4353	172614.4353	0	33230.72867	28.24875256	0
Santa Clara (SF)	2024	T7 Tractor Class 8	Aggregate	Aggregate	Electricity	6.467549417	482.4176479	0	482.4176479	93.97349303	0	878.3425391
Santa Clara (SF)	2024	T7 Tractor Class 8	Aggregate	Aggregate	Natural Gas	295.3753806	22350.93859	22350.93859	0	4291.80428	3.994610798	0
Santa Clara (SF)	2024	T7 Utility Class 8	Aggregate	Aggregate	Diesel	73.3151002	3310.166935	3310.166935	0	938.4332825	0.570166581	0
Santa Clara (SF)	2024	T7 Utility Class 8	Aggregate	Aggregate	Electricity	0.154802559	9.781757825	0	9.781757825	1.981472761	0	18.41707684
Santa Clara (SF)	2024	T7IS	Aggregate	Aggregate	Gasoline	2.588707958	115.1525769	115.1525769	0	51.79486882	0.029295453	0
Santa Clara (SF)	2024	T7IS	Aggregate	Aggregate	Electricity	0.005511144	1.522048574	0	1.522048574	0.110266975	0	3.058303763
Santa Clara (SF)	2024	UBUS	Aggregate	Aggregate	Gasoline	46.08313217	4812.450683	4812.450683	0	184.3325287	0.518830212	0
Santa Clara (SF)	2024	UBUS	Aggregate	Aggregate	Diesel	437.474468	48917.60551	48917.60551	0	1749.897872	5.304044181	0
Santa Clara (SF)	2024	UBUS	Aggregate	Aggregate	Electricity	5.347565451	235.0625504	0	235.0625504	21.3902618	0	409.7714086
Santa Clara (SF)	2024	UBUS	Aggregate	Aggregate	Natural Gas	42.58695876	4865.187143	4865.187143	0	170.347835	0.805345778	0

APPENDIX B: CONSTRUCTION HEALTH RISK ASSESSMENT

1. Health isk Assessment

1.1 CO S R C O EA R S ASSESSME

Apple Inc. (the project applicant) proposes to redevelop the project site located at 19191 Vallco Parkway in Cupertino, California with a new office building. The proposed project would involve demolishing the existing office building and redeveloping the approximately 7.96-acre site with a four-story, office building with commercial space, and an automobile parking garage with two underground levels. The site is currently developed with an office building operated by the project applicant, with associated surface parking and landscaping. The following provides the background methodology used for the construction health risk assessment for the proposed project.

The latest version of the Bay Area Air Quality Management District (BAAQMD) CEQA Air Quality Guidelines requires projects to evaluate the impacts of construction activities on sensitive receptors (BAAQMD, 2017). Project construction is anticipated to take place starting at the beginning of May 2023 and be completed by November 2024 (approximately 395 workdays). The nearest sensitive receptors to the project site include the multi-family residences to the west. Additional sensitive receptors within 1,000 feet of the site are preschool children at Sunflower Learning Center, approximately 850 feet to the south and Cupertino High School students, approximately 930 feet to the south. The BAAQMD has developed *Screening Tables for Air Toxics Evaluation During Construction* (2017) that evaluate construction-related health risks associated with residential, commercial, and industrial projects. According to the screening tables, the receptors are closer than the distance of 200 meters (656 feet) that would screen out potential health risks and, therefore, could be potentially impacted from the proposed construction activities. As a result, a site-specific construction health risk assessment (HRA) has been prepared for the proposed project. This HRA considers the health impact to off-site sensitive receptors (i.e., children at the nearby residences, preschool, and high school) from construction emissions at the project site, including diesel equipment exhaust (diesel particulate matter or DPM) and particulate matter less than 2.5 microns ($PM_{2.5}$).

It should be noted that these health impacts are based on conservative (i.e., health protective) assumptions. The United States Environmental Protection Agency (USEPA, 2005) and the Office of Environmental Health Hazard Assessment (OEHHA, 2015) note that conservative assumptions used in a risk assessment are intended to ensure that the estimated risks do not underestimate the actual risks. Therefore, the estimated risks may not necessarily represent actual risks experienced by populations at or near a site. The use of conservative assumptions tends to produce upper-bound estimates of exposure and thus risk.

For residential-based receptors, the following conservative assumptions were used:

- It was assumed that maximum-exposed off-site residential receptors (both children and adults) stood outdoors and are subject to DPM at their residence for 8 hours per day, and approximately 260 construction days per year. In reality, California residents typically will spend on average 2 hours per day outdoors at their residences (USEPA, 2011). This would result in lower exposures to construction related DPM emissions and lower estimated risk values.

- The calculated risk for infants from third trimester to age 2 is multiplied by a factor of 10 to account for early life exposure and uncertainty in child versus adult exposure impacts (OEHHA, 2015).

For preschool children and high school students, the following conservative assumptions were used:

- It was assumed that maximum exposed receptor (preschool child or high school student) stood outside and are subject to DPM for 8 hours per weekday and approximately 260 construction days per year.
- The calculated risk for children age 2 to age 16 is multiplied by a factor of 3 to account for early life exposure and uncertainty in child versus adult exposure impacts (OEHHA, 2015).

1.2 ME ODO OG A D S G F CA CE RES O DS

For this HRA, the BAAQMD significance thresholds were deemed to be appropriate and the thresholds that were used for this project are shown below:

- Excess cancer risk of more than 10 in a million
- Non-cancer hazard index (chronic or acute) greater than 1.0
- Incremental increase in average annual $PM_{2.5}$ concentration of greater than 0.3 μg/m^3

The methodology used in this HRA is consistent with the following BAAQMD and the OEHHA guidance documents:

- BAAQMD, 2017. *California Environmental Quality Act (CEQA) Air Quality Guidelines*. May 2017.
- BAAQMD, 2016. *Planning Healthy Places*. May 2016.
- BAAQMD, 2010. *Screening Tables for Air Toxics Evaluation During Construction*. May 2010.
- BAAQMD, 2012. *Recommended Methods for Screening and Modeling Local Risks and Hazards*. Version 3.0. May 2012.
- OEHHA. 2015. *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments*. February 2015.

Potential exposures to DPM and $PM_{2.5}$ from proposed project construction were evaluated for off-site sensitive receptors in close proximity to the site. Pollutant concentrations were estimated using an air dispersion model, and excess lifetime cancer risks and chronic non-cancer hazard indexes were calculated. These risks were then compared to the significance thresholds adopted for this HRA.

1.3 CO S R C O EM SSO S

Construction emissions were calculated as average daily emissions in pounds per day, using the proposed construction schedule and the latest version of California Emissions Estimation Model, known as CalEEMod Version 2020.4 (CAPCOA, 2021). DPM emissions were based on the CalEEMod construction runs, using annual exhaust PM_{10} construction emissions presented in pounds (lbs) per day. The $PM_{2.5}$ emissions were taken from the CalEEMod output for exhaust $PM_{2.5}$ also presented in lbs per day.

The project was assumed to take place over 18 months (395 workdays) from May 2023 to November 2024. The average daily emission rates from construction equipment used during the proposed project were determined by dividing the annual average emissions for each construction year by the number of construction days per year for each calendar year of construction (i.e., 2023 and 2024). The off-site hauling emission rates were adjusted to evaluate localized emissions from the 0.72-mile haul route within 1,000 feet of the project site. The CalEEMod construction emissions output and emission rate calculations are provided in Appendix A of the HRA.

1.4 D S ERS O MODE G

Air quality modeling was performed using the AERMOD atmospheric dispersion model to assess the impact of emitted compounds on sensitive receptors near the project. The model is a steady state Gaussian plume model and is an approved model by BAAQMD for estimating ground level impacts from point and fugitive sources in simple and complex terrain. The on-site construction emissions for the project were modeled as poly-area sources. The off-site mobile sources were modeled as adjacent line volume sources. The model requires additional input parameters, including chemical emission data and local meteorology. Inputs for the construction emission rates are those described in Section 1.3. Meteorological data obtained from the BAAQMD for the nearest representative meteorological station (Moffett Federal Airfield Airport) with the five latest available years (2009 to 2013) of record were used to represent local weather conditions and prevailing winds.

The modeling analysis also considered the spatial distribution and elevation of each emitting source in relation to the sensitive receptors. To accommodate the model's Cartesian grid format, direction-dependent calculations were obtained by identifying the Universal Transverse Mercator (UTM) coordinates for each source location. In addition, digital elevation model (DEM) data for the area were obtained and included in the model runs to account for complex terrain. An emission release height of 4.15 meters was used as representative of the stack exhaust height for off-road construction equipment and diesel truck traffic, and an initial vertical dispersion parameter of 1.93 m was used, per California Air Resources Board (CARB) guidance (2000).

To determine contaminant impacts during construction hours, the model's Season-Hour-Day (HRDOW) scalar option was invoked to predict flagpole-level concentrations (1.5 m for ground floor receptors; 6.1 m for 2^{nd} floor receptors) for construction emissions generated between the hours of 7:00 AM and 4:00 PM with a 1-hour lunch break. In addition, a scalar factor was applied to the risk calculations to account for the number of days receptors are exposed to construction emissions per year.

A unit emission rate of 1 gram per second was used for all modeling runs. The unit emission rates were proportioned over the poly-area sources for on-site construction emissions and divided between the volume sources for off-site hauling emissions. The maximum modeled concentrations from the output files were then multiplied by the emission rates calculated in Appendix A to obtain the maximum flagpole-level concentrations at the off-site maximum exposed receptors (MER). The air dispersion modeling predicted the off-site MER is a multi-family residence south of the site. The MER location is the receptor location associated with the maximum predicted AERMOD concentrations from the on-site emission source. The calculated on-site emission rates are approximately 3 orders of magnitude higher than the calculated off-site emission rates (see Appendix A). Therefore, the maximum concentrations associated with the on-site emission sources produce the highest overall ground-level MER concentrations and, consequently, highest calculated health risks.

The air dispersion model output for the emission sources is presented in Appendix B. The model output DPM and $PM_{2.5}$ concentrations from the construction emission sources are provided in Appendix C.

1.5 R S C ARAC ER A O

1.5.1 Carcinogenic Chemical Ris

A threshold of ten in a million ($10x10^{-6}$) has been established as a level posing no significant risk for exposures to carcinogens. Health risks associated with exposure to carcinogenic compounds can be defined in terms of the probability of developing cancer as a result of exposure to a chemical at a given concentration. The cancer risk probability is determined by multiplying the chemical's annual concentration by its cancer potency factor (CPF), a measure of the carcinogenic potential of a chemical when a dose is received through the inhalation pathway. It is an upper-limit estimate of the probability of contracting cancer as a result of continuous exposure to an ambient concentration of one microgram per cubic meter ($\mu g/m^3$) over a lifetime of 70 years.

Recent guidance from OEHHA recommends a refinement to the standard point estimate approach with the use of age-specific breathing rates and age sensitivity factors (ASFs) to assess risk for susceptible subpopulations such as children. For the inhalation pathway, the procedure requires the incorporation of several discrete variates to effectively quantify dose for each age group. Once determined, contaminant dose is multiplied by the cancer potency factor in units of inverse dose expressed in milligrams per kilogram per day $(mg/kg/day)^{-1}$ to derive the cancer risk estimate. Therefore, to accommodate the unique exposures associated with the sensitive receptors, the following dose algorithm was used.

$$\mathrm{Dose}_{\mathrm{AIR,per\ age\ group}} = (\mathrm{C}_{\mathrm{air}} \times \mathrm{EF} \times [\frac{\mathrm{BR}}{\mathrm{BW}}] \times \mathrm{A} \times \mathrm{CF})$$

Where:

$Dose_{AIR}$	=	dose by inhalation (mg/kg-day), per age group
C_{air}	=	concentration of contaminant in air ($\mu g/m^3$)
EF	=	exposure frequency (number of days/365 days)
BR/BW	=	daily breathing rate normalized to body weight (L/kg-day)

A	=	inhalation absorption factor (default = 1)
CF	=	conversion factor ($1x10^{-6}$, µg to mg, L to m^3)

The inhalation absorption factor (A) is a unitless factor that is only used if the cancer potency factor included a correction for absorption across the lung. The default value of 1 was used for this assessment. For residential receptors, the exposure frequency (EF) of 0.96 is used to represent 350 days per year to allow for a two-week period away from home each year (OEHHA, 2015). The 95th percentile daily breathing rates (BR/BW), exposure duration (ED), age sensitivity factors (ASFs), and fraction of time at home (FAH) for the various age groups are provided herein:

Age Groups	BR/BW (L/kg-day)	ED	ASF	FAH
Third trimester	361	0.25	10	0.85
0-2 age group	1,090	2	10	0.85
2-9 age group	861	7	3	0.72
2-16 age group	745	14	3	0.72
16-30 age group	335	14	1	0.73
16-70 age group	290	54	1	0.73

For construction analysis, the exposure duration spans the length of construction (e.g., 395 work days, approximately 1.5 years). As the length of construction is less than 2 years, only the third trimester and 0-2 age bins apply to the construction analysis for the off-site residential receptors.

To represent the unique characteristics of high school student and preschool populations, the assessment employed the USEPA's guidance to develop viable dose estimates based on reasonable maximum exposure, defined as the "highest exposure that is reasonably expected to occur" for a given receptor population. Lifetime risk values for the population at Sunflower Learning Center were adjusted to account for an exposure of 250 days per year (age 2 to 5 years). In addition, the calculated risk for children is multiplied by an ASF weighting factor of 3 (for children ages 2 to 5) to account for early life sensitivity to pollutant exposures (OEHHA, 2015). Lifetime risk values for the high school student population were adjusted to account for an exposure of 180 days per year for 4 years (9th to 12th grade). In addition, the calculated risk for students is multiplied by an ASF weighting factor of 3 (for children ages 2 to 16) to account for early life sensitivity to pollutant exposures (OEHHA, 2015). To calculate the overall cancer risk, the risk for each appropriate age group is calculated per the following equation:

$$\text{Cancer Risk}_{\text{AIR}} = \text{Dose}_{\text{AIR}} \times \text{CPF} \times \text{ASF} \times \text{FAH} \times \frac{\text{ED}}{AT}$$

Where:

$Dose_{AIR}$	=	dose by inhalation (mg/kg-day), per age group
CPF	=	cancer potency factor, chemical-specific $(mg/kg\text{-}day)^{-1}$
ASF	=	age sensitivity factor, per age group
FAH	=	fraction of time at home, per age group (for residential receptors only)
ED	=	exposure duration (years)
AT	=	averaging time period over which exposure duration is averaged (70 years)

The CPFs used in the assessment were obtained from OEHHA guidance. The excess lifetime cancer risks during the construction period to the maximally exposed resident were calculated based on the factors provided above. The cancer risks for each age group are summed to estimate the total cancer risk for each toxic chemical species. The final step converts the cancer risk in scientific notation to a whole number that expresses the cancer risk in "chances per million" by multiplying the cancer risk by a factor of $1x10^6$ (i.e. 1 million).

The calculated results are provided in Appendix C.

1.5.2 on-Carcinogenic a ards

An evaluation was also conducted of the potential non-cancer effects of chronic chemical exposures. Adverse health effects are evaluated by comparing the annual receptor level (flagpole) concentration of each chemical compound with the appropriate reference exposure limit (REL). Available RELs promulgated by OEHHA were considered in the assessment.

The hazard index approach was used to quantify non-carcinogenic impacts. The hazard index assumes that chronic sub-threshold exposures adversely affect a specific organ or organ system (toxicological endpoint). Target organs presented in regulatory guidance were used for each discrete chemical exposure. To calculate the hazard index, each chemical concentration or dose is divided by the appropriate toxicity value. This ratio is summed for compounds affecting the same toxicological endpoint. A health hazard is presumed to exist where the total equals or exceeds one.

The chronic hazard analysis for DPM is provided in Appendix C. The calculations contain the relevant exposure concentrations and corresponding reference dose values used in the evaluation of non-carcinogenic exposures.

1.5.3 Criteria ollutants

The BAAQMD has recently incorporated $PM_{2.5}$ into the District's CEQA significance thresholds due to recent studies that show adverse health impacts from exposure to this pollutant. An incremental increase of greater than 0.3 $\mu g/m^3$ for the annual average $PM_{2.5}$ concentration is considered to be a significant impact.

1.6 CO S R C O RA RES S

The calculated results are provided in Appendix C and the results are summarized in Table 1.

TABLE 1. CONSTRUCTION RISK SUMMARY - UNMITIGATED

Receptor	Cancer Risk (per million)	Chronic Hazards	$PM_{2.5}$ (µg/m³)
Maximum xposed eceptor Off site esident	8.6	0.019	0.05
Sunflower Learnin Center Preschool Student	0.3	0.003	0.01
Cupertino Hi h School Student	0.3	0.006	0.01
BAA MD Threshold	10	1.0	0.30
Exceeds hreshold	o	o	o

Note: Cancer risk calculated using 2015 OEHHA HRA guidance.

Cancer risk for the residential MER from project-related construction emissions was calculated to be 8.6 in a million, which would not exceed the 10 in a million significance threshold. In accordance with the latest 2015 OEHHA guidance, the calculated total cancer risk conservatively assumes that the risk for the residential MER consists of a pregnant woman in the third trimester that subsequently gives birth to an infant during the approximately 18-month construction period; therefore, all calculated residential risk values were multiplied by a factor of 10. In addition, it was conservatively assumed that the residents were outdoors 8 hours a day, 260-261 construction days per year and exposed to all of the daily construction emissions. In addition, the cancer risk for the maximum exposed preschool and high school receptor was calculated to be 0.3 in a million, for both, which would not exceed the significance threshold.

For non-carcinogenic effects, the chronic hazard index identified for each toxicological endpoint totaled less than one for all the off-site sensitive receptors. Therefore, chronic non-carcinogenic hazards are within acceptable limits. For the residential MER, the maximum annual $PM_{2.5}$ concentration of 0.05 $\mu g/m^3$ would not exceed the BAAQMD significance threshold of 0.3 micrograms per cubic meter ($\mu g/m^3$). In addition, the preschool and high school receptors' maximum annual $PM_{2.5}$ concentration of 0.01 $\mu g/m^3$ each would also not exceed the BAAQMD significance threshold. Therefore, the project would not expose off-site sensitive receptors to substantial concentrations of air pollutant emissions during construction and impacts would be *less than significant*.

2. eferences

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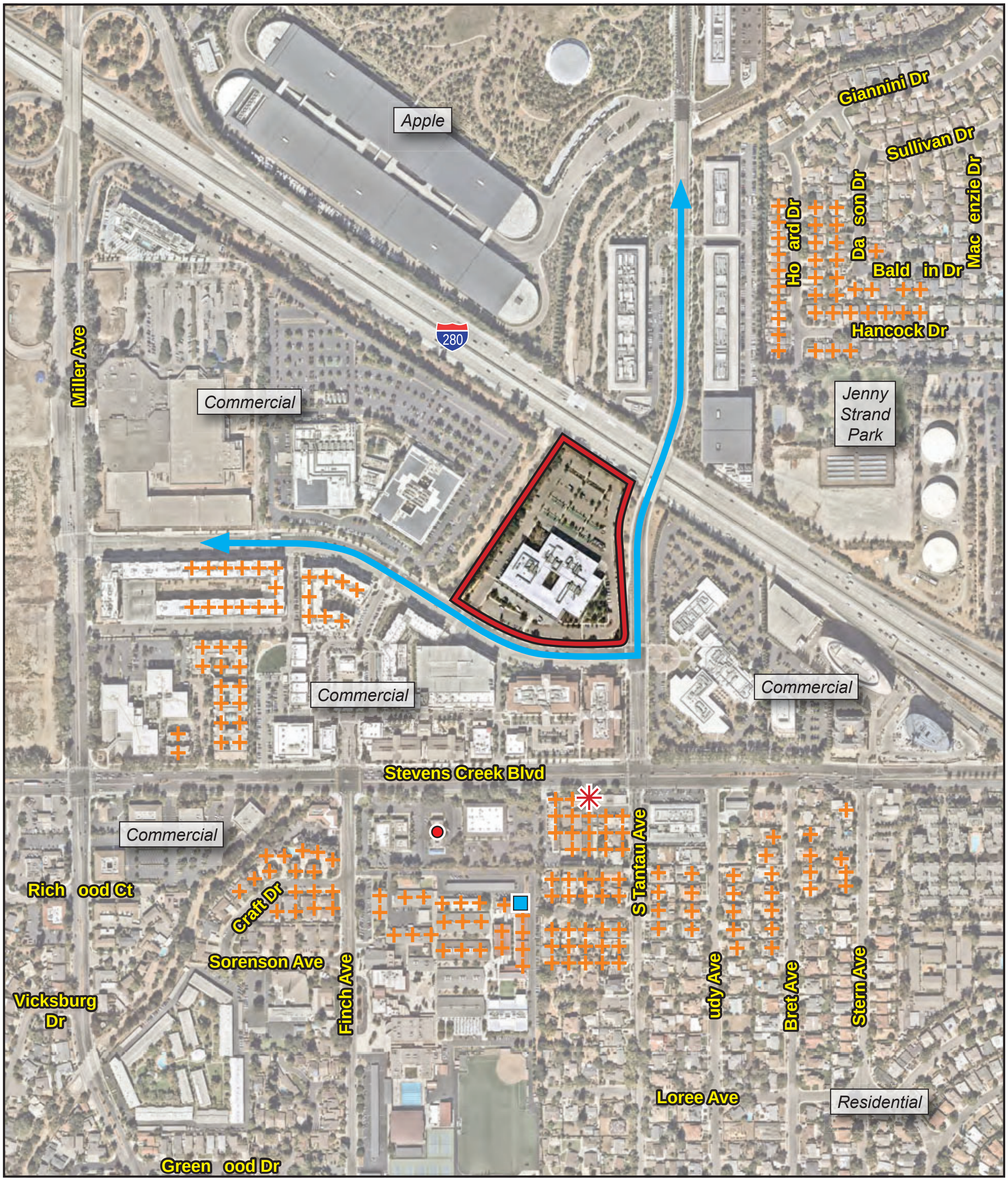
Figure 1 - Project Site and Offsite Receptor Locations



Project Site

Truck Route

Maximum Exposed Receptor - Residential

Maximum Exposed Receptor - Preschool

Maximum Exposed Receptor - High School

Receptors

0 575
Scale (Feet)

Source: Nearmap, 2021

Appendix A. Emission Rate Calculations

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 ea construction equipment is onsite.

Total Construction Days	2023	2024	Calendar Days
395	175	220	551

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
Total	4	23	25	0	3.00	0.85	4	0.99	0.80
BAAQMD Threshold	54	54	NA	NA	BMP	82	54	BMP	54
Exceeds Threshold	No	No	NA	NA	NA	No	No	NA	No

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)
2023	0.77	9.63E-02	1.21E-02
2024	0.83	1.04E-01	1.31E-02

Onsite Construction PM2.5 Exhaust Emissions[2]

Average Daily Emissions (lbs/day)	Average Daily Emissions (lbs/hr)	Emission Rate (g/s)
0.71	8.92E-02	1.12E-02
0.79	9.86E-02	1.24E-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)
2023	5.85E-02	2.09E-03	2.62E-04	3.30E-05
2024	3.22E-02	1.15E-03	1.44E-04	1.81E-05

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)
5.58E-02	2.00E-03	2.49E-04	3.14E-05
3.05E-02	1.09E-03	1.37E-04	1.72E-05

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]
2023	175	0.67
2024	220	0.84

[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).

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	0.73	4.59	4.95	0.01	0.59	0.17	0.76	0.19	0.16	0.35

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	0.64	3.47	4.07	0.01	0.25	0.16	0.41	0.10	0.15	0.25
Total Offsite	0.09	1.12	0.88	0.01	0.34	0.01	0.35	0.09	0.01	0.10
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
2023 Onsite	0.15	1.50	1.35	0.00	0.25	0.07	0.32	0.10	0.06	0.16
2023 Offsite	0.02	0.64	0.24	0.00	0.10	0.01	0.11	0.03	0.00	0.03
2024 Onsite	0.49	1.97	2.72	0.00	0.00	0.09	0.09	0.00	0.09	0.09
2024 Offsite	0.07	0.48	0.65	0.00	0.24	0.00	0.24	0.07	0.00	0.07

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 2023	0.17	2.14	1.59	0.01	0.35	0.07	0.42	0.13	0.07	0.20
Total 2024	0.56	2.45	3.37	0.01	0.24	0.10	0.34	0.07	0.09	0.16
Construction Total	0.73	4.59	4.95	0.01	0.59	0.17	0.76	0.19	0.16	0.35
Check	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.2 Demolition (Building + Asphalt) - 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					0.00	0.00	0.00	0.00	0.00	0.00
Offroad	0.02	0.21	0.20	0.00		0.01	0.01		0.01	0.01
Total	0.02	0.21	0.20	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 - 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					0.02	0.00	0.02	0.00	0.00	0.00
Off-Road	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	0.02	0.00	0.02	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	0.04	0.01	0.00	0.01	0.00	0.01	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	0.04	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00

3.4 Asphalt Demolition Debris Haul - 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					0.05	0.00	0.05	0.01	0.00	0.01
Off-Road	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	0.05	0.00	0.05	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	0.02	0.01	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	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.5 Site Preparation - 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						0.02	0.00	0.02	0.01	0.00	0.01
Off-Road		0.01	0.07	0.05	0.00		0.00	0.00		0.00	0.00
Total		0.01	0.07	0.05	0.00	0.02	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

3.6 Rough 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						0.03	0.00	0.03	0.01	0.00	0.01
Off-Road		0.02	0.18	0.15	0.00		0.01	0.01		0.01	0.01
Total		0.02	0.18	0.15	0.00	0.03	0.01	0.04	0.01	0.01	0.02

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

3.7 Rough Grading Soil Haul - 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						0.00	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
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		0.01	0.50	0.12	0.00	0.06	0.00	0.06	0.02	0.00	0.02
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		0.01	0.50	0.12	0.00	0.06	0.00	0.06	0.02	0.00	0.02

3.8 Fine Grading/Trenching - 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						0.14	0.00	0.14	0.07	0.00	0.07
Off-Road		0.08	0.81	0.66	0.00		0.03	0.03		0.03	0.03
Total		0.08	0.81	0.66	0.00	0.14	0.03	0.17	0.07	0.03	0.10

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	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.01	0.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00

3.9 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		0.03	0.23	0.30	0.00	0.00	0.01	0.01	0.00	0.01	0.01
Total		0.03	0.23	0.30	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	0.05	0.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Worker		0.01	0.00	0.06	0.00	0.02	0.00	0.02	0.01	0.00	0.01
Total		0.01	0.06	0.08	0.00	0.03	0.00	0.03	0.01	0.00	0.01

3.9 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		0.10	0.92	1.26	0.00	0.00	0.04	0.04	0.00	0.04	0.04
Total		0.10	0.92	1.26	0.00	0.00	0.04	0.04	0.00	0.04	0.04

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		0.01	0.22	0.07	0.00	0.03	0.00	0.03	0.01	0.00	0.01
Worker		0.03	0.02	0.24	0.00	0.09	0.00	0.09	0.02	0.00	0.02
Total		0.03	0.23	0.31	0.00	0.12	0.00	0.12	0.03	0.00	0.03

3.10 Parking Structure 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		0.11	0.97	1.34	0.00	0.00	0.05	0.05	0.00	0.04	0.04
Total		0.11	0.97	1.34	0.00	0.00	0.05	0.05	0.00	0.04	0.04

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		0.01	0.23	0.07	0.00	0.03	0.00	0.03	0.01	0.00	0.01
Worker		0.03	0.02	0.26	0.00	0.09	0.00	0.09	0.02	0.00	0.02
Total		0.03	0.25	0.33	0.00	0.12	0.00	0.12	0.03	0.00	0.04

3.11 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	0.05	0.07	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
Total		0.01	0.05	0.07	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		0.27				0.00	0.00	0.00	0.00	0.00	0.00
Off Road		0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.27	0.01	0.02	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

3.13 Finishing/Landscaping - 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	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.01	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

Appendix B. Air Dispersion Model Output

Model Output

Unit Emission Rates (1 g/s)

```
*** AERMOD - VERSION  19191 ***   *** COCU-21 Construction HRA                                                     ***        11/07/21
*** AERMET - VERSION  14134 ***   *** Cupertino                                                                    ***        23:35:55
                                                                                                                              PAGE   1
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                          ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

**Model Is Setup For Calculation of Average CONCentration Values.

  --  DEPOSITION LOGIC  --
**NO GAS DEPOSITION Data Provided.
**NO PARTICLE DEPOSITION Data Provided.
**Model Uses NO DRY DEPLETION.  DRYDPLT  =  F
**Model Uses NO WET DEPLETION.  WETDPLT  =  F

**Model Uses URBAN Dispersion Algorithm for the SBL for    53 Source(s),
  for Total of    1 Urban Area(s):
  Urban Population =   1928000.0 ;  Urban Roughness Length =  1.000 m

**Model Uses Regulatory DEFAULT Options:
        1. Stack-tip Downwash.
        2. Model Accounts for ELEVated Terrain Effects.
        3. Use Calms Processing Routine.
        4. Use Missing Data Processing Routine.
        5. No Exponential Decay.
        6. Urban Roughness Length of 1.0 Meter Assumed.

**Other Options Specified:
        CCVR_Sub - Meteorological data includes CCVR substitutions
        TEMP_Sub - Meteorological data includes TEMP substitutions

**Model Accepts FLAGPOLE Receptor Heights.

**The User Specified a Pollutant Type of:  OTHER

**Model Calculates PERIOD Averages Only

**This Run Includes:     53 Source(s);       2 Source Group(s); and     384 Receptor(s)

               with:      0 POINT(s), including
                          0 POINTCAP(s) and      0 POINTHOR(s)
                and:     52 VOLUME source(s)
                and:      1 AREA type source(s)
                and:      0 LINE source(s)
                and:      0 RLINE/RLINEXT source(s)
                and:      0 OPENPIT source(s)
                and:      0 BUOYANT LINE source(s) with      0 line(s)


**Model Set To Continue RUNning After the Setup Testing.
```

```
**The AERMET Input Meteorological Data Version Date:  14134

**Output Options Selected:
         Model Outputs Tables of PERIOD Averages by Receptor
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)
         Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and Missing Hours

**Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =    11.90 ;  Decay Coef. =    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                ;  Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =      3.6 MB of RAM.

**Input Runstream File:          aermod.inp
**Output Print File:             aermod.out

**Detailed Error/Message File:   COCU-21.err
**File for Summary of Results:   COCU-21.sum
```

Model Output
Unit Emission Rates (1 g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000001	0	0.19231E-01	588076.1	4131870.4	50.7	4.15	10.40	3.26	YES	HRDOW
L0000002	0	0.19231E-01	588075.6	4131848.1	50.8	4.15	10.40	3.26	YES	HRDOW
L0000003	0	0.19231E-01	588075.1	4131825.7	50.9	4.15	10.40	3.26	YES	HRDOW
L0000004	0	0.19231E-01	588074.6	4131803.4	51.1	4.15	10.40	3.26	YES	HRDOW
L0000005	0	0.19231E-01	588074.1	4131781.1	51.0	4.15	10.40	3.26	YES	HRDOW
L0000006	0	0.19231E-01	588073.6	4131758.7	51.5	4.15	10.40	3.26	YES	HRDOW
L0000007	0	0.19231E-01	588073.1	4131736.4	52.3	4.15	10.40	3.26	YES	HRDOW
L0000008	0	0.19231E-01	588072.6	4131714.0	53.0	4.15	10.40	3.26	YES	HRDOW
L0000009	0	0.19231E-01	588072.1	4131691.7	54.2	4.15	10.40	3.26	YES	HRDOW
L0000010	0	0.19231E-01	588071.6	4131669.3	55.5	4.15	10.40	3.26	YES	HRDOW
L0000011	0	0.19231E-01	588071.1	4131647.0	56.8	4.15	10.40	3.26	YES	HRDOW
L0000012	0	0.19231E-01	588070.6	4131624.6	58.1	4.15	10.40	3.26	YES	HRDOW
L0000013	0	0.19231E-01	588068.1	4131602.6	59.3	4.15	10.40	3.26	YES	HRDOW
L0000014	0	0.19231E-01	588061.1	4131581.4	57.5	4.15	10.40	3.26	YES	HRDOW
L0000015	0	0.19231E-01	588054.1	4131560.2	53.5	4.15	10.40	3.26	YES	HRDOW
L0000016	0	0.19231E-01	588047.1	4131539.0	53.7	4.15	10.40	3.26	YES	HRDOW
L0000017	0	0.19231E-01	588040.1	4131517.7	56.1	4.15	10.40	3.26	YES	HRDOW
L0000018	0	0.19231E-01	588033.1	4131496.5	59.8	4.15	10.40	3.26	YES	HRDOW
L0000019	0	0.19231E-01	588026.1	4131475.3	58.5	4.15	10.40	3.26	YES	HRDOW
L0000020	0	0.19231E-01	588019.7	4131454.0	58.2	4.15	10.40	3.26	YES	HRDOW
L0000021	0	0.19231E-01	588019.7	4131431.6	57.0	4.15	10.40	3.26	YES	HRDOW
L0000022	0	0.19231E-01	588019.7	4131409.3	55.8	4.15	10.40	3.26	YES	HRDOW
L0000023	0	0.19231E-01	588019.7	4131386.9	54.9	4.15	10.40	3.26	YES	HRDOW
L0000024	0	0.19231E-01	588019.7	4131364.6	54.3	4.15	10.40	3.26	YES	HRDOW
L0000025	0	0.19231E-01	588019.7	4131342.2	53.9	4.15	10.40	3.26	YES	HRDOW
L0000026	0	0.19231E-01	588019.7	4131319.9	54.0	4.15	10.40	3.26	YES	HRDOW
L0000027	0	0.19231E-01	588000.6	4131316.5	54.0	4.15	10.40	3.26	YES	HRDOW
L0000028	0	0.19231E-01	587978.2	4131316.2	54.1	4.15	10.40	3.26	YES	HRDOW
L0000029	0	0.19231E-01	587955.9	4131316.0	54.1	4.15	10.40	3.26	YES	HRDOW
L0000030	0	0.19231E-01	587933.5	4131315.7	54.1	4.15	10.40	3.26	YES	HRDOW
L0000031	0	0.19231E-01	587911.2	4131315.5	54.2	4.15	10.40	3.26	YES	HRDOW
L0000032	0	0.19231E-01	587888.8	4131315.2	54.2	4.15	10.40	3.26	YES	HRDOW
L0000033	0	0.19231E-01	587868.6	4131323.0	54.4	4.15	10.40	3.26	YES	HRDOW
L0000034	0	0.19231E-01	587849.4	4131334.4	54.4	4.15	10.40	3.26	YES	HRDOW
L0000035	0	0.19231E-01	587830.2	4131345.8	54.4	4.15	10.40	3.26	YES	HRDOW
L0000036	0	0.19231E-01	587810.9	4131357.1	54.5	4.15	10.40	3.26	YES	HRDOW
L0000037	0	0.19231E-01	587791.7	4131368.5	54.6	4.15	10.40	3.26	YES	HRDOW
L0000038	0	0.19231E-01	587772.4	4131379.9	54.7	4.15	10.40	3.26	YES	HRDOW

L0000039	0	0.19231E-01	587753.2	4131391.2	54.8	4.15	10.40	3.26	YES	HRDOW
L0000040	0	0.19231E-01	587734.0	4131402.6	54.9	4.15	10.40	3.26	YES	HRDOW

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0000041	0	0.19231E-01	587714.7	4131414.0	55.2	4.15	10.40	3.26	YES	HRDOW
L0000042	0	0.19231E-01	587695.5	4131425.3	55.0	4.15	10.40	3.26	YES	HRDOW
L0000043	0	0.19231E-01	587675.7	4131435.5	55.2	4.15	10.40	3.26	YES	HRDOW
L0000044	0	0.19231E-01	587653.9	4131440.2	55.3	4.15	10.40	3.26	YES	HRDOW
L0000045	0	0.19231E-01	587632.0	4131444.9	55.4	4.15	10.40	3.26	YES	HRDOW
L0000046	0	0.19231E-01	587610.2	4131449.7	55.4	4.15	10.40	3.26	YES	HRDOW
L0000047	0	0.19231E-01	587588.4	4131454.4	55.4	4.15	10.40	3.26	YES	HRDOW
L0000048	0	0.19231E-01	587566.0	4131453.6	55.4	4.15	10.40	3.26	YES	HRDOW
L0000049	0	0.19231E-01	587543.7	4131452.6	55.5	4.15	10.40	3.26	YES	HRDOW
L0000050	0	0.19231E-01	587521.4	4131451.7	55.7	4.15	10.40	3.26	YES	HRDOW
L0000051	0	0.19231E-01	587499.0	4131450.8	55.8	4.15	10.40	3.26	YES	HRDOW
L0000052	0	0.19231E-01	587476.7	4131449.9	55.9	4.15	10.40	3.26	YES	HRDOW

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** AREAPOLY SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	LOCATION OF AREA X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	NUMBER OF VERTS.	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
1	0	0.33139E-04	587803.8	4131377.5	53.8	4.15	13	1.93	YES	HRDOW

```
*** AERMOD - VERSION  19191 ***   *** COCU-21 Construction HRA                                                  ***        11/07/21
*** AERMET - VERSION  14134 ***   *** Cupertino                                                                 ***        23:35:55
                                                                                                                           PAGE   5
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                          *** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID                                             SOURCE IDs
-----------                                             ----------

 ONSITE     1           ,

 OFFSITE    L0000001    , L0000002    , L0000003    , L0000004    , L0000005    , L0000006    , L0000007    , L0000008    ,
            L0000009    , L0000010    , L0000011    , L0000012    , L0000013    , L0000014    , L0000015    , L0000016    ,
            L0000017    , L0000018    , L0000019    , L0000020    , L0000021    , L0000022    , L0000023    , L0000024    ,
            L0000025    , L0000026    , L0000027    , L0000028    , L0000029    , L0000030    , L0000031    , L0000032    ,
            L0000033    , L0000034    , L0000035    , L0000036    , L0000037    , L0000038    , L0000039    , L0000040    ,
            L0000041    , L0000042    , L0000043    , L0000044    , L0000045    , L0000046    , L0000047    , L0000048    ,
            L0000049    , L0000050    , L0000051    , L0000052    ,

*** AERMOD - VERSION  19191 ***   *** COCU-21 Construction HRA                                                  ***        11/07/21
*** AERMET - VERSION  14134 ***   *** Cupertino                                                                 ***        23:35:55
                                                                                                                           PAGE   6
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                         *** SOURCE IDs DEFINED AS URBAN SOURCES ***

 URBAN ID   URBAN POP                                   SOURCE IDs
 --------   ---------                                   ----------

             1928000.   1           , L0000001    , L0000002    , L0000003    , L0000004    , L0000005    , L0000006    ,
L0000007    ,

            L0000008    , L0000009    , L0000010    , L0000011    , L0000012    , L0000013    , L0000014    , L0000015    ,
            L0000016    , L0000017    , L0000018    , L0000019    , L0000020    , L0000021    , L0000022    , L0000023    ,
            L0000024    , L0000025    , L0000026    , L0000027    , L0000028    , L0000029    , L0000030    , L0000031    ,
            L0000032    , L0000033    , L0000034    , L0000035    , L0000036    , L0000037    , L0000038    , L0000039    ,
            L0000040    , L0000041    , L0000042    , L0000043    , L0000044    , L0000045    , L0000046    , L0000047    ,
            L0000048    , L0000049    , L0000050    , L0000051    , L0000052    ,
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*** AERMOD - VERSION  19191 ***   *** COCU-21 Construction HRA                                               ***        11/07/21
*** AERMET - VERSION  14134 ***   *** Cupertino                                                              ***        23:35:55
                                                                                                                        PAGE   7
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = 1            ; SOURCE TYPE = AREAPOLY :
 HOUR    SCALAR    HOUR    SCALAR    HOUR    SCALAR    HOUR    SCALAR    HOUR    SCALAR    HOUR    SCALAR    HOUR    SCALAR    HOUR    SCALAR
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                             DAY OF WEEK = WEEKDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .1000E+01
   9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .0000E+00   13  .1000E+01   14  .1000E+01   15  .1000E+01   16  .1000E+01
  17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                             DAY OF WEEK = SATURDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
   9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
  17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                             DAY OF WEEK = SUNDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
   9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
  17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
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*** AERMOD - VERSION  19191 ***   *** COCU-21 Construction HRA                                               ***        11/07/21
*** AERMET - VERSION  14134 ***   *** Cupertino                                                              ***        23:35:55
                                                                                                                        PAGE   8
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000001 through L0000052    ; SOURCE TYPE = VOLUME   :
 HOUR    SCALAR    HOUR    SCALAR    HOUR    SCALAR    HOUR    SCALAR    HOUR    SCALAR    HOUR    SCALAR    HOUR    SCALAR    HOUR    SCALAR
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                             DAY OF WEEK = WEEKDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .1000E+01
   9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .0000E+00   13  .1000E+01   14  .1000E+01   15  .1000E+01   16  .1000E+01
  17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                             DAY OF WEEK = SATURDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
   9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
  17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                             DAY OF WEEK = SUNDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
   9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
  17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
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*** AERMOD - VERSION  19191 ***   *** COCU-21 Construction HRA                                  ***        11/07/21
*** AERMET - VERSION  14134 ***   *** Cupertino                                                 ***        23:35:55
                                                                                                           PAGE  60
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                     *** DISCRETE CARTESIAN RECEPTORS ***
                                   (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                (METERS)

    ( 587475.6, 4131374.7,      53.6,      53.6,       1.5);        ( 587495.6, 4131374.7,      53.6,      53.6,       1.5);
    ( 587515.6, 4131374.7,      53.6,      53.6,       1.5);        ( 587535.6, 4131374.7,      53.6,      53.6,       1.5);
    ( 587555.6, 4131374.7,      53.7,      53.7,       1.5);        ( 587575.6, 4131374.7,      53.6,      53.6,       1.5);
    ( 587575.6, 4131394.7,      53.5,      53.5,       1.5);        ( 587448.8, 4131190.8,      58.9,      58.9,       1.5);
    ( 587468.8, 4131190.8,      58.5,      58.5,       1.5);        ( 587503.2, 4131193.9,      58.1,      58.1,       1.5);
    ( 587523.2, 4131193.9,      58.2,      58.2,       1.5);        ( 587539.1, 4131193.9,      58.0,      58.0,       1.5);
    ( 587448.8, 4131210.8,      58.8,      58.8,       1.5);        ( 587468.8, 4131210.8,      58.3,      58.3,       1.5);
    ( 587503.2, 4131210.8,      58.0,      58.0,       1.5);        ( 587523.2, 4131210.8,      58.6,      58.6,       1.5);
    ( 587539.1, 4131210.8,      58.2,      58.2,       1.5);        ( 587539.1, 4131230.8,      58.3,      58.3,       1.5);
    ( 587503.2, 4131250.8,      58.0,      58.0,       1.5);        ( 587523.2, 4131250.8,      58.7,      58.7,       1.5);
    ( 587539.1, 4131250.8,      58.2,      58.2,       1.5);        ( 587503.2, 4131270.8,      58.2,      58.2,       1.5);
    ( 587523.2, 4131270.8,      58.8,      58.8,       1.5);        ( 587539.1, 4131270.8,      58.2,      58.2,       1.5);
    ( 587483.2, 4131290.8,      58.0,      58.0,       1.5);        ( 587523.2, 4131290.8,      58.8,      58.8,       1.5);
    ( 587539.1, 4131290.8,      58.2,      58.2,       1.5);        ( 587483.2, 4131310.8,      57.6,      57.6,       1.5);
    ( 587503.2, 4131310.8,      58.2,      58.8,       1.5);        ( 587523.2, 4131310.8,      58.1,      58.1,       1.5);
    ( 587539.1, 4131310.8,      57.6,      57.6,       1.5);        ( 587483.7, 4131327.2,      55.4,      58.8,       1.5);
    ( 587503.7, 4131327.2,      55.7,      58.8,       1.5);        ( 587523.7, 4131327.2,      55.6,      58.8,       1.5);
    ( 587539.6, 4131327.2,      55.4,      58.7,       1.5);        ( 587931.5, 4131080.4,      56.4,      56.4,       1.5);
    ( 587951.5, 4131080.4,      56.5,      56.5,       1.5);        ( 587971.5, 4131080.4,      56.3,      56.3,       1.5);
    ( 587991.5, 4131080.4,      56.1,      56.1,       1.5);        ( 588011.5, 4131080.4,      55.9,      55.9,       1.5);
    ( 587915.3, 4131095.4,      56.3,      56.3,       1.5);        ( 587932.1, 4131095.7,      56.4,      56.4,       1.5);
    ( 587952.1, 4131095.7,      56.7,      56.7,       1.5);        ( 587972.1, 4131095.7,      56.3,      56.3,       1.5);
    ( 587992.1, 4131095.7,      56.0,      56.0,       1.5);        ( 588012.1, 4131095.7,      55.8,      55.8,       1.5);
    ( 587914.3, 4131111.3,      56.3,      56.3,       1.5);        ( 587931.2, 4131111.6,      56.4,      56.4,       1.5);
    ( 587951.2, 4131111.6,      56.7,      56.7,       1.5);        ( 587991.2, 4131111.6,      55.9,      55.9,       1.5);
    ( 588011.2, 4131111.6,      55.7,      55.7,       1.5);        ( 587914.3, 4131131.3,      56.3,      56.3,       1.5);
    ( 587475.6, 4131374.7,      53.6,      53.6,       6.1);        ( 587495.6, 4131374.7,      53.6,      53.6,       6.1);
    ( 587515.6, 4131374.7,      53.6,      53.6,       6.1);        ( 587535.6, 4131374.7,      53.6,      53.6,       6.1);
    ( 587555.6, 4131374.7,      53.7,      53.7,       6.1);        ( 587575.6, 4131374.7,      53.6,      53.6,       6.1);
    ( 587575.6, 4131394.7,      53.5,      53.5,       6.1);        ( 587475.6, 4131414.7,      54.7,      54.7,       6.1);
    ( 587495.6, 4131414.7,      54.5,      54.5,       6.1);        ( 587515.6, 4131414.7,      54.5,      54.5,       6.1);
    ( 587535.6, 4131414.7,      54.5,      54.5,       6.1);        ( 587555.6, 4131414.7,      54.5,      54.5,       6.1);
    ( 587575.6, 4131414.7,      54.4,      54.4,       6.1);        ( 587625.6, 4131344.9,      56.4,      56.4,       6.1);
    ( 587645.6, 4131344.9,      56.1,      56.1,       6.1);        ( 587665.6, 4131344.9,      55.7,      55.7,       6.1);
    ( 587609.7, 4131364.9,      54.7,      54.7,       6.1);        ( 587625.6, 4131364.9,      56.3,      56.3,       6.1);
    ( 587610.9, 4131345.0,      55.1,      55.1,       6.1);        ( 587644.7, 4131357.8,      56.1,      56.1,       6.1);
    ( 587609.7, 4131384.9,      54.6,      54.6,       6.1);        ( 587625.6, 4131384.9,      56.2,      56.2,       6.1);
    ( 587646.1, 4131387.0,      56.1,      56.1,       6.1);        ( 587665.6, 4131384.9,      55.9,      55.9,       6.1);
    ( 587685.6, 4131384.9,      55.5,      55.5,       6.1);        ( 587609.7, 4131404.9,      54.7,      54.7,       6.1);
    ( 587625.6, 4131404.9,      56.0,      56.0,       6.1);        ( 587645.6, 4131404.9,      55.9,      55.9,       6.1);
    ( 587665.6, 4131404.9,      55.8,      55.8,       6.1);        ( 587448.8, 4131190.8,      58.9,      58.9,       6.1);
    ( 587468.8, 4131190.8,      58.5,      58.5,       6.1);        ( 587503.2, 4131193.9,      58.1,      58.1,       6.1);
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    ( 587523.2, 4131193.9,      58.2,      58.2,       6.1);        ( 587539.1, 4131193.9,      58.0,      58.0,       6.1);
    ( 587448.8, 4131210.8,      58.8,      58.8,       6.1);        ( 587468.8, 4131210.8,      58.3,      58.3,       6.1);
    ( 587503.2, 4131210.8,      58.0,      58.0,       6.1);        ( 587523.2, 4131210.8,      58.6,      58.6,       6.1);
*** AERMOD - VERSION  19191 ***   *** COCU-21 Construction HRA                                          ***        11/07/21
*** AERMET - VERSION  14134 ***   *** Cupertino                                                         ***        23:35:55
                                                                                                                   PAGE  61
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                      *** DISCRETE CARTESIAN RECEPTORS ***
                                     (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                    (METERS)

    ( 587539.1, 4131210.8,      58.2,      58.2,       6.1);        ( 587539.1, 4131230.8,      58.3,      58.3,       6.1);
    ( 587503.2, 4131250.8,      58.0,      58.0,       6.1);        ( 587523.2, 4131250.8,      58.7,      58.7,       6.1);
    ( 587539.1, 4131250.8,      58.2,      58.2,       6.1);        ( 587503.2, 4131270.8,      58.2,      58.2,       6.1);
    ( 587523.2, 4131270.8,      58.8,      58.8,       6.1);        ( 587539.1, 4131270.8,      58.2,      58.2,       6.1);
    ( 587483.2, 4131290.8,      58.0,      58.0,       6.1);        ( 587523.2, 4131290.8,      58.8,      58.8,       6.1);
    ( 587539.1, 4131290.8,      58.2,      58.2,       6.1);        ( 587483.2, 4131310.8,      57.6,      57.6,       6.1);
    ( 587503.2, 4131310.8,      58.2,      58.8,       6.1);        ( 587523.2, 4131310.8,      58.1,      58.1,       6.1);
    ( 587539.1, 4131310.8,      57.6,      57.6,       6.1);        ( 587483.7, 4131327.2,      55.4,      58.8,       6.1);
    ( 587503.7, 4131327.2,      55.7,      58.8,       6.1);        ( 587523.7, 4131327.2,      55.6,      58.8,       6.1);
    ( 587539.6, 4131327.2,      55.4,      58.7,       6.1);        ( 587931.5, 4131080.4,      56.4,      56.4,       6.1);
    ( 587951.5, 4131080.4,      56.5,      56.5,       6.1);        ( 587971.5, 4131080.4,      56.3,      56.3,       6.1);
    ( 587991.5, 4131080.4,      56.1,      56.1,       6.1);        ( 588011.5, 4131080.4,      55.9,      55.9,       6.1);
    ( 587915.3, 4131095.4,      56.3,      56.3,       6.1);        ( 587932.1, 4131095.7,      56.4,      56.4,       6.1);
    ( 587952.1, 4131095.7,      56.7,      56.7,       6.1);        ( 587972.1, 4131095.7,      56.3,      56.3,       6.1);
    ( 587992.1, 4131095.7,      56.0,      56.0,       6.1);        ( 588012.1, 4131095.7,      55.8,      55.8,       6.1);
    ( 587914.3, 4131111.3,      56.3,      56.3,       6.1);        ( 587931.2, 4131111.6,      56.4,      56.4,       6.1);
    ( 587951.2, 4131111.6,      56.7,      56.7,       6.1);        ( 587991.2, 4131111.6,      55.9,      55.9,       6.1);
    ( 588011.2, 4131111.6,      55.7,      55.7,       6.1);        ( 587914.3, 4131131.3,      56.3,      56.3,       6.1);
    ( 587931.2, 4131131.6,      56.4,      56.4,       6.1);        ( 587951.2, 4131131.6,      56.6,      56.6,       6.1);
    ( 587970.9, 4131133.8,      56.0,      56.0,       6.1);        ( 587931.5, 4131146.0,      56.3,      56.3,       6.1);
    ( 587951.5, 4131146.0,      56.3,      56.3,       6.1);        ( 587971.5, 4131146.0,      56.0,      56.0,       6.1);
    ( 587475.6, 4131374.7,      53.6,      53.6,       9.1);        ( 587495.6, 4131374.7,      53.6,      53.6,       9.1);
    ( 587515.6, 4131374.7,      53.6,      53.6,       9.1);        ( 587535.6, 4131374.7,      53.6,      53.6,       9.1);
    ( 587555.6, 4131374.7,      53.7,      53.7,       9.1);        ( 587575.6, 4131374.7,      53.6,      53.6,       9.1);
    ( 587575.6, 4131394.7,      53.5,      53.5,       9.1);        ( 587475.6, 4131414.7,      54.7,      54.7,       9.1);
    ( 587495.6, 4131414.7,      54.5,      54.5,       9.1);        ( 587515.6, 4131414.7,      54.5,      54.5,       9.1);
    ( 587535.6, 4131414.7,      54.5,      54.5,       9.1);        ( 587555.6, 4131414.7,      54.5,      54.5,       9.1);
    ( 587575.6, 4131414.7,      54.4,      54.4,       9.1);        ( 587625.6, 4131344.9,      56.4,      56.4,       9.1);
    ( 587645.6, 4131344.9,      56.1,      56.1,       9.1);        ( 587665.6, 4131344.9,      55.7,      55.7,       9.1);
    ( 587609.7, 4131364.9,      54.7,      54.7,       9.1);        ( 587625.6, 4131364.9,      56.3,      56.3,       9.1);
    ( 587610.9, 4131345.0,      55.1,      55.1,       9.1);        ( 587644.7, 4131357.8,      56.1,      56.1,       9.1);
    ( 587609.7, 4131384.9,      54.6,      54.6,       9.1);        ( 587625.6, 4131384.9,      56.2,      56.2,       9.1);
    ( 587646.1, 4131387.0,      56.1,      56.1,       9.1);        ( 587665.6, 4131384.9,      55.9,      55.9,       9.1);
    ( 587685.6, 4131384.9,      55.5,      55.5,       9.1);        ( 587609.7, 4131404.9,      54.7,      54.7,       9.1);
    ( 587625.6, 4131404.9,      56.0,      56.0,       9.1);        ( 587645.6, 4131404.9,      55.9,      55.9,       9.1);
    ( 587665.6, 4131404.9,      55.8,      55.8,       9.1);        ( 587448.8, 4131190.8,      58.9,      58.9,       9.1);
    ( 587468.8, 4131190.8,      58.5,      58.5,       9.1);        ( 587503.2, 4131193.9,      58.1,      58.1,       9.1);
    ( 587523.2, 4131193.9,      58.2,      58.2,       9.1);        ( 587539.1, 4131193.9,      58.0,      58.0,       9.1);
    ( 587448.8, 4131210.8,      58.8,      58.8,       9.1);        ( 587468.8, 4131210.8,      58.3,      58.3,       9.1);
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    ( 587503.2, 4131210.8,      58.0,      58.0,       9.1);        ( 587523.2, 4131210.8,      58.6,      58.6,       9.1);
    ( 587539.1, 4131210.8,      58.2,      58.2,       9.1);        ( 587539.1, 4131230.8,      58.3,      58.3,       9.1);
    ( 587503.2, 4131250.8,      58.0,      58.0,       9.1);        ( 587523.2, 4131250.8,      58.7,      58.7,       9.1);
    ( 587539.1, 4131250.8,      58.2,      58.2,       9.1);        ( 587503.2, 4131270.8,      58.2,      58.2,       9.1);
    ( 587523.2, 4131270.8,      58.8,      58.8,       9.1);        ( 587539.1, 4131270.8,      58.2,      58.2,       9.1);
    ( 587483.2, 4131290.8,      58.0,      58.0,       9.1);        ( 587523.2, 4131290.8,      58.8,      58.8,       9.1);
*** AERMOD - VERSION  19191 ***   *** COCU-21 Construction HRA                                           ***        11/07/21
*** AERMET - VERSION  14134 ***   *** Cupertino                                                          ***        23:35:55
                                                                                                                    PAGE  62
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                         *** DISCRETE CARTESIAN RECEPTORS ***
                                       (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                       (METERS)

    ( 587539.1, 4131290.8,      58.2,      58.2,       9.1);        ( 587483.2, 4131310.8,      57.6,      57.6,       9.1);
    ( 587503.2, 4131310.8,      58.2,      58.8,       9.1);        ( 587523.2, 4131310.8,      58.1,      58.1,       9.1);
    ( 587539.1, 4131310.8,      57.6,      57.6,       9.1);        ( 587483.7, 4131327.2,      55.4,      58.8,       9.1);
    ( 587503.7, 4131327.2,      55.7,      58.8,       9.1);        ( 587523.7, 4131327.2,      55.6,      58.8,       9.1);
    ( 587539.6, 4131327.2,      55.4,      58.7,       9.1);        ( 587931.5, 4131080.4,      56.4,      56.4,       9.1);
    ( 587951.5, 4131080.4,      56.5,      56.5,       9.1);        ( 587971.5, 4131080.4,      56.3,      56.3,       9.1);
    ( 587991.5, 4131080.4,      56.1,      56.1,       9.1);        ( 588011.5, 4131080.4,      55.9,      55.9,       9.1);
    ( 587915.3, 4131095.4,      56.3,      56.3,       9.1);        ( 587932.1, 4131095.7,      56.4,      56.4,       9.1);
    ( 587952.1, 4131095.7,      56.7,      56.7,       9.1);        ( 587972.1, 4131095.7,      56.3,      56.3,       9.1);
    ( 587992.1, 4131095.7,      56.0,      56.0,       9.1);        ( 588012.1, 4131095.7,      55.8,      55.8,       9.1);
    ( 587914.3, 4131111.3,      56.3,      56.3,       9.1);        ( 587931.2, 4131111.6,      56.4,      56.4,       9.1);
    ( 587951.2, 4131111.6,      56.7,      56.7,       9.1);        ( 587991.2, 4131111.6,      55.9,      55.9,       9.1);
    ( 588011.2, 4131111.6,      55.7,      55.7,       9.1);        ( 587914.3, 4131131.3,      56.3,      56.3,       9.1);
    ( 587931.2, 4131131.6,      56.4,      56.4,       9.1);        ( 587951.2, 4131131.6,      56.6,      56.6,       9.1);
    ( 587970.9, 4131133.8,      56.0,      56.0,       9.1);        ( 587931.5, 4131146.0,      56.3,      56.3,       9.1);
    ( 587951.5, 4131146.0,      56.3,      56.3,       9.1);        ( 587971.5, 4131146.0,      56.0,      56.0,       9.1);
    ( 588188.7, 4131100.6,      54.8,      54.8,       1.5);        ( 588185.5, 4131072.1,      55.2,      55.2,       1.5);
    ( 588150.7, 4131051.0,      55.5,      55.5,       1.5);        ( 588089.7, 4131050.2,      55.7,      55.7,       1.5);
    ( 588238.4, 4131100.6,      54.7,      54.7,       1.5);        ( 588236.2, 4131072.1,      54.8,      54.8,       1.5);
    ( 588089.4, 4131023.5,      56.0,      56.0,       1.5);        ( 588183.4, 4131025.6,      55.5,      55.5,       1.5);
    ( 588294.8, 4131692.7,      50.8,      50.8,       1.5);        ( 588280.7, 4131734.3,      50.5,      50.5,       1.5);
    ( 588303.0, 4131768.7,      50.3,      50.3,       1.5);        ( 588309.1, 4131813.2,      50.1,      50.1,       1.5);
    ( 588347.5, 4131768.0,      50.0,      50.0,       1.5);        ( 588367.1, 4131769.4,      49.9,      49.9,       1.5);
    ( 588343.9, 4131738.8,      50.3,      50.3,       1.5);        ( 588365.3, 4131736.3,      50.1,      50.1,       1.5);
    ( 588188.7, 4131100.6,      54.8,      54.8,       6.1);        ( 588185.5, 4131072.1,      55.2,      55.2,       6.1);
    ( 588150.7, 4131051.0,      55.5,      55.5,       6.1);        ( 588089.7, 4131050.2,      55.7,      55.7,       6.1);
    ( 588236.2, 4131072.1,      54.8,      54.8,       6.1);        ( 588089.4, 4131023.5,      56.0,      56.0,       6.1);
    ( 588183.4, 4131025.6,      55.5,      55.5,       6.1);        ( 588294.8, 4131692.7,      50.8,      50.8,       6.1);
    ( 588280.7, 4131734.3,      50.5,      50.5,       6.1);        ( 588303.0, 4131768.7,      50.3,      50.3,       6.1);
    ( 588309.1, 4131813.2,      50.1,      50.1,       6.1);        ( 588347.5, 4131768.0,      50.0,      50.0,       6.1);
    ( 588367.1, 4131769.4,      49.9,      49.9,       6.1);        ( 588343.9, 4131738.8,      50.3,      50.3,       6.1);
    ( 588365.3, 4131736.3,      50.1,      50.1,       6.1);        ( 587562.3, 4131060.3,      58.0,      58.0,       1.5);
    ( 587572.8, 4131048.4,      58.1,      58.1,       1.5);        ( 587603.0, 4131053.9,      58.2,      58.2,       1.5);
    ( 587626.7, 4131048.8,      57.8,      57.8,       1.5);        ( 587650.4, 4131060.1,      58.2,      58.2,       1.5);
    ( 587570.8, 4131067.8,      57.4,      57.4,       1.5);        ( 587588.7, 4131066.8,      57.6,      57.6,       1.5);
    ( 587551.4, 4131044.8,      58.6,      58.6,       1.5);        ( 587618.5, 4131070.5,      57.9,      57.9,       1.5);
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      ( 587638.5, 4131070.5,      57.8,      57.8,       1.5);        ( 587562.3, 4131060.3,      58.0,      58.0,       6.1);
      ( 587572.8, 4131048.4,      58.1,      58.1,       6.1);        ( 587603.0, 4131053.9,      58.2,      58.2,       6.1);
      ( 587626.7, 4131048.8,      57.8,      57.8,       6.1);        ( 587650.4, 4131060.1,      58.2,      58.2,       6.1);
      ( 587570.8, 4131067.8,      57.4,      57.4,       6.1);        ( 587588.7, 4131066.8,      57.6,      57.6,       6.1);
      ( 587551.4, 4131044.8,      58.6,      58.6,       6.1);        ( 587618.5, 4131070.5,      57.9,      57.9,       6.1);
      ( 587638.5, 4131070.5,      57.8,      57.8,       6.1);        ( 587567.4, 4130993.3,      59.0,      59.0,       1.5);
      ( 587587.4, 4130993.3,      59.1,      59.1,       1.5);        ( 587607.4, 4130993.3,      58.9,      58.9,       1.5);
      ( 587627.4, 4130993.3,      58.8,      58.8,       1.5);        ( 587647.4, 4130993.3,      58.7,      58.7,       1.5);
      ( 587587.4, 4131013.3,      58.7,      58.7,       1.5);        ( 587607.4, 4131013.3,      58.5,      58.5,       1.5);
*** AERMOD - VERSION  19191 ***   *** COCU-21 Construction HRA                                         ***        11/07/21
*** AERMET - VERSION  14134 ***   *** Cupertino                                                        ***        23:35:55
                                                                                                                  PAGE  63
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                       (METERS)

      ( 587627.4, 4131013.3,      58.4,      58.4,       1.5);        ( 587647.4, 4131013.3,      58.3,      58.3,       1.5);
      ( 587544.2, 4131029.6,      59.1,      59.1,       1.5);        ( 587913.0, 4130951.1,      57.5,      57.5,       1.5);
      ( 587933.0, 4130951.1,      57.5,      57.5,       1.5);        ( 587953.0, 4130951.1,      57.3,      57.3,       1.5);
      ( 587973.0, 4130951.1,      57.2,      57.2,       1.5);        ( 587993.0, 4130951.1,      57.1,      57.1,       1.5);
      ( 588013.0, 4130951.1,      56.8,      56.8,       1.5);        ( 587913.0, 4130971.1,      57.3,      57.3,       1.5);
      ( 587933.0, 4130971.1,      57.3,      57.3,       1.5);        ( 587953.0, 4130971.1,      57.2,      57.2,       1.5);
      ( 587973.0, 4130971.1,      57.3,      57.3,       1.5);        ( 587993.0, 4130971.1,      57.0,      57.0,       1.5);
      ( 587913.0, 4130991.1,      57.1,      57.1,       1.5);        ( 587953.0, 4130991.1,      56.9,      56.9,       1.5);
      ( 587973.0, 4130991.1,      56.9,      56.9,       1.5);        ( 587993.0, 4130991.1,      56.7,      56.7,       1.5);
      ( 588013.0, 4130991.1,      56.5,      56.5,       1.5);        ( 587913.0, 4131011.1,      56.9,      56.9,       1.5);
      ( 587973.0, 4131015.9,      56.7,      56.7,       1.5);        ( 587993.0, 4131015.9,      56.5,      56.5,       1.5);
      ( 587913.0, 4131031.1,      56.8,      56.8,       1.5);        ( 587933.0, 4131031.1,      57.0,      57.0,       1.5);
      ( 587952.4, 4131026.8,      56.9,      56.9,       1.5);        ( 587973.0, 4131031.1,      56.8,      56.8,       1.5);
      ( 587993.0, 4131031.1,      56.5,      56.5,       1.5);        ( 588013.0, 4131031.1,      56.2,      56.2,       1.5);
      ( 587913.0, 4131051.1,      56.7,      56.7,       1.5);        ( 587933.0, 4131051.1,      56.7,      56.7,       1.5);
      ( 587952.4, 4131046.8,      56.7,      56.7,       1.5);        ( 587973.0, 4131051.1,      56.5,      56.5,       1.5);
      ( 587993.0, 4131051.1,      56.3,      56.3,       1.5);        ( 588013.0, 4131051.1,      56.1,      56.1,       1.5);
      ( 588049.9, 4131046.9,      56.0,      56.0,       1.5);        ( 588049.4, 4131027.7,      56.2,      56.2,       1.5);
      ( 588049.9, 4131003.4,      56.5,      56.5,       1.5);        ( 588049.4, 4130981.1,      56.6,      56.6,       1.5);
      ( 588092.7, 4131003.0,      56.3,      56.3,       1.5);        ( 588095.2, 4130977.8,      56.3,      56.3,       1.5);
      ( 588144.6, 4131003.4,      55.9,      55.9,       1.5);        ( 588145.0, 4131030.1,      55.8,      55.8,       1.5);
      ( 588190.4, 4131005.0,      55.6,      55.6,       1.5);        ( 588147.1, 4130976.6,      56.2,      56.2,       1.5);
      ( 588188.3, 4130984.4,      55.8,      55.8,       1.5);        ( 588143.0, 4130960.9,      56.3,      56.3,       1.5);
      ( 588182.1, 4130960.9,      56.0,      56.0,       1.5);        ( 588236.5, 4131050.3,      55.1,      55.1,       1.5);
      ( 588274.4, 4131050.8,      54.7,      54.7,       1.5);        ( 588272.8, 4131067.6,      54.7,      54.7,       1.5);
      ( 588236.9, 4131030.6,      55.3,      55.3,       1.5);        ( 588272.0, 4131033.0,      54.8,      54.8,       1.5);
      ( 588187.2, 4131685.3,      51.6,      51.6,       1.5);        ( 588261.3, 4131688.7,      51.2,      51.2,       1.5);
      ( 588187.2, 4131705.3,      51.4,      51.4,       1.5);        ( 588234.2, 4131688.8,      51.2,      51.2,       1.5);
      ( 588282.1, 4131763.9,      50.4,      50.4,       1.5);        ( 588187.2, 4131725.3,      51.3,      51.3,       1.5);
      ( 588319.6, 4131735.2,      50.3,      50.3,       1.5);        ( 588301.5, 4131734.4,      50.4,      50.4,       1.5);
      ( 588187.2, 4131745.3,      51.2,      51.2,       1.5);        ( 588259.0, 4131734.6,      50.7,      50.7,       1.5);
      ( 588187.2, 4131765.3,      50.9,      50.9,       1.5);        ( 588231.8, 4131736.0,      50.6,      50.6,       1.5);
      ( 588259.5, 4131763.0,      50.8,      50.8,       1.5);        ( 588187.2, 4131785.3,      50.8,      50.8,       1.5);
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   ( 588232.8, 4131760.3,      50.7,      50.7,       1.5);        ( 588259.5, 4131783.0,      50.7,      50.7,       1.5);
   ( 588187.2, 4131805.3,      50.7,      50.7,       1.5);        ( 588232.8, 4131780.3,      50.5,      50.5,       1.5);
   ( 588259.5, 4131803.0,      50.6,      50.6,       1.5);        ( 588187.2, 4131825.3,      50.5,      50.5,       1.5);
   ( 588232.8, 4131800.3,      50.5,      50.5,       1.5);        ( 588259.5, 4131823.0,      50.5,      50.5,       1.5);
   ( 588187.2, 4131845.3,      50.4,      50.4,       1.5);        ( 588232.8, 4131820.3,      50.4,      50.4,       1.5);
   ( 588259.5, 4131843.0,      50.3,      50.3,       1.5);        ( 588187.2, 4131865.3,      50.2,      50.2,       1.5);
   ( 588232.8, 4131840.3,      50.2,      50.2,       1.5);        ( 588259.5, 4131863.0,      50.0,      50.0,       1.5);
   ( 588232.8, 4131860.3,      50.0,      50.0,       1.5);        ( 587793.1, 4130952.3,      58.9,      58.9,       1.5);
   ( 587813.1, 4130952.3,      58.8,      58.8,       1.5);        ( 587833.1, 4130952.3,      58.8,      58.8,       1.5);
   ( 587728.4, 4130972.0,      59.0,      59.0,       1.5);        ( 587748.4, 4130972.0,      59.0,      59.0,       1.5);
   ( 587768.4, 4130972.0,      58.9,      58.9,       1.5);        ( 587710.5, 4130996.4,      59.0,      59.0,       1.5);
   ( 587763.3, 4130996.1,      58.7,      58.7,       1.5);        ( 587793.1, 4130992.3,      58.6,      58.6,       1.5);
*** AERMOD - VERSION  19191 ***   *** COCU-21 Construction HRA                                      ***        11/07/21
*** AERMET - VERSION  14134 ***   *** Cupertino                                                     ***        23:35:55
                                                                                                               PAGE  64
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                        (METERS)

   ( 587813.1, 4130992.3,      58.6,      58.6,       1.5);        ( 587833.1, 4130992.3,      58.6,      58.6,       1.5);
   ( 587710.5, 4131016.4,      58.7,      58.7,       1.5);        ( 587730.5, 4131016.4,      58.6,      58.6,       1.5);
   ( 587750.5, 4131016.4,      58.6,      58.6,       1.5);        ( 587770.5, 4131016.4,      58.5,      58.5,       1.5);
   ( 587793.1, 4131012.3,      58.3,      58.3,       1.5);        ( 587813.1, 4131012.3,      58.2,      58.2,       1.5);
   ( 587778.3, 4131103.8,      57.1,      57.1,       1.5);        ( 588280.5, 4131122.1,      54.3,      54.3,       1.5);
   ( 587859.4, 4130955.6,      58.6,      58.6,       1.5);        ( 587882.3, 4130971.5,      58.2,      58.2,       1.5);
   ( 587859.4, 4130975.6,      58.6,      58.6,       1.5);        ( 587882.3, 4130991.5,      58.2,      58.2,       1.5);
   ( 587859.8, 4131012.8,      58.1,      58.1,       1.5);        ( 587879.8, 4131012.8,      57.8,      57.8,       1.5);
   ( 587881.6, 4130954.0,      58.3,      58.3,       1.5);        ( 587859.4, 4130955.6,      58.6,      58.6,       6.1);
   ( 587882.3, 4130971.5,      58.2,      58.2,       6.1);        ( 587859.4, 4130975.6,      58.6,      58.6,       6.1);
   ( 587882.3, 4130991.5,      58.2,      58.2,       6.1);        ( 587859.8, 4131012.8,      58.1,      58.1,       6.1);
   ( 587879.8, 4131012.8,      57.8,      57.8,       6.1);        ( 587881.6, 4130954.0,      58.3,      58.3,       6.1);
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*** AERMOD - VERSION  19191 ***   *** COCU-21 Construction HRA                                             ***        11/07/21
*** AERMET - VERSION  14134 ***   *** Cupertino                                                            ***        23:35:55
                                                                                                                      PAGE  65
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                         *** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
                                                            (1=YES; 0=NO)

          1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1  1 1 1 1 1

              NOTE:  METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.


                                     *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
                                                           (METERS/SEC)

                                                  1.54,   3.09,   5.14,   8.23,  10.80,
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*** AERMOD - VERSION  19191 ***    *** COCU-21 Construction HRA                                                  ***        11/07/21
*** AERMET - VERSION  14134 ***    *** Cupertino                                                                 ***        23:35:55
                                                                                                                            PAGE  66
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                    *** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

  Surface file:   ..\met data - 11.9m\745090.SFC                                                    Met Version:  14134
  Profile file:   ..\met data - 11.9m\745090.PFL
  Surface format: FREE
  Profile format: FREE
  Surface station no.:    23244                 Upper air station no.:    23230
                 Name: UNKNOWN                                    Name: OAKLAND/WSO_AP
                 Year:   2009                                     Year:   2009

First 24 hours of scalar data
YR MO DY JDY HR     H0      U*      W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO  REF WS   WD     HT  REF TA     HT
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
09 01 01   1 01  -12.1  0.213 -9.000 -9.000 -999.  236.     72.6  0.09   0.54   1.00    2.86    1.   10.0  282.5    2.0
09 01 01   1 02  -14.9  0.261 -9.000 -9.000 -999.  321.    109.2  0.09   0.54   1.00    3.36   18.   10.0  282.0    2.0
09 01 01   1 03   -9.1  0.160 -9.000 -9.000 -999.  158.     40.7  0.09   0.54   1.00    2.36   24.   10.0  282.0    2.0
09 01 01   1 04 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.24   0.54   1.00    0.00    0.   10.0  281.4    2.0
09 01 01   1 05   -3.9  0.075 -9.000 -9.000 -999.   49.      9.8  0.09   0.54   1.00    1.76   23.   10.0  281.4    2.0
09 01 01   1 06   -9.1  0.159 -9.000 -9.000 -999.  153.     40.5  0.09   0.54   1.00    2.36    2.   10.0  280.9    2.0
09 01 01   1 07   -9.1  0.159 -9.000 -9.000 -999.  153.     40.5  0.09   0.54   1.00    2.36   15.   10.0  280.9    2.0
09 01 01   1 08   -4.7  0.084 -9.000 -9.000 -999.   61.     11.7  0.15   0.54   0.73    1.76  323.   10.0  280.9    2.0
09 01 01   1 09   -4.9  0.212 -9.000 -9.000 -999.  234.    179.0  0.15   0.54   0.38    2.36  357.   10.0  280.4    2.0
09 01 01   1 10    5.7  0.163  0.241  0.014   89.  159.    -69.3  0.09   0.54   0.25    1.76   11.   10.0  280.9    2.0
09 01 01   1 11   12.2 -9.000 -9.000 -9.000  158. -999. -99999.0  0.24   0.54   0.21    0.00    0.   10.0  280.9    2.0
09 01 01   1 12   16.0  0.426  0.456  0.016  216.  668.   -442.4  0.15   0.54   0.19    4.36  346.   10.0  281.4    2.0
09 01 01   1 13   16.6  0.236  0.493  0.015  263.  305.    -71.8  0.36   0.54   0.19    1.76  253.   10.0  281.4    2.0
09 01 01   1 14   14.2 -9.000 -9.000 -9.000  297. -999. -99999.0  0.24   0.54   0.20    0.00    0.   10.0  282.0    2.0
09 01 01   1 15   44.9 -9.000 -9.000 -9.000  387. -999. -99999.0  0.24   0.54   0.23    0.00    0.   10.0  283.8    2.0
09 01 01   1 16   13.2 -9.000 -9.000 -9.000  410. -999. -99999.0  0.24   0.54   0.31    0.00    0.   10.0  284.1    2.0
09 01 01   1 17  -12.3  0.130 -9.000 -9.000 -999.  112.     16.2  0.15   0.54   0.55    2.36  351.   10.0  282.1    2.0
09 01 01   1 18   -9.3  0.106 -9.000 -9.000 -999.   83.     11.6  0.36   0.54   1.00    1.76  297.   10.0  282.1    2.0
09 01 01   1 19 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.24   0.54   1.00    0.00    0.   10.0  281.1    2.0
09 01 01   1 20 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.24   0.54   1.00    0.00    0.   10.0  281.1    2.0
09 01 01   1 21 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.24   0.54   1.00    0.00    0.   10.0  281.1    2.0
09 01 01   1 22 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.24   0.54   1.00    0.00    0.   10.0  281.1    2.0
09 01 01   1 23 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.24   0.54   1.00    0.00    0.   10.0  281.1    2.0
09 01 01   1 24 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.24   0.54   1.00    0.00    0.   10.0  280.1    2.0


First hour of profile data
YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
09 01 01 01   10.0 1    1.    2.86   282.6   99.0  -99.00  -99.00

F indicates top of profile (=1) or below (=0)
```

Model Output
Unit Emission Rates (1 g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** THE PERIOD (43872 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ONSITE ***
INCLUDING SOURCE(S): 1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
587475.63	4131374.67	0.04967	587495.63	4131374.67	0.05516
587515.63	4131374.67	0.06159	587535.63	4131374.67	0.06916
587555.63	4131374.67	0.07821	587575.63	4131374.67	0.08934
587575.63	4131394.67	0.10381	587448.82	4131190.81	0.02496
587468.82	4131190.81	0.02806	587503.21	4131193.87	0.03484
587523.21	4131193.87	0.03985	587539.13	4131193.87	0.04488
587448.82	4131210.81	0.02475	587468.82	4131210.81	0.02777
587503.21	4131210.81	0.03426	587523.21	4131210.81	0.03886
587539.13	4131210.81	0.04371	587539.13	4131230.81	0.04277
587503.21	4131250.81	0.03382	587523.21	4131250.81	0.03791
587539.13	4131250.81	0.04230	587503.21	4131270.81	0.03418
587523.21	4131270.81	0.03814	587539.13	4131270.81	0.04241
587483.21	4131290.81	0.03174	587523.21	4131290.81	0.03907
587539.13	4131290.81	0.04331	587483.21	4131310.81	0.03363
587503.21	4131310.81	0.03691	587523.21	4131310.81	0.04119
587539.13	4131310.81	0.04553	587483.72	4131327.24	0.03927
587503.72	4131327.24	0.04331	587523.72	4131327.24	0.04821
587539.64	4131327.24	0.05286	587931.50	4131080.40	2.25543
587951.50	4131080.40	2.42356	587971.50	4131080.40	2.53215
587991.50	4131080.40	2.56799	588011.50	4131080.40	2.52906
587915.26	4131095.39	2.29275	587932.13	4131095.70	2.49305
587952.13	4131095.70	2.67151	587972.13	4131095.70	2.78390
587992.13	4131095.70	2.80940	588012.13	4131095.70	2.74714
587914.32	4131111.32	2.53312	587931.19	4131111.63	2.76044
587951.19	4131111.63	2.95929	587991.19	4131111.63	3.09786
588011.19	4131111.63	3.01195	587914.32	4131131.32	2.91166
587475.63	4131374.67	0.04209	587495.63	4131374.67	0.04675
587515.63	4131374.67	0.05215	587535.63	4131374.67	0.05850
587555.63	4131374.67	0.06607	587575.63	4131374.67	0.07541
587575.63	4131394.67	0.08737	587475.63	4131414.67	0.05269
587495.63	4131414.67	0.05918	587515.63	4131414.67	0.06674
587535.63	4131414.67	0.07563	587555.63	4131414.67	0.08639
587575.63	4131414.67	0.10001	587625.58	4131344.92	0.08671
587645.58	4131344.92	0.10309	587665.58	4131344.92	0.12484
587609.66	4131364.92	0.08814	587625.58	4131364.92	0.09650
587610.91	4131345.04	0.07942	587644.68	4131357.78	0.10883
587609.66	4131384.92	0.10160	587625.58	4131384.92	0.11128

Model Output
Unit Emission Rates (1 g/s)

587646.09	4131386.96	0.13531	587665.58	4131384.92	0.16050
587685.58	4131384.92	0.19981	587609.66	4131404.92	0.11926
587625.58	4131404.92	0.13202	587645.58	4131404.92	0.15826

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** THE PERIOD (43872 HRS) AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP: ONSITE   ***
INCLUDING SOURCE(S):   1   ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER   IN MICROGRAMS/M**3   **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC	
587665.58	4131404.92	0.19349	587448.82	4131190.81	0.02377	
587468.82	4131190.81	0.02668	587503.21	4131193.87	0.03300	
587523.21	4131193.87	0.03768	587539.13	4131193.87	0.04233	
587448.82	4131210.81	0.02357	587468.82	4131210.81	0.02639	
587503.21	4131210.81	0.03245	587523.21	4131210.81	0.03676	
587539.13	4131210.81	0.04125	587539.13	4131230.81	0.04036	
587503.21	4131250.81	0.03200	587523.21	4131250.81	0.03584	
587539.13	4131250.81	0.03989	587503.21	4131270.81	0.03230	
587523.21	4131270.81	0.03602	587539.13	4131270.81	0.03994	
587483.21	4131290.81	0.02994	587523.21	4131290.81	0.03679	
587539.13	4131290.81	0.04067	587483.21	4131310.81	0.03150	
587503.21	4131310.81	0.03458	587523.21	4131310.81	0.03853	
587539.13	4131310.81	0.04245	587483.72	4131327.24	0.03416	
587503.72	4131327.24	0.03763	587523.72	4131327.24	0.04191	
587539.64	4131327.24	0.04600	587931.50	4131080.40	2.17549	
587951.50	4131080.40	2.34847	587971.50	4131080.40	2.46359	
587991.50	4131080.40	2.50579	588011.50	4131080.40	2.47197	
587915.26	4131095.39	2.19813	587932.13	4131095.70	2.40090	
587952.13	4131095.70	2.58354	587972.13	4131095.70	2.70410	
587992.13	4131095.70	2.73763	588012.13	4131095.70	2.68117	
587914.32	4131111.32	2.42267	587931.19	4131111.63	2.65207	
587951.19	4131111.63	2.85507	587991.19	4131111.63	3.01369	
588011.19	4131111.63	2.93485	587914.32	4131131.32	2.77583	
587931.19	4131131.63	3.04208	587951.19	4131131.63	3.27094	
587970.88	4131133.82	3.45880	587931.50	4131145.99	3.38183	
587951.50	4131145.99	3.63226	587971.50	4131145.99	3.76294	Residential MER
587475.63	4131374.67	0.03932	587495.63	4131374.67	0.04360	
587515.63	4131374.67	0.04857	587535.63	4131374.67	0.05439	
587555.63	4131374.67	0.06132	587575.63	4131374.67	0.06982	
587575.63	4131394.67	0.08029	587475.63	4131414.67	0.04881	
587495.63	4131414.67	0.05470	587515.63	4131414.67	0.06158	
587535.63	4131414.67	0.06964	587555.63	4131414.67	0.07937	
587575.63	4131414.67	0.09161	587625.58	4131344.92	0.08140	
587645.58	4131344.92	0.09644	587665.58	4131344.92	0.11630	

587609.66	4131364.92	0.08186	587625.58	4131364.92	0.08972
587610.91	4131345.04	0.07451	587644.68	4131357.78	0.10120
587609.66	4131384.92	0.09345	587625.58	4131384.92	0.10238
587646.09	4131386.96	0.12377	587665.58	4131384.92	0.14616
587685.58	4131384.92	0.18063	587609.66	4131404.92	0.10892
587625.58	4131404.92	0.12035	587645.58	4131404.92	0.14352

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** THE PERIOD (43872 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ONSITE ***
INCLUDING SOURCE(S): 1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
587665.58	4131404.92	0.17436	587448.82	4131190.81	0.02298
587468.82	4131190.81	0.02577	587503.21	4131193.87	0.03181
587523.21	4131193.87	0.03628	587539.13	4131193.87	0.04072
587448.82	4131210.81	0.02279	587468.82	4131210.81	0.02549
587503.21	4131210.81	0.03128	587523.21	4131210.81	0.03539
587539.13	4131210.81	0.03967	587539.13	4131230.81	0.03880
587503.21	4131250.81	0.03083	587523.21	4131250.81	0.03449
587539.13	4131250.81	0.03834	587503.21	4131270.81	0.03110
587523.21	4131270.81	0.03464	587539.13	4131270.81	0.03836
587483.21	4131290.81	0.02883	587523.21	4131290.81	0.03535
587539.13	4131290.81	0.03901	587483.21	4131310.81	0.03024
587503.21	4131310.81	0.03318	587523.21	4131310.81	0.03691
587539.13	4131310.81	0.04061	587483.72	4131327.24	0.03259
587503.72	4131327.24	0.03588	587523.72	4131327.24	0.03990
587539.64	4131327.24	0.04373	587931.50	4131080.40	2.10453
587951.50	4131080.40	2.27747	587971.50	4131080.40	2.39487
587991.50	4131080.40	2.44070	588011.50	4131080.40	2.41123
587915.26	4131095.39	2.11853	587932.13	4131095.70	2.31883
587952.13	4131095.70	2.50069	587972.13	4131095.70	2.62427
587992.13	4131095.70	2.66248	588012.13	4131095.70	2.61128
587914.32	4131111.32	2.32976	587931.19	4131111.63	2.55571
587951.19	4131111.63	2.75731	587991.19	4131111.63	2.92533
588011.19	4131111.63	2.85297	587914.32	4131131.32	2.66096
587931.19	4131131.63	2.92219	587951.19	4131131.63	3.14891
587970.88	4131133.82	3.33845	587931.50	4131145.99	3.24002
587951.50	4131145.99	3.48813	587971.50	4131145.99	3.62352
588188.71	4131100.64	0.89272	588185.54	4131072.12	0.90444
588150.68	4131050.99	1.15055	588089.65	4131050.25	1.68331
588238.36	4131100.64	0.59144	588236.25	4131072.12	0.60770
588089.41	4131023.52	1.54364	588183.43	4131025.64	0.88442
588294.76	4131692.70	0.09934	588280.72	4131734.27	0.08430

588302.99	4131768.68	0.06979	588309.06	4131813.21	0.05765
588347.52	4131768.01	0.06531	588367.08	4131769.36	0.06300
588343.91	4131738.76	0.07385	588365.28	4131736.28	0.07176
588188.71	4131100.64	0.84649	588185.54	4131072.12	0.86291
588150.68	4131050.99	1.10835	588089.65	4131050.25	1.64076
588236.25	4131072.12	0.57649	588089.41	4131023.52	1.50840
588183.43	4131025.64	0.85058	588294.76	4131692.70	0.09771
588280.72	4131734.27	0.08295	588302.99	4131768.68	0.06883
588309.06	4131813.21	0.05696	588347.52	4131768.01	0.06464

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** THE PERIOD (43872 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ONSITE ***
INCLUDING SOURCE(S): 1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
588367.08	4131769.36	0.06242	588343.91	4131738.76	0.07299
588365.28	4131736.28	0.07103	587562.30	4131060.30	0.06771
587572.82	4131048.45	0.07480	587602.98	4131053.87	0.09618
587626.70	4131048.79	0.11955	587650.37	4131060.08	0.14758
587570.77	4131067.77	0.07240	587588.74	4131066.76	0.08438
587551.38	4131044.80	0.06281	587618.52	4131070.48	0.10948
587638.52	4131070.48	0.13207	587562.30	4131060.30	0.06396
587572.82	4131048.45	0.07077	587602.98	4131053.87	0.09098
587626.70	4131048.79	0.11307	587650.37	4131060.08	0.13930
587570.77	4131067.77	0.06831	587588.74	4131066.76	0.07965
587551.38	4131044.80	0.05945	587618.52	4131070.48	0.10333
587638.52	4131070.48	0.12457	587567.41	4130993.34	0.07471
587587.41	4130993.34	0.08709	587607.41	4130993.34	0.10209
587627.41	4130993.34	0.11989	587647.41	4130993.34	0.14131
587587.41	4131013.34	0.08652	587607.41	4131013.34	0.10200
587627.41	4131013.34	0.12056	587647.41	4131013.34	0.14302
587544.18	4131029.58	0.06015	587913.01	4130951.09	1.03657
587933.01	4130951.09	1.13383	587953.01	4130951.09	1.21626
587973.01	4130951.09	1.28378	587993.01	4130951.09	1.32971
588013.01	4130951.09	1.35203	587913.01	4130971.09	1.13782
587933.01	4130971.09	1.24643	587953.01	4130971.09	1.33707
587973.01	4130971.09	1.40893	587993.01	4130971.09	1.45680
587913.01	4130991.09	1.25276	587953.01	4130991.09	1.47743
587973.01	4130991.09	1.55505	587993.01	4130991.09	1.60280
588013.01	4130991.09	1.61709	587913.01	4131011.09	1.38762
587973.01	4131015.90	1.76515	587993.01	4131015.90	1.81236
587913.01	4131031.09	1.54293	587933.01	4131031.09	1.69563
587952.43	4131026.80	1.77736	587973.01	4131031.09	1.91212

587993.01	4131031.09	1.95885	588013.01	4131031.09	1.95731
587913.01	4131051.09	1.72661	587933.01	4131051.09	1.90108
587952.43	4131046.80	1.98863	587973.01	4131051.09	2.13724
587993.01	4131051.09	2.17912	588013.01	4131051.09	2.16407
588049.88	4131046.86	1.96303	588049.44	4131027.68	1.81111
588049.85	4131003.37	1.63463	588049.44	4130981.12	1.49451
588092.71	4131002.96	1.42282	588095.18	4130977.82	1.30105
588144.63	4131003.37	1.09686	588145.04	4131030.15	1.15241
588190.37	4131005.02	0.82535	588147.10	4130976.58	1.02331
588188.31	4130984.41	0.81673	588142.98	4130960.92	1.01033
588182.13	4130960.92	0.82029	588236.53	4131050.35	0.60749
588274.44	4131050.76	0.46162	588272.79	4131067.65	0.46323

Model Output
Unit Emission Rates (1 g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** THE PERIOD (43872 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ONSITE ***
INCLUDING SOURCE(S): 1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC		X-COORD (M)	Y-COORD (M)	CONC	
588236.94	4131030.57	0.60471		588271.97	4131033.04	0.47246	
588187.18	4131685.32	0.13198		588261.34	4131688.71	0.10919	
588187.18	4131705.32	0.11731		588234.20	4131688.78	0.11607	
588282.10	4131763.92	0.07357		588187.18	4131725.32	0.10478	
588319.62	4131735.21	0.07828		588301.45	4131734.38	0.08118	
588187.18	4131745.32	0.09407		588258.98	4131734.56	0.08754	
588187.18	4131765.32	0.08488		588231.84	4131736.04	0.09117	
588259.45	4131763.05	0.07655		588187.18	4131785.32	0.07696	
588232.79	4131760.29	0.08084		588259.45	4131783.05	0.06995	
588187.18	4131805.32	0.07010		588232.79	4131780.29	0.07359	
588259.45	4131803.05	0.06412		588187.18	4131825.32	0.06413	
588232.79	4131800.29	0.06725		588259.45	4131823.05	0.05896	
588187.18	4131845.32	0.05889		588232.79	4131820.29	0.06167	
588259.45	4131843.05	0.05437		588187.18	4131865.32	0.05427	
588232.79	4131840.29	0.05673		588259.45	4131863.05	0.05028	
588232.79	4131860.29	0.05236		587793.14	4130952.26	0.44891	
587813.14	4130952.26	0.52855		587833.14	4130952.26	0.61841	
587728.39	4130971.97	0.27137		587748.39	4130971.97	0.32262	
587768.39	4130971.97	0.38454		587710.47	4130996.42	0.24218	
587763.34	4130996.12	0.39240		587793.14	4130992.26	0.50917	
587813.14	4130992.26	0.60800		587833.14	4130992.26	0.72065	
587710.47	4131016.42	0.25011		587730.47	4131016.42	0.30225	
587750.47	4131016.42	0.36561		587770.47	4131016.42	0.44386	
587793.14	4131012.26	0.54499		587813.14	4131012.26	0.65668	
587778.30	4131103.77	0.63872	Preschool	588280.54	4131122.13	0.42085	
587859.39	4130955.59	0.75984		587882.33	4130971.55	0.95078	
587859.39	4130975.59	0.82515		587882.33	4130991.55	1.04208	
587859.81	4131012.81	0.97965		587879.81	4131012.81	1.13752	High School
587881.56	4130954.00	0.87568		587859.39	4130955.59	0.72588	
587882.33	4130971.55	0.91142		587859.39	4130975.59	0.78705	
587882.33	4130991.55	0.99753		587859.81	4131012.81	0.93148	
587879.81	4131012.81	1.08657		587881.56	4130954.00	0.84026	

Model Output
Unit Emission Rates (1 g/s)


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*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                         *** THE PERIOD ( 43872 HRS) AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP: OFFSITE  ***
                             INCLUDING SOURCE(S):     L0000001    , L0000002    , L0000003    , L0000004    , L0000005    ,
             L0000006    , L0000007    , L0000008    , L0000009    , L0000010    , L0000011    , L0000012    , L0000013    ,
             L0000014    , L0000015    , L0000016    , L0000017    , L0000018    , L0000019    , L0000020    , L0000021    ,
             L0000022    , L0000023    , L0000024    , L0000025    , L0000026    , L0000027    , L0000028    ,  . . .      ,

                                     *** DISCRETE CARTESIAN RECEPTOR POINTS ***

                                 ** CONC OF OTHER    IN MICROGRAMS/M**3                          **
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X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
587475.63	4131374.67	1.60909	587495.63	4131374.67	2.23435
587515.63	4131374.67	2.70469	587535.63	4131374.67	2.99332
587555.63	4131374.67	3.16181	587575.63	4131374.67	3.27951
587575.63	4131394.67	4.33577	587448.82	4131190.81	0.25192
587468.82	4131190.81	0.30941	587503.21	4131193.87	0.43376
587523.21	4131193.87	0.50458	587539.13	4131193.87	0.56525
587448.82	4131210.81	0.27379	587468.82	4131210.81	0.34394
587503.21	4131210.81	0.47807	587523.21	4131210.81	0.55425
587539.13	4131210.81	0.62519	587539.13	4131230.81	0.71214
587503.21	4131250.81	0.62034	587523.21	4131250.81	0.72774
587539.13	4131250.81	0.82189	587503.21	4131270.81	0.71934
587523.21	4131270.81	0.84857	587539.13	4131270.81	0.96094
587483.21	4131290.81	0.67735	587523.21	4131290.81	1.00987
587539.13	4131290.81	1.14241	587483.21	4131310.81	0.81635
587503.21	4131310.81	1.03063	587523.21	4131310.81	1.24078
587539.13	4131310.81	1.39143	587483.72	4131327.24	0.99672
587503.72	4131327.24	1.27107	587523.72	4131327.24	1.51620
587539.64	4131327.24	1.67311	587931.50	4131080.40	1.22530
587951.50	4131080.40	1.26164	587971.50	4131080.40	1.29178
587991.50	4131080.40	1.31225	588011.50	4131080.40	1.31959
587915.26	4131095.39	1.28939	587932.13	4131095.70	1.32966
587952.13	4131095.70	1.36737	587972.13	4131095.70	1.40115
587992.13	4131095.70	1.42363	588012.13	4131095.70	1.43024
587914.32	4131111.32	1.40587	587931.19	4131111.63	1.45056
587951.19	4131111.63	1.49191	587991.19	4131111.63	1.55594
588011.19	4131111.63	1.56337	587914.32	4131131.32	1.58315
587475.63	4131374.67	1.41259	587495.63	4131374.67	2.03358
587515.63	4131374.67	2.48808	587535.63	4131374.67	2.74585
587555.63	4131374.67	2.88427	587575.63	4131374.67	2.98089
587575.63	4131394.67	3.79235	587475.63	4131414.67	2.63603
587495.63	4131414.67	3.90755	587515.63	4131414.67	4.37324
587535.63	4131414.67	4.51039	587555.63	4131414.67	4.55381
587575.63	4131414.67	4.62937	587625.58	4131344.92	2.28431
587645.58	4131344.92	2.44223	587665.58	4131344.92	2.64281

Model Output
Unit Emission Rates (1 g/s)

587609.66	4131364.92	2.76444	587625.58	4131364.92	2.77098
587610.91	4131345.04	2.26557	587644.68	4131357.78	2.75185
587609.66	4131384.92	3.44395	587625.58	4131384.92	3.41820
587646.09	4131386.96	3.74825	587665.58	4131384.92	3.95144
587685.58	4131384.92	4.49149	587609.66	4131404.92	4.34599
587625.58	4131404.92	4.31549	587645.58	4131404.92	4.63613

Model Output
Unit Emission Rates (1 g/s)


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*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                    *** THE PERIOD ( 43872 HRS) AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP: OFFSITE  ***
                        INCLUDING SOURCE(S):     L0000001    , L0000002    , L0000003    , L0000004    , L0000005    ,
          L0000006    , L0000007    , L0000008    , L0000009    , L0000010    , L0000011    , L0000012    , L0000013    ,
          L0000014    , L0000015    , L0000016    , L0000017    , L0000018    , L0000019    , L0000020    , L0000021    ,
          L0000022    , L0000023    , L0000024    , L0000025    , L0000026    , L0000027    , L0000028    ,  . . .      ,

                                  *** DISCRETE CARTESIAN RECEPTOR POINTS ***

                             ** CONC OF OTHER    IN MICROGRAMS/M**3                          **
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X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC	
587665.58	4131404.92	5.03362	587448.82	4131190.81	0.22371	
587468.82	4131190.81	0.27720	587503.21	4131193.87	0.39487	
587523.21	4131193.87	0.46523	587539.13	4131193.87	0.52388	
587448.82	4131210.81	0.24203	587468.82	4131210.81	0.30537	
587503.21	4131210.81	0.43471	587523.21	4131210.81	0.51229	
587539.13	4131210.81	0.57895	587539.13	4131230.81	0.65899	
587503.21	4131250.81	0.56170	587523.21	4131250.81	0.66908	
587539.13	4131250.81	0.75854	587503.21	4131270.81	0.64911	
587523.21	4131270.81	0.77821	587539.13	4131270.81	0.88317	
587483.21	4131290.81	0.59661	587523.21	4131290.81	0.91981	
587539.13	4131290.81	1.04295	587483.21	4131310.81	0.71053	
587503.21	4131310.81	0.91670	587523.21	4131310.81	1.11695	
587539.13	4131310.81	1.25857	587483.72	4131327.24	0.87657	
587503.72	4131327.24	1.14461	587523.72	4131327.24	1.38432	
587539.64	4131327.24	1.53704	587931.50	4131080.40	1.16882	
587951.50	4131080.40	1.20472	587971.50	4131080.40	1.23746	
587991.50	4131080.40	1.26214	588011.50	4131080.40	1.27540	
587915.26	4131095.39	1.22682	587932.13	4131095.70	1.26487	
587952.13	4131095.70	1.30085	587972.13	4131095.70	1.33814	
587992.13	4131095.70	1.36619	588012.13	4131095.70	1.38003	
587914.32	4131111.32	1.33328	587931.19	4131111.63	1.37503	
587951.19	4131111.63	1.41380	587991.19	4131111.63	1.48910	
588011.19	4131111.63	1.50497	587914.32	4131131.32	1.49396	
587931.19	4131131.63	1.54041	587951.19	4131131.63	1.58338	
587970.88	4131133.82	1.65369	587931.50	4131145.99	1.68247	
587951.50	4131145.99	1.73055	587971.50	4131145.99	1.78076	Residential MER
587475.63	4131374.67	1.15553	587495.63	4131374.67	1.69558	
587515.63	4131374.67	2.09207	587535.63	4131374.67	2.31516	
587555.63	4131374.67	2.43319	587575.63	4131374.67	2.51666	
587575.63	4131394.67	3.01015	587475.63	4131414.67	1.79574	
587495.63	4131414.67	2.68951	587515.63	4131414.67	3.04794	
587535.63	4131414.67	3.17625	587555.63	4131414.67	3.23588	
587575.63	4131414.67	3.31727	587625.58	4131344.92	2.01966	
587645.58	4131344.92	2.14898	587665.58	4131344.92	2.30590	

587609.66	4131364.92	2.38472	587625.58	4131364.92	2.35418
587610.91	4131345.04	2.02224	587644.68	4131357.78	2.36066
587609.66	4131384.92	2.80691	587625.58	4131384.92	2.72446
587646.09	4131386.96	2.91431	587665.58	4131384.92	3.03633
587685.58	4131384.92	3.33665	587609.66	4131404.92	3.24295
587625.58	4131404.92	3.11499	587645.58	4131404.92	3.26111

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** THE PERIOD (43872 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: OFFSITE ***
INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 ,
L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,
L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 ,
L0000022 , L0000023 , L0000024 , L0000025 , L0000026 , L0000027 , L0000028 , . . . ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
587665.58	4131404.92	3.42106	587448.82	4131190.81	0.21030
587468.82	4131190.81	0.26125	587503.21	4131193.87	0.37445
587523.21	4131193.87	0.44291	587539.13	4131193.87	0.49979
587448.82	4131210.81	0.22677	587468.82	4131210.81	0.28691
587503.21	4131210.81	0.41132	587523.21	4131210.81	0.48651
587539.13	4131210.81	0.55124	587539.13	4131230.81	0.62533
587503.21	4131250.81	0.52742	587523.21	4131250.81	0.63031
587539.13	4131250.81	0.71655	587503.21	4131270.81	0.60565
587523.21	4131270.81	0.72857	587539.13	4131270.81	0.82900
587483.21	4131290.81	0.54925	587523.21	4131290.81	0.85325
587539.13	4131290.81	0.97011	587483.21	4131310.81	0.64677
587503.21	4131310.81	0.83712	587523.21	4131310.81	1.02382
587539.13	4131310.81	1.15744	587483.72	4131327.24	0.78936
587503.72	4131327.24	1.03817	587523.72	4131327.24	1.26206
587539.64	4131327.24	1.40469	587931.50	4131080.40	1.12510
587951.50	4131080.40	1.16004	587971.50	4131080.40	1.19253
587991.50	4131080.40	1.21833	588011.50	4131080.40	1.23400
587915.26	4131095.39	1.17819	587932.13	4131095.70	1.21416
587952.13	4131095.70	1.24860	587972.13	4131095.70	1.28570
587992.13	4131095.70	1.31523	588012.13	4131095.70	1.33186
587914.32	4131111.32	1.27619	587931.19	4131111.63	1.31526
587951.19	4131111.63	1.35190	587991.19	4131111.63	1.42840
588011.19	4131111.63	1.44786	587914.32	4131131.32	1.42240
587931.19	4131131.63	1.46520	587951.19	4131131.63	1.50529
587970.88	4131133.82	1.57309	587931.50	4131145.99	1.59235
587951.50	4131145.99	1.63684	587971.50	4131145.99	1.68633
588188.71	4131100.64	0.78197	588185.54	4131072.12	0.75035
588150.68	4131050.99	0.83867	588089.65	4131050.25	1.03544

588238.36	4131100.64	0.59606	588236.25	4131072.12	0.57993
588089.41	4131023.52	0.93555	588183.43	4131025.64	0.68545
588294.76	4131692.70	0.29816	588280.72	4131734.27	0.29391
588302.99	4131768.68	0.22134	588309.06	4131813.21	0.18370
588347.52	4131768.01	0.16781	588367.08	4131769.36	0.15022
588343.91	4131738.76	0.18547	588365.28	4131736.28	0.16495
588188.71	4131100.64	0.76327	588185.54	4131072.12	0.73349
588150.68	4131050.99	0.82254	588089.65	4131050.25	1.01628
588236.25	4131072.12	0.56582	588089.41	4131023.52	0.91813
588183.43	4131025.64	0.67177	588294.76	4131692.70	0.28632
588280.72	4131734.27	0.28245	588302.99	4131768.68	0.21483
588309.06	4131813.21	0.17950	588347.52	4131768.01	0.16480

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** THE PERIOD (43872 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: OFFSITE ***
INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 ,
L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,
L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 ,
L0000022 , L0000023 , L0000024 , L0000025 , L0000026 , L0000027 , L0000028 , . . . ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
588367.08	4131769.36	0.14769	588343.91	4131738.76	0.18122
588365.28	4131736.28	0.16184	587562.30	4131060.30	0.33977
587572.82	4131048.45	0.34106	587602.98	4131053.87	0.40008
587626.70	4131048.79	0.43533	587650.37	4131060.08	0.49309
587570.77	4131067.77	0.37165	587588.74	4131066.76	0.40104
587551.38	4131044.80	0.29843	587618.52	4131070.48	0.45983
587638.52	4131070.48	0.49651	587562.30	4131060.30	0.31852
587572.82	4131048.45	0.32100	587602.98	4131053.87	0.37873
587626.70	4131048.79	0.41144	587650.37	4131060.08	0.46908
587570.77	4131067.77	0.34498	587588.74	4131066.76	0.37517
587551.38	4131044.80	0.28071	587618.52	4131070.48	0.43372
587638.52	4131070.48	0.46932	587567.41	4130993.34	0.26716
587587.41	4130993.34	0.29366	587607.41	4130993.34	0.32149
587627.41	4130993.34	0.34928	587647.41	4130993.34	0.37761
587587.41	4131013.34	0.31742	587607.41	4131013.34	0.34736
587627.41	4131013.34	0.37763	587647.41	4131013.34	0.40785
587544.18	4131029.58	0.26808	587913.01	4130951.09	0.67616
587933.01	4130951.09	0.69834	587953.01	4130951.09	0.71875
587973.01	4130951.09	0.73540	587993.01	4130951.09	0.74780
588013.01	4130951.09	0.75563	587913.01	4130971.09	0.72961
587933.01	4130971.09	0.75381	587953.01	4130971.09	0.77556
587973.01	4130971.09	0.79282	587993.01	4130971.09	0.80645

Model Output
Unit Emission Rates (1 g/s)

587913.01	4130991.09	0.79014	587953.01	4130991.09	0.84049
587973.01	4130991.09	0.85950	587993.01	4130991.09	0.87354
588013.01	4130991.09	0.88123	587913.01	4131011.09	0.85859
587973.01	4131015.90	0.95377	587993.01	4131015.90	0.96918
587913.01	4131031.09	0.93614	587933.01	4131031.09	0.96805
587952.43	4131026.80	0.97675	587973.01	4131031.09	1.01895
587993.01	4131031.09	1.03572	588013.01	4131031.09	1.04321
587913.01	4131051.09	1.02618	587933.01	4131051.09	1.06214
587952.43	4131046.80	1.07049	587973.01	4131051.09	1.11843
587993.01	4131051.09	1.13586	588013.01	4131051.09	1.14290
588049.88	4131046.86	1.09894	588049.44	4131027.68	1.01230
588049.85	4131003.37	0.91634	588049.44	4130981.12	0.84114
588092.71	4131002.96	0.86223	588095.18	4130977.82	0.78696
588144.63	4131003.37	0.75111	588145.04	4131030.15	0.80901
588190.37	4131005.02	0.63670	588147.10	4130976.58	0.69194
588188.31	4130984.41	0.61381	588142.98	4130960.92	0.67066
588182.13	4130960.92	0.59534	588236.53	4131050.35	0.56103
588274.44	4131050.76	0.46632	588272.79	4131067.65	0.47882

Model Output
Unit Emission Rates (1 g/s)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** THE PERIOD (43872 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: OFFSITE ***
INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 ,
L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,
L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 ,
L0000022 , L0000023 , L0000024 , L0000025 , L0000026 , L0000027 , L0000028 , . . . ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC		X-COORD (M)	Y-COORD (M)	CONC	
588236.94	4131030.57	0.54350		588271.97	4131033.04	0.46248	
588187.18	4131685.32	1.05763		588261.34	4131688.71	0.40769	
588187.18	4131705.32	0.98813		588234.20	4131688.78	0.54790	
588282.10	4131763.92	0.26240		588187.18	4131725.32	0.91245	
588319.62	4131735.21	0.21882		588301.45	4131734.38	0.24956	
588187.18	4131745.32	0.83186		588258.98	4131734.56	0.35623	
588187.18	4131765.32	0.74912		588231.84	4131736.04	0.47157	
588259.45	4131763.05	0.31768		588187.18	4131785.32	0.66613	
588232.79	4131760.29	0.41957		588259.45	4131783.05	0.29371	
588187.18	4131805.32	0.58625		588232.79	4131780.29	0.38363	
588259.45	4131803.05	0.27081		588187.18	4131825.32	0.51333	
588232.79	4131800.29	0.34916		588259.45	4131823.05	0.24920	
588187.18	4131845.32	0.44787		588232.79	4131820.29	0.31728	
588259.45	4131843.05	0.22869		588187.18	4131865.32	0.38900	
588232.79	4131840.29	0.28772		588259.45	4131863.05	0.20924	
588232.79	4131860.29	0.25991		587793.14	4130952.26	0.51308	
587813.14	4130952.26	0.54039		587833.14	4130952.26	0.56782	
587728.39	4130971.97	0.45677		587748.39	4130971.97	0.48433	
587768.39	4130971.97	0.51324		587710.47	4130996.42	0.47077	
587763.34	4130996.12	0.55182		587793.14	4130992.26	0.59156	
587813.14	4130992.26	0.62431		587833.14	4130992.26	0.65736	
587710.47	4131016.42	0.50656		587730.47	4131016.42	0.53934	
587750.47	4131016.42	0.57255		587770.47	4131016.42	0.60756	
587793.14	4131012.26	0.63891		587813.14	4131012.26	0.67561	
587778.30	4131103.77	0.91255	Preschool	588280.54	4131122.13	0.48460	
587859.39	4130955.59	0.61118		587882.33	4130971.55	0.68289	
587859.39	4130975.59	0.65750		587882.33	4130991.55	0.73780	
587859.81	4131012.81	0.76388		587879.81	4131012.81	0.80147	High School
587881.56	4130954.00	0.63870		587859.39	4130955.59	0.58867	
587882.33	4130971.55	0.65731		587859.39	4130975.59	0.63256	
587882.33	4130991.55	0.70936		587859.81	4131012.81	0.73300	
587879.81	4131012.81	0.76944		587881.56	4130954.00	0.61542	

Model Output
Unit Emission Rates (1 g/s)

```
 *** AERMOD - VERSION  19191 ***   *** COCU-21 Construction HRA                                                 ***        11/07/21
 *** AERMET - VERSION  14134 ***   *** Cupertino                                                                ***        23:35:55
                                                                                                                           PAGE  77
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                              *** THE SUMMARY OF MAXIMUM PERIOD ( 43872 HRS) RESULTS ***

                                          ** CONC OF OTHER    IN MICROGRAMS/M**3                          **

                                                                                                              NETWORK
GROUP ID                       AVERAGE CONC               RECEPTOR  (XR, YR, ZELEV, ZHILL, ZFLAG)  OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                     MER LOCATION
ONSITE     1ST HIGHEST VALUE IS       3.76294 AT (  587971.50,  4131145.99,    55.99,    55.99,    6.10)  DC
           2ND HIGHEST VALUE IS       3.63226 AT (  587951.50,  4131145.99,    56.31,    56.31,    6.10)  DC
           3RD HIGHEST VALUE IS       3.62352 AT (  587971.50,  4131145.99,    55.99,    55.99,    9.14)  DC
           4TH HIGHEST VALUE IS       3.48813 AT (  587951.50,  4131145.99,    56.31,    56.31,    9.14)  DC
           5TH HIGHEST VALUE IS       3.45880 AT (  587970.88,  4131133.82,    56.02,    56.02,    6.10)  DC
           6TH HIGHEST VALUE IS       3.38183 AT (  587931.50,  4131145.99,    56.28,    56.28,    6.10)  DC
           7TH HIGHEST VALUE IS       3.33845 AT (  587970.88,  4131133.82,    56.02,    56.02,    9.14)  DC
           8TH HIGHEST VALUE IS       3.27094 AT (  587951.19,  4131131.63,    56.58,    56.58,    6.10)  DC
           9TH HIGHEST VALUE IS       3.24002 AT (  587931.50,  4131145.99,    56.28,    56.28,    9.14)  DC
          10TH HIGHEST VALUE IS       3.14891 AT (  587951.19,  4131131.63,    56.58,    56.58,    9.14)  DC

OFFSITE    1ST HIGHEST VALUE IS       5.03362 AT (  587665.58,  4131404.92,    55.82,    55.82,    6.10)  DC
           2ND HIGHEST VALUE IS       4.63613 AT (  587645.58,  4131404.92,    55.94,    55.94,    6.10)  DC
           3RD HIGHEST VALUE IS       4.62937 AT (  587575.63,  4131414.67,    54.38,    54.38,    6.10)  DC
           4TH HIGHEST VALUE IS       4.55381 AT (  587555.63,  4131414.67,    54.54,    54.54,    6.10)  DC
           5TH HIGHEST VALUE IS       4.51039 AT (  587535.63,  4131414.67,    54.51,    54.51,    6.10)  DC
           6TH HIGHEST VALUE IS       4.49149 AT (  587685.58,  4131384.92,    55.51,    55.51,    6.10)  DC
           7TH HIGHEST VALUE IS       4.37324 AT (  587515.63,  4131414.67,    54.47,    54.47,    6.10)  DC
           8TH HIGHEST VALUE IS       4.34599 AT (  587609.66,  4131404.92,    54.66,    54.66,    6.10)  DC
           9TH HIGHEST VALUE IS       4.33577 AT (  587575.63,  4131394.67,    53.46,    53.46,    1.50)  DC
          10TH HIGHEST VALUE IS       4.31549 AT (  587625.58,  4131404.92,    55.97,    55.97,    6.10)  DC

 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
```

```
*** AERMOD - VERSION  19191 ***   *** COCU-21 Construction HRA                                                  ***        11/07/21
*** AERMET - VERSION  14134 ***   *** Cupertino                                                                 ***        23:35:55
                                                                                                                           PAGE  78
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of           0 Fatal Error Message(s)
A Total of           0 Warning Message(s)
A Total of       15496 Informational Message(s)

A Total of       43872 Hours Were Processed

A Total of       14061 Calm Hours Identified

A Total of        1435 Missing Hours Identified (  3.27 Percent)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
              ***  NONE  ***


   ************************************
   *** AERMOD Finishes Successfully ***
   ************************************
```

Appendix C. Construction Ris Calculations

Table C1
Residential MER Concentrations for Risk Calculations

Contaminant (a)	Source (b)		Model Output [1] ($\mu g/m^3$) (c)	Emission Rates [2] (g/s) (d)	MEIR Conc. ($\mu g/m^3$) (e)	Total MEIR Conc. Annual Average ($\mu g/m^3$) (f)
Residential Receptors - Unmitigated						
DPM	2023	On-Site Emissions	3.76	1.21E-02	4.57E-02	4.57E-02
		Truck Route	1.78	3.30E-05	5.87E-05	
	2024	On-Site Emissions	3.76	1.31E-02	4.95E-02	4.95E-02
		Truck Route	1.78	1.81E-05	3.23E-05	
Total DPM concentrations used for Cancer Risk and Chronic Hazard calculations						
$PM_{2.5}$	2023	On-Site Emissions	3.76	1.12E-02	4.23E-02	4.23E-02
		Truck Route	1.78	3.14E-05	5.60E-05	
	2024	On-Site Emissions	3.76	1.24E-02	4.68E-02	4.68E-02
		Truck Route	1.78	1.72E-05	3.06E-05	
			Maximum Annual $PM_{2.5}$ Concentration			**0.05**

Maximum Exposed Individual Resident (MEIR) UTM coordinates: 587971.50E, 4131145.99N

[1] Model Output at the MEIR based on unit emission rates for sources (1 g/s).

[2] Emission Rates from Emission Rate Calculations (Appendix A - Construction Emissions).

Table C2
Residential MER Health Risk Calculations

Source		MEIR	Weight	Contaminant	URF	CPF	Dose (by age bin)		Carcinogenic Risks (by age bin)		**Total Cancer Risk**	**Chronic Hazards [3]**	
		Conc.	Fraction		URF	CPF	3rd Trimester	0 < 2 years	3rd Trimester	0 < 2 years		REL	RESP
		(µg/m³)			(µg/m³)⁻¹	(mg/kg/day)⁻¹	(mg/kg-day)	(mg/kg-day)	per million	per million	per million	(µg/m³)	
(a)		(b)	(c)	(d)	(e)	(f)	(g)	(h)	(j)	(k)	(m)	(n)	(o)
Residential Receptors - Unmitigated													
2023	On & Off-	4.57E-02	1.00E+00	DPM	3.0E-04	1.1E+00	1.58E-05	4.78E-05	5.04E-01	2.58E+00	3.1	5.0E+00	9.14E-03
2024	Site	4.95E-02						5.18E-05		5.54E+00	5.5		9.90E-03
										Total	**8.6**		**0.019**

Maximum Exposed Individual Resident (MEIR) UTM coordinates: 587971.50E, 4131145.99N

		3rd Trimester	0 < 2 years
	OEHHA age bin	3rd Trimester	0 < 2 years
	exposure year(s)	2021	2021-2023
Dose Exposure Factors:	exposure frequency (days/year)	350	350
	inhalation rate (L/kg-day) [1]	361	1090
	inhalation absorption factor	1	1
	conversion factor (mg/µg; m³/L)	1.0E-06	1.0E-06
Risk Calculation Factors:	age sensitivity factor	10	10
	averaging time (years)	70	70
	per million	1.0E+06	1.0E+06
	fraction of time at home	0.85	0.85

exposure durations per age bin		exposure durations (year)	
Construction Year	Risk Scalar [2]	3rd Trimester	0 < 2 years
2023	0.67	0.25	0.42
2024	0.84		0.84
Total	1.51	0.25	1.26

[1] Inhalation rate taken as the 95th percentile breathing rates (OEHHA, 2015).

[2] Risk scalar determined for each year of construction to adjust receptor exposures to the exposure durations for each construction year (see App A - Construction Emissions).

[3] Chronic Hazards for DPM using the chronic reference exposure level (REL) for the Respiratory Toxicological Endpoint.

Table C3
Day Care/High School MER Concentrations for Risk Calculations

Contaminant (a)	Source (b)		Model Output [1] (µg/m³) (c)	Emission Rates [2] (g/s) (d)	MER Conc. (µg/m³) (e)	Total MER Conc. Annual Average (µg/m³) (f)
Preschool Receptors - Unmitigated						
DPM	2023	On-Site Emissions	0.64	1.21E-02	7.75E-03	7.78E-03
		Truck Route	0.91	3.30E-05	3.01E-05	
	2024	On-Site Emissions	0.64	1.31E-02	8.40E-03	8.42E-03
		Truck Route	0.91	1.81E-05	1.65E-05	
Total DPM concentrations used for Cancer Risk and Chronic Hazard calculations						
$PM_{2.5}$	2023	On-Site Emissions	0.64	1.12E-02	7.18E-03	7.21E-03
		Truck Route	0.91	3.14E-05	2.87E-05	
	2024	On-Site Emissions	0.64	1.24E-02	7.94E-03	7.95E-03
		Truck Route	0.91	1.72E-05	1.57E-05	
			Maximum Annual $PM_{2.5}$ Concentration			**0.008**
Sunflower Learning Center UTM coordinates: 587778.30E, 4131103.774N						
Cupertino High School Receptors - Unmitigated						
DPM	2023	On-Site Emissions	1.14	1.21E-02	1.38E-02	1.38E-02
		Truck Route	0.80	3.30E-05	2.64E-05	
	2024	On-Site Emissions	1.14	1.31E-02	1.50E-02	1.50E-02
		Truck Route	0.80	1.81E-05	1.45E-05	
Total DPM concentrations used for Cancer Risk and Chronic Hazard calculations						
$PM_{2.5}$	2023	On-Site Emissions	1.14	1.12E-02	1.28E-02	1.28E-02
		Truck Route	0.80	3.14E-05	2.52E-05	
	2024	On-Site Emissions	1.14	1.24E-02	1.41E-02	1.42E-02
		Truck Route	0.80	1.72E-05	1.38E-05	
			Maximum Annual $PM_{2.5}$ Concentration			**0.014**

High School MER UTM coordinates: 587879.81E, 4131012.81N

[1] Model Output at the MER based on unit emission rates for sources (1 g/s).

[2] Emission Rates from Emission Rate Calculations (Appendix A - Construction Emissions).

Table C4
Day Care/High School MER Health Risk Calculations

Source		MER Conc. (µg/m^3)	Weight Fraction	Contaminant	URF (µg/m^3)$^{-1}$	CPF (mg/kg/day)$^{-1}$	Dose (by age bin) Day Care 2 < 9 years (mg/kg-day)	Dose (by age bin) High School 2 < 16 years (mg/kg-day)	Carcinogenic Risks (by age bin) Day Care 2 < 9 years per million	Carcinogenic Risks (by age bin) High School 2 < 16 years per million	Total Cancer Risk per million	Chronic Hazards [3] REL (µg/m^3)	Chronic Hazards [3] RESP
(a)		(b)	(c)	(d)	(e)	(f)	(g)	(h)	(j)	(k)	(m)	(n)	(o)
Preschool Receptors - Unmitigated													
2023	On & Off-Site	7.78E-03	1.00E+00	DPM	3.0E-04	1.1E+00	4.59E-06		1.39E-01		0.1	5.0E+00	1.56E-03
2024		8.42E-03					4.96E-06		1.88E-01		0.2		1.68E-03
										Total	**0.3**		**0.003**
Cupertino High School Receptors - Unmitigated													
2023	On & Off-Site	1.38E-02	1.00E+00	DPM	3.0E-04	1.1E+00		3.55E-06		1.07E-01	0.1	5.0E+00	2.77E-03
2024		1.50E-02						3.84E-06		1.45E-01	0.1		2.99E-03
										Total	**0.3**		**0.006**

		Day Care	High School
	OEHHA age bin	2 < 9 years	2 < 16 years
	exposure year(s)	2023-2023	2023-2024
Dose Exposure Factors:	exposure frequency (days/year)	250	180
	8-hour inhalation rate (L/kg-day) [1]	861	520
	inhalation absorption factor	1	1
	conversion factor (mg/µg; m^3/L)	1.0E-06	1.0E-06
Risk Calculation Factors:	age sensitivity factor	3	3
	averaging time (years)	70	70
	per million	1.0E+06	1.0E+06

exposure durations per age bin		exposure durations (year)	
Construction Year	Risk Scalar [2]	2 < 9 years	2 < 16 years
2023	0.67	0.67	0.67
2024	0.84	0.84	0.84
Total	1.51	1.51	1.51

[1] Inhalation rate taken as the 8-hour 95th percentile breathing rates, Moderate Activity (OEHHA, 2015).
[2] Risk scalar determined for each year of construction to adjust receptor exposures to the exposure durations for each construction year (see App A - Construction Emissions).
[3] Chronic Hazards for DPM using the chronic reference exposure level (REL) for the Respiratory Toxicological Endpoint.

Appendix C:
Arborist Report

July 30, 2021

Vallco Parkway 1 Campus
Tree Inventory & Assessment
With Protection Guidelines

19191 Vallco Parkway
Cupertino, California

Prepared for:
Apple Inc.
One Apple Park Way
Cupertino, CA 95014

Prepared by:
Sam Oakley
ISA Board Certified Master Arborist WE-9474B
ISA Tree Risk Assessor Qualified
ASCA Registered Consulting Arborist #556

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Introduction

Arborwell was retained to inventory the trees within the proposed scope of work at 19191 Vallco Parway in Cupertino, California. Please see Exhibit 1 for the inventory plan sheet with each tree's location identified numerically. In addition to the inventory, we were asked to provide tree protection guidelines based on individuals' on-site conditions. The inventory was performed in late November 2020. Included in this report is a map of the inventoried trees (Exhibit 1) and the tree inventory matrix (Exhibit 2).

Assignment & Scope

This report intends to record the state of the trees on the aforementioned property as observed on the date of the inventory. Data collected per individual tree for the inventory are as follows:

- Identification number;
- Common name;
- Species;
- Diameter in inches at fifty-four (54) inches above grade, or for multi-trunk trees, the sum of diameter for all branches;
- Tree Height (approximated)
- Canopy spread;
- Health condition;
- Structural condition;
- Suitability for preservation;
- Observational notes.

Of the data collected in the field, health and structure were combined to give each tree a condition rating. The health of the tree is determined by its current size, canopy density, coloration, the appearance of any abnormalities or deficiencies and the overall health of the trunk, crown, and visible roots. The structure of the tree was evaluated based on the tree's natural, expected growth habit and form versus current growth habit, as well as the tree's inherent and exhibited structural integrity and deficiencies. Health and condition are subjective and species-dependent.

Note that the recommendations in this report are based on visual inspection on the above-ground parts of the tree at the time of the site visit. No soil was removed for below-grade inspection and no aerial inspection was performed. Information in this letter may warrant further investigation as site conditions change over time.

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Method

The specific tasks performed were as follows:

- Identify the trees on the property measured at fifty-four (54) inches above grade;
- Assign an identification number for the identified trees;
- Acquire the location of each identified individual;
- Measure the diameter of the individual at fifty-four (54) inches above grade, or the sum of diameter for all branches for multi-trunk trees;
- Observe the assessment data for each tree. Determine the tree's health and structural integrity, assign a current condition rating ranging from poor to excellent:

  Excellent – Exemplary health and structure for species; a healthy tree with limited signs or symptoms of disease;
  Good - Some minor deficiencies noted in health and/or structure, with potential for corrective measures to be performed to improve upon condition (including but not limited to fertilizer, pruning, and chemical applications);
  Fair - Higher level and/or incidence of deficiencies noted in health and/or structure, including possible hazardous conditions signs and symptoms observed, with higher corrective measures and input required to improve condition and, where applicable, mitigate hazard risk;
  Poor - Significant deficiencies noted in health and/or structure, some irreversible, and may include hazardous condition signs and symptoms observed requiring corrective action; some individuals may require removal;

- Prepare a written report that presents findings and submit the report via email as a PDF document.

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Tree Count and Composition

During the inventory, a total of two hundred (208) trees were quantified within the proposed projects scope of work measured at fifty-four (54) inches above grade. The 100 individuals are comprised of thirteen (13) species. The 13 species are in the following table, including counts and condition.

Common Name	Species	Count	Condition = Poor	Condition = Fair	Condition = Good	Condition = Excellent
California Black Oak	Quercus negra	3	0	0	1	2
Chinese Pistache	Pistacia chinensis	19	0	0	13	6
Coast Live Oak	Quercus agrifolia	12	0	1	10	1
Coast Redwood	Sequoia sempervirens	63	0	34	29	0
Cork Oak	Quercus suber	1	0	0	1	0
Evergreen Ash	Fraxinus uhdei	20	3	17	0	0
Holly Oak	Quercus ilex	14	0	0	1	13
London Plane	Platanus x acerifolia	15	0	0	15	0
Olive	Olea europaea	2	0	0	2	0
Southern Live Oak	Quercus virginiana	20	4	0	11	5
Trident Maple	Acer buergerianum	15	0	0	15	0
Valley Oak	Quercus lobata	3	0	0	2	1
Willow Oak	Quercus phellos	21	0	0	21	0
Total	13	208	3	52	121	32

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The City of Cupertino defines a *Protected Tree* as:

"14.18.050 Protected Trees.
Except as otherwise provided in Section 14.18.170, the following trees shall not be removed without first obtaining a tree removal permit:

A. Heritage trees in all zoning districts.
B. All mature specimen trees of the following species on private property:
    1. Quercus (native oak tree species), including:
        a. Quercus agrifolia (Coast Live Oak);
        b. Quercus lobata (Valley Oak);
        c. Quercus kelloggii (Black Oak);
        d. Quercus douglasii (Blue Oak);
        e. Quercus wislizeni (Interior Live Oak);
    2. Aesculus californica (California Buckeye);
    3. Acer macrophyllum (Big Leaf Maple);
    4. Cedrus deodara (Deodar Cedar);
    5. Cedrus atlantica 'Glauca' (Blue Atlas Cedar);
    6. Umbellularia californica (Bay Laurel or California Bay); and
    7. Platanus racemosa (Western Sycamore).
C. Approved development trees(s).
D. Approved privacy protection planting in R-1 zoning districts."

All of the trees surveyed are protected as they are part of the scope of an approved development.

Disposition

There are 96 trees on-site proposed for removal based on conflicts with the design plans.

Tree Protection Guidelines

The following sections are to be referred to for Tree Protection Guidelines (TPG).

Prior to Construction

All of the following measures shall be implemented prior to any work to eliminate undesirable consequences that may result from uninformed or careless acts, and preserve both trees and property values.

The following measures shall be implemented along with the TPG:

1. All Plan Sheets with work near any tree to be persevered, detailing any work near a tree, or where work occurs within the Tree Protection Zone (TPZ) will make reference to this document in bold so that it is clearly visible.

2. All Plan Sheets are to show accurate driplines in their entirety on all sheets where improvements and work is to occur in the TPZ

3. The General Notes sheet needs to make reference to the Tree Protection Guidelines sheet.

4. The Project Arborist (PA) is to attend the preconstruction meeting.

5. The PA or contractor shall verify, in writing, that all preconstruction conditions have been met (tree protection fencing, erosion control, pruning, etc.)

6. The demolition, grading and underground contractors, subcontractors, construction superintendent and other pertinent personnel are required to meet with the PA at the site prior to beginning specific work in a TPZ to review procedures, tree protection measures, and to establish appropriate haul routes, staging, areas, contacts, watering, etc. to maintain tree preservation.

7. Prior to any grading or construction, the PA shall assist in the setup of the TPZ.

8. Fenced enclosures shall be erected around trees to be protected to achieve three primary goals:

    a. To keep the foliage crowns and branching structure of the trees to be preserved clear from contact by equipment, materials and activities;

    b. Preserve roots intact and maintain proper soil conditions in a non-compacted state and;

    c. To identify the TPZ in which no soil disturbance is permitted and activities are restricted.

Tree Protection Zone

All of the trees to be preserved will incur significant impacts from grading, utilities, storm drains, bio-retention basins, curb and gutters, pathways, and landscaping.

Generally, a TPZ is established for each tree based on species tolerance, condition, and age. In many instances, this is an area less than the dripline of the tree. The improvements required for this project will not allow for what would be considered an adequate TPZ. Therefore, the TPZ will be the dripline (or curb face for the area of dripline extending over a hardscape surface) for all of the trees on this site.

Each tree to be preserved shall have a designated TPZ identifying the area sufficiently large enough to protect the tree and roots from disturbance. The recommended TPZ area can be determined by the canopy footprint. All work that occurs in the dripline falls under the category of the TPZ. This means that work that is performed within this zone will require direct involvement of the PA. Direct involvement requires the PA to be on site for all work in the dripline to provide direction when tree roots are encountered. Improvements or activities such as paving, utility, and irrigation trenching and other ancillary activities shall occur outside the TPZ, unless authorized by the PA. Unless otherwise specified, the protective fencing shall serve as the TPZ boundaries. At no time shall tree protection be encroached without the directive of the PA or City Arborist (CA).

Any tree that will have numerous improvements very close to the trunks and well within the driplines will require all work in the TPZ to utilize boring (for utilities and storm drains), pneumatic or hydraulic tools, as described in latter sections. This is necessary in order to preserve the health and structural integrity of the trees.

Improvements will be as far from any tree trunk as possible. Plans will show how the layout will help mitigate the severity of these impacts. There will be not landscape planting and the installation of underground piping and wiring inside any TPZ. Landscaping on the edges of a TPZ is acceptable utilizing the TPG for mitigating impacts under direction of the PA.

Activities prohibited within the TPZ include:

- Storage or parking vehicles, building materials, refuse, excavated spoils or dumping of poisonous materials on or around trees and roots. Poisonous materials include, but are not limited to, paint, petroleum products, concrete or stucco mix, dirty water or any other material which may be deleterious to tree health.

- The use of tree trunks as a winch support, anchorage, as a temporary power pole, sign posts or other similar function.

- Cutting of tree roots by utility trenching, foundation digging, placement of curbs and trenches and other miscellaneous excavation without prior approval of the PA.

- Soil disturbance or grade/drainage changes

- Materials must not be stored, stockpiled, dumped, or buried inside the dripline of trees.

- Excavated soil must not be piled or dumped, even temporarily, inside the TPZ of protected trees.

Activities permitted or required within the TPZ include:

- Mulching: During construction, wood chips shall be spread within the TPZ to a six (6) inch depth, leaving the trunk clear of mulch to help inadvertent compaction and moisture loss from occurring. The mulch may be removed if improvements or other landscaping is required. Mulch material shall comply with ISA specifications. Mulching may be applied at a depth of three (3) inches prior to construction under trees where there is no landscaping or paving (landscaping shall not be installed underneath a mature tree).

- Root Buffer: When areas under the tree canopy cannot be fenced, a temporary buffer is required and shall cover the root zone and remain in place at the specified thickness until final grading stage.

- Irrigation, aeration, or other beneficial practices that have been specifically approved for use within the TPZ.

Size, Type, and Duration of Fence

All trees to be preserved shall be protected with six (6) foot high fences. Fencing is to be mounted on two inch diameter galvanized iron posts, driven into the ground to a depth of at least two (2) feet at no more than ten (10) foot spacing. For trees located directly adjacent to hardscape, instead of driving the posts into the ground they can be mounted to portable stanchions. The stanchions shall be held down with rebar staples in order to avoid easy movement by equipment and construction personnel. A closeable 36-inch entry section for servicing the TPZ shall be provided. In addition, the trunks of the trees to be preserved are to be wrapped with brightly colored snow fencing, which will provide a visual reminder to workers that the trees are protected.

Types of Tree Protection for Project

Tree protection type will be determined by the PA other than specifications noted above. Note that a tree may be in one type of TPZ for a part of the project, and then modified to another type depending on the location and proximity to construction and approved design plans. This will need to be determined by the PA throughout the project on a case by case basis.

TPZ for these trees will be difficult as the project moves forward. Initial installation of the TPZ will require the following dimensions:

> The fences shall enclose the entire area under the **canopy dripline or designated TPZ** of the tree(s) to be saved throughout the life of the project, or until final improvement work within the area is required, typically near the end of the project.
>
> For trees situated directly adjacent to a **curb edge**, along said curb edge and around the dripline shall be enclosed with the required chain link protective fencing in order to keep the street open for public use.
>
> Final Improvements: If the fencing must be relocated on paving or sidewalk for final improvements, the posts may be supported by an appropriate stanchions.

Duration of Tree Protection Fencing

Tree fencing shall be erected prior to demolition, grading or construction and remain in place until final inspection. Tree Protection Fencing shall be field verified by the PA before any work can begin, including grubbing, demolition, and grading. TPZ cannot be moved without the prior approval of the PA. The PA is required to notify the CA in advance if movement of the TPZ is requested and adequate reasoning behind said request.

TPZs are to remain throughout the entirety of the project.

"Warning" Signage

A warning sign a minimum of 8.5x11-inches shall be prominently displayed on each fence. The sign shall clearly state:

This is a Tree Protection Zone
Movement of this fence requires the prior authorization of the Project Arborist & City Arborist
Any violation of the TPZ will result in a "Stop Work Order"
(List contact information for contractor and project arborist)

Pruning, Surgery and Removal

Prior to construction, trees will require that branches be pruned clear from structures, activities, building encroachment or will need to be strengthened by means of mechanical support (cabling) or surgery. This should be performed under the direction of the PA. Such pruning, surgery or the removal of trees shall adhere to the following standards:

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1. Pruning limitations:

   a. Minimum Pruning: If the PA recommends that trees be pruned, and the type of pruning is left unspecified, the standard pruning shall consist of 'crown cleaning' as defined by ISA Pruning Guidelines. Trees shall be pruned to reduce hazards and develop a strong, safe framework. Prune any desiccated material from the crown.

   b. Maximum Pruning: Maximum pruning should only occur in the rarest situation approved by the PA. No more than one-fourth (1/4) of the functioning leaf and stem area may be removed within one (1) calendar year of any tree, or removal of foliage so as to cause the unbalancing of the tree. It must be recognized that trees are individual in form and structure, and that pruning needs may not always fit strict rules. The PA shall assume all responsibility for special pruning practices that vary from the standards outlined in this document.

   c. Tree Workers: Pruning shall not be attempted by construction or contractor personnel, but shall be performed by a qualified tree care specialist or certified tree worker under the direction of a certified arborist.

Activities During Construction and Demolition Near Trees

Soil disturbance or other injurious and detrimental activity within the TPZ is prohibited unless approved by the PA. If an injurious event inadvertently occurs, or soil disturbance has been specifically conditioned for project approval, then the following mitigation is required:

1. Soil Compaction: If compaction of the soil occurs, it shall be mitigated as outlined in Mitigating Soil Compaction.

2. Grading Limitations within the Tree Protection Zone:

   a. Grade changes outside of the TPZ shall not significantly alter drainage to the tree.

   b. Grade changes within the TPZ are not permitted.

   c. Grade changes under specifically approved circumstances shall not allow more than six (6) inches of fill soil added or allow more than four (4) inches of existing soil to be removed from natural grade unless mitigated immediately.

   d. In some cases excavation will be necessary to accommodate the base thickness for paving, walls, footings, roads, paved plazas, etc. underneath some existing trees' driplines. This type of excavation will be removed with the assistance of an air spade and assisting hand tool, trenching at 400 to 600 PSI. An air spade will blow soil away from root systems with minimal damage.

Mitigating Soil Compaction

Compaction, inadvertent or intentional, is not allowed within the existing dripline of any protected tree without consent of the PA. If compaction is required in the dripline of any tree, the use of Geocell® or equal shall be used in conjunction with structural soils and permeable paving materials where indicated on plan sheets.

Geocell®, a sub-base confinement system designed for the protection of tree roots where the construction of compacted soils are required in the vicinity of trees, allows the continued passage and circulation of air, water, and nutrients to tree roots to sustain a healthy growing environment while allowing for the required compaction. Call US Fabrics for locating a representative in the United States

1. Do not install impervious materials such as roads and walkways where they will impact more than 25% of drip line area (unless existing conditions are already present) and unless reviewed and approved by the PA.

2. When installing walkways within the drip line, use pervious materials wherever possible. Refer to Landscape Construction Plans for pervious paving and/or Geocell sub-base locations and details.

3. Make sure that the tree requirements are fully recognized during design, construction installation and maintenance of landscape.

Trenching, Excavation and Equipment Use

Excavation or boring activity within the TPZ is restricted to the following activities, conditions and requirements if approved by the PA:

1. Notification. Contractor shall notify the PA a minimum of twenty-four (24) hours in advance of the activity in the TPZ.

2. Root Severance. Roots that are encountered shall be cut to sound wood and repaired. No roots of two (20 inch diameter and larger shall be cut without the prior approval of the PA. Approval is based on the distance of the root from the tree trunk and whether or not there are sufficient roots in the area to compensate for their removal.

3. Excavation. Any approved excavation, demolition or extraction of material shall be performed with equipment sitting outside the TPZ. Methods permitted are by hand

digging, hydraulic or pneumatic air excavation technology. Avoid excavation within the TPZ during hot, dry weather.

a. If excavation or trenching for drainage, utilities, irrigation lines, etc., it is the duty of the contractor to tunnel under any roots two (2) inches in diameter and greater.

b. Prior to excavation for foundation/footings/walls, grading or trenching within the TPZ, roots shall first be severed cleanly one (1) foot outside the TPZ and to the depth of the future excavation. The trench must then be hand dug and roots pruned with a saw or other approved root pruning equipment by the PA.

4. Heavy Equipment. Use of backhoes, steel tread tractors or any heavy vehicles within the TPZ is prohibited

Root Severance

Cutting and removal of roots smaller than two (2) inches in diameter shall be done by chain saw or hand saw to provide a flat and smooth cut and cause the least damage possible to the root and tree's health. Cutting roots by means of tractor-type equipment or other than chain saws and hand saws is prohibited.

Proper pruning technique shall encourage callusing of the roots. Root cutting and removal shall not exceed thirty-five (35) percent of total root surface.

The Contractor shall remove any wood chips or debris that may be left over from root removal that may affect the construction of improvements.

If any roots over two (2) inches in diameter are severed during any excavation, the following procedure shall be followed:

1. The roots shall be shaded by immediately covering the entire trench with plywood, or by covering the sides of the trench with burlap sheeting that is kept moist by watering twice per day.

2. When ready to backfill, each root shall be severed cleanly with a handsaw. Where practical, they should be cut back to a side root. Immediately, a plastic bag shall be placed over the fresh cut, and secured with a rubber band or electrical tape. Shading should immediately be placed until backfilling occurs.

3. Plastic bags shall be removed prior to backfilling.

4. Backfill shall be clean, native material free of debris, gravel or wood chips.

If roots three (3) inches in diameter, or larger, are encountered during excavation, Contractor shall contact the PA immediately and request a field inspection, and obtain instruction as to how the roots should be treated. No roots three (3) inches in diameter, or larger, shall be cut and removed without prior approval from the PA. Excavation will be performed with an air spade when greater than 4” of soil is required to be removed from a dripline. Roots will be pruned according to recommendations by the PA.

Root Barrier Installation

Where paved surfaces are to be installed adjacent to tree root zones, Biobarrier® root control fabric or equal shall be used to limit the spread of future roots and control future hardscape damage. The root control fabric uses the controlled release of trifluralin, a root-inhibition herbicide that prevents the growth of roots outside of the desired root zone. To install the root control fabric:

1. Dig a minimum 3 foot trench along the area you want to protect.

2. Prune tree roots.

3. Place the root control fabric in the trench, making sure it is between the area to be protected and all roots.

4. Secure the fabric near the surface so roots do not grow over it and against the wall of the trench opposite the root source.

5. Backfill the trench and tamp it to ensure there are no gaps in the soil.

6. Always follow the detailed installation instructions that are included with the root control fabric.

Irrigation Program

To help compensate for the root loss, deep-root irrigate all trees during the dry months (any month receiving less than 1 inch of rainfall) for a minimum of one (1) year after the project is complete.

1. Irrigation is to begin immediately for all existing trees to remain.
2. An application of growth regulator (paclobutryzol) prior to construction activities will aid in the development of fine-root growth and will help counter the effects of any root damage. This should be applied immediately for all trees that are to be protected in place. This application of growth

regulator shall be applied yearly for a minimum of one (1) year after the project is complete. This is to be performed by a certified tree care specialist.

3. In addition, all trees are to have roots inoculated with endo/ectomycorrhizal fungal inoculum.
4. Irrigate a minimum of ten (10) gallons for each inch of trunk diameter every month. A soaker hose or a drip line is preferred for this purpose. The first year's irrigation should be applied at the full rate. The first six (6) months of the second year, half of the rate shall be applied. The last six (6) months of the second year a quarter of the original rate will be applied. All rate adjustments will be monitored by the PA. Extra controller wires and stub outs for additional valves shall be installed for the permanent irrigation system and be available in the event that any individual tree begins to decline from water-stress after the project is complete.
5. Irrigation must also be applied during the trees' recovery period, which will be longer than the construction process. Irrigation will be beneficial to new root formation and must be performed for one (1) year after construction is complete. Refer to irrigation plans.
6. Any new irrigation for existing trees must not be designed to strike the trunks of trees, because of potential high risk of disease infection. Bubbler irrigation is preferred.
7. If any irrigation lines, drain lines, sewer lines, or any other underground features inside the existing dripline of protected trees that are to be abandoned, they should be cut off approximately at soil grade and left in the ground.
8. Where necessary, irrigation should be installed using at least two bubblers.
9. The foliage of tree shall be kept dust-free with monthly washings, or more frequent as determined by the PA.

Transplanting

Within this project, the following scopes of work are to be performed by a licensed and insured certified arborist:

- Transplantability, Timing, and Site Selection
- Tree Transplants & Boxing
- Maintenance of Boxed Trees

Transplantability, Timing, & Site Selection

Transplanted trees will need similar site conditions to where they are being transplanted. This means that they cannot have more than four (4) hours per day of full sun. They also do best with moist and very well-drained soils; ensure the new site is prepared for this before transplanting.

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1. Choose a day when the soil is moist so that soil clings to the roots. Transplant the trees when they are in their dormant/slow growth stage, between late October and early March.
2. Before the project begins, a soil analysis shall be performed by the contracted arborist at the original site and transfer site to facilitate soil amendments and minimize soil differences.
3. Treat the transfer location and hole, using the correct soil amendments, to match the original site's soil characteristics.

Transplant Excavation

Prior to beginning the transplant stages of the project:

i. Activate a USA call in which all nearby underground utilities will be marked on-site.
ii. Use a mechanical trenching device to provide a minimum 48-inch box-size for the root ball.
iii. All locations in which utilities are present around trees to be transplanted will be dug with the airspade to avoid damaging utility lines.

Use a minimum of a 48-inch size box to be built around the root ball, to be determined by the actual tree's size.

1. The box will be used during transport and storage.
2. The trenches should be excavated vertically down and at least ten (10) inches wide on each side to allow for working space.
3. Once the four sides have been dug, hand-excavate the trench at approximately a 15-degree.
4. When roots are encountered, prune the roots using hand pruners. Hand pruning the roots will minimize damage to the root system and promote new root growth.
5. Wrap the sides of the root ball with burlap tarps.
6. Attach the box's vertical sides to each other, securing the root ball inside the structure.
7. A winch or mechanical advantage will be used to help lift the tree, with four (4) vertical sides in place, using a high-tension vinyl strap secured around the structure.
8. As the structure is lifted, hand-prune any roots beneath the root ball to detach the tree from its current growing location.
9. Burlap tarps will be pulled beneath the tree in order to lift it into horizontal bottom of the box structure.
10. Attach the horizontal bottom to the box structure.

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In this structure, the tree can be stored for no more than one (1) week. Plant as soon as possible and apply TPZ and appropriate treatments. Where necessary, a crane shall be used to assist the crews in lifting and transporting the trees to the storage location. Care should be taken at all times to avoid damage to the trunk and canopy of the tree.

Transplanting Maintenance

Once moved to the new location:

1. The trees shall be staked or guyed (the most appropriate technique will be determined by site set-up, location, and conditions).
2. A TPZ will be set up at the new location.
3. Bi-weekly watering will begin immediately for trees to be transplanted and will resume to the site irrigation schedule once the PA has determined the trees have established.
4. At the first watering, modified plant growth regulators will be applied by a licensed and insured certified arborist in the form of trunk injections to help compensate for fine root loss and to encourage active mycorrihizal production within the rooting zone. Notify the PA at least 72 hours in advance.
5. The watering rates and amounts will be adjusted according to tree response post-transplant.

Damage to Trees - Reporting

Any damage or injury to trees shall be reported within six (6) hours to the PA and job superintendent or CA so that mitigation can take place. All mechanical or chemical injury to branches, trunk or to roots over two (2) inches in diameter shall be reported in the biweekly inspection report. In the event of injury, the following mitigation and damage control measures shall apply and implemented by a Certified Arborist:

a. Root injury: If trenches are cut and tree roots two (2) inches or larger are encountered they must be cleanly cut. The end of the root shall be covered with either a plastic bag and secured with tape or rubber band. All exposed root areas within the TPZ shall be backfilled or covered within one (1) hour. Exposed roots may be kept from drying out by temporarily covering the roots and draping layered burlap or carpeting over the upper three (3) feet of trench walls. The materials must be kept wet until backfilled to reduce evaporation from the trench walls. All the above activities shall be performed by a Certified Arborist.

b. Bark or trunk wounding: Current bark tracing and treatment methods shall be performed by a Certified Arborist within two (2) days.

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c. Scaffold branch or leaf canopy injury: A Certified Arborist will remove broken or torn branches back to an appropriate branch capable of resuming terminal growth within five (5) days. If leaves are heat scorched from equipment exhaust pipes, consult the PA within six (6) hours.

Inspection Schedule

The PA retained by the applicant shall conduct the following required inspections of the construction site:

1. Inspections shall verify that the type of tree protection and/or plantings re consistent with the standards outlined within this document. For each required inspection or meeting, a written summary of the changing tree related conditions, actions taken, and condition of trees shall be provided to the contactor.

   a. Inspection of Protective Tree Fencing.

   b. Pre-Construction Meeting. Prior to commencement of construction, the contractor shall conduct a pre-construction meeting to discuss tree protection with the job site superintendent, grading equipment operators, and the PA.

   c. Inspection of Rough Grading. The PA shall perform an inspection during the course of rough grading adjacent to the TPZ to ensure trees will not be injured by compaction, cut or fill, drainage and trenching, and if required, inspect aeration systems, tree wells, drains and special paving. The contractor shall provide the PA at least forty-eight (48) hours advance notice of such activity.

   d. The PA shall perform inspections every two weeks during the demolition and mass grading to monitor changing conditions and tree health. Upon completion of demolition and mass grading, the CA will determine if monthly inspections will be required in lieu of inspections every two weeks. The CA shall be in receipt of an inspection summary during the first week of each calendar month or, immediately if there are any changes to the approved plans or protection measures.

   e. Any special activity within the Tree Protection Zone. Work in this area (TPZ) requires the direct on-site supervision of the PA.

Assumptions and Limiting Conditions

The following are limitations to this report:

- All information presented herein covers only the trees examined at the area of inspection, and reflects the condition observed of said trees at the time of inspection.
- Observations were performed visually without probing, dissecting, coring, or excavation, unless noted above, and in no way shall the observer be held responsible for any defects that could have only been discovered by performing said services in specific area(s) where a defect was located.
- No guarantee or warranty is made, expressed or implied, that defects of the trees inspected may not arise in the future.
- No assurance can be offered that if the recommendation and precautionary measures are accepted and followed, that the desired results may be attained.
- No responsibility is assumed for the methods used by any person or company executing the recommendations provided in this report.
- The information provided herein represents an opinion, and in no way is the reporting of a specified finding, conclusion, or value based on the retainer.
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- Should any part of this report be altered, damaged, corrupted, or lost, the entire evaluation shall be invalid.

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Exhibit 1 – Site Plan With Tree Locations

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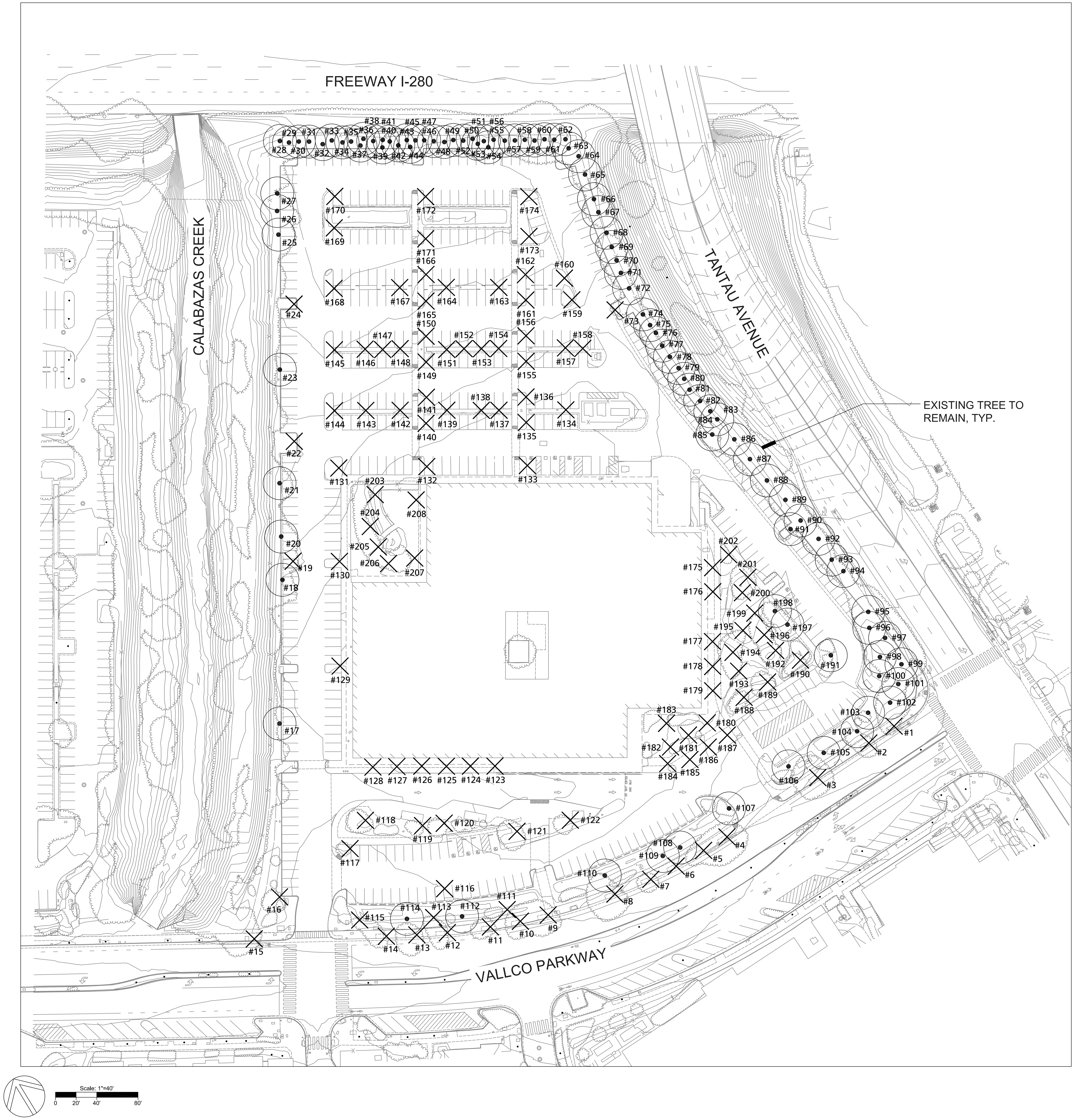

Tree Disposition Legend

- ● Existing Tree to Remain
- ✕ Existing Tree to be Removed
- ⊠ Existing Tree Dead to be Removed

Existing Tree Analysis

208	Total Number of Existing Trees
– 113	Number of Existing Trees to be Removed
95	Number of Existing Trees to Remain
95	Number of Existing Trees to Remain
+ 191	New Trees to be Planted (24" Box size)
286	Total Number of Trees at Project Completion

NOTE: See Arborist Report for existing tree species, locations, conditions, and sizes

Replacement Tree Guidelines

Diameter of Trunk Size of Removed Tree (Measured 4.5 feet above grade)	Replacement Trees Required	Replacement Trees Provided
Up to 12 inches - 100 Trees	100, 24" box trees	
Over 12 inches and up to 36 inches - 13 Trees	26, 24" box trees OR 13, 36" box trees	190, 24" box trees
Over 36 inches - None	N/A	
Total Trees To Be Removed: 113	**Total Required Replacement Trees: 126, 24" box trees**	**Total: 191 Trees (78 Net Possitive Trees)**

L06.0 - Tree Disposition Plan

Apple, Inc.

09.01.2021 Scale: 1" = 40'-0"

The Guzzardo Partnership, Inc.
Landscape Architects | Land Planners
181 Greenwich Street
San Francisco, CA 94111

STUDIOS architecture

Exhibit 2 - Vallco Parkway 1 Tree Inventory Matrix

19191 Vallco Parkway, Cupertino, California

ID	Common Name	Species	DBH (inches)	Height (feet)	Canopy Spread (feet)	Health Condition	Structural Condition	Suitability For Preservation	Disposition	Observations
1	Evergreen Ash	Fraxinus uhdei	14	25	20	Fair	Poor	Low	Preserve	Poor Branching Structure
2	Evergreen Ash	Fraxinus uhdei	14	25	20	Fair	Poor	Low	Preserve	Poor Branching Structure
3	Evergreen Ash	Fraxinus uhdei	26	35	25	Fair	Fair	Moderate	Preserve	Codominant Branching
4	Evergreen Ash	Fraxinus uhdei	24	35	35	Fair	Poor	Low	Preserve	Poor Branching Structure
5	Evergreen Ash	Fraxinus uhdei	10	15	15	Fair	Poor	Low	Preserve	Poor Trunk Structure
6	Evergreen Ash	Fraxinus uhdei	12	20	15	Poor	Poor	Low	Preserve	Significant Dieback At The Top Of Canopy; Poor Structure
7	Evergreen Ash	Fraxinus uhdei	18	25	20	Fair	Poor	Low	Preserve	Structurally Unbalanced
8	Evergreen Ash	Fraxinus uhdei	36	40	30	Fair	Fair	Moderate	Preserve	Codominant Branching
9	Evergreen Ash	Fraxinus uhdei	16	40	30	Poor	Poor	Low	Preserve	Significant Dieback At The Top Of Canopy; Poor Structure
10	Evergreen Ash	Fraxinus uhdei	24	35	25	Fair	Poor	Low	Preserve	Poor Branching Structure
11	Evergreen Ash	Fraxinus uhdei	26	20	15	Fair	Poor	Low	Preserve	Structurally Unbalanced
12	Evergreen Ash	Fraxinus uhdei	24	35	25	Fair	Fair	Moderate	Preserve	Codominant Branching
13	Evergreen Ash	Fraxinus uhdei	18	30	35	Fair	Fair	Moderate	Preserve	Codominant Branching
14	Evergreen Ash	Fraxinus uhdei	12	20	20	Poor	Poor	Low	Preserve	Declining Health; Codominant Branching
15	Evergreen Ash	Fraxinus uhdei	30	35	35	Fair	Poor	Low	Removed Based On Design Plans	Large Decay Column On Trunk
16	Valley Oak	Quercus lobata	10	25	25	Good	Good	Good	Removed Based On Design Plans	
17	Southern Live Oak	Quercus virginiana	2	10	5	Poor	Poor	Poor	Preserve	In Decline; Poor Strucutre
18	Coast Live Oak	Quercus agrifolia	16	20	30	Good	Good	Good	Removed Based On Design Plans	
19	Southern Live Oak	Quercus virginiana	3	10	5	Poor	Poor	Poor	Preserve	In Decline; Poor Strucutre
20	Coast Live Oak	Quercus agrifolia	26	20	30	Good	Good	Good	Preserve	
21	Coast Live Oak	Quercus agrifolia	22	20	30	Good	Good	Good	Preserve	
22	Southern Live Oak	Quercus virginiana	4	10	5	Poor	Poor	Poor	Preserve	In Decline; Poor Strucutre
23	California Black Oak	Quercus kelloggii	10	20	20	Good	Fair	Moderate	Preserve	Leaning
24	Southern Live Oak	Quercus virginiana	4	10	5	Poor	Poor	Poor	Preserve	In Decline; Poor Strucutre
25	Coast Live Oak	Quercus agrifolia	24	20	30	Good	Good	Good	Preserve	
26	Coast Live Oak	Quercus agrifolia	26	30	30	Good	Good	Good	Preserve	
27	California Black Oak	Quercus kelloggii	2	10	5	Excellent	Excellent	Good	Preserve	Young Tree
28	Coast Redwood	Sequoia sempervirens	20	50	20	Fair	Good	Moderate	Preserve	Perimeter Tree
29	Coast Redwood	Sequoia sempervirens	28	50	20	Fair	Good	Moderate	Preserve	Perimeter Tree
30	Coast Redwood	Sequoia sempervirens	20	50	20	Fair	Good	Moderate	Preserve	Perimeter Tree
31	Coast Redwood	Sequoia sempervirens	16	50	20	Fair	Good	Moderate	Preserve	Perimeter Tree
32	Coast Redwood	Sequoia sempervirens	24	50	20	Fair	Good	Moderate	Preserve	Perimeter Tree
33	Coast Redwood	Sequoia sempervirens	24	50	20	Fair	Good	Moderate	Preserve	Perimeter Tree
34	Coast Redwood	Sequoia sempervirens	24	50	20	Fair	Good	Moderate	Preserve	Perimeter Tree
35	Coast Redwood	Sequoia sempervirens	36	50	20	Fair	Good	Moderate	Preserve	Perimeter Tree
36	Coast Redwood	Sequoia sempervirens	24	50	20	Fair	Good	Moderate	Preserve	Perimeter Tree
37	Evergreen Ash	Fraxinus uhdei	6	15	15	Fair	Fair	Moderate	Preserve	Perimeter Tree
38	Coast Redwood	Sequoia sempervirens	34	30	20	Fair	Good	Moderate	Preserve	Perimeter Tree
39	Evergreen Ash	Fraxinus uhdei	12	30	20	Fair	Fair	Moderate	Preserve	Perimeter Tree
40	Coast Redwood	Sequoia sempervirens	12	15	15	Fair	Good	Moderate	Preserve	Perimeter Tree
41	Coast Redwood	Sequoia sempervirens	10	40	20	Fair	Good	Moderate	Preserve	Perimeter Tree
42	Coast Redwood	Sequoia sempervirens	8	40	20	Fair	Good	Moderate	Preserve	Perimeter Tree
43	Coast Redwood	Sequoia sempervirens	18	40	20	Fair	Good	Moderate	Preserve	Perimeter Tree
44	Coast Redwood	Sequoia sempervirens	14	40	20	Fair	Good	Moderate	Preserve	Perimeter Tree
45	Coast Redwood	Sequoia sempervirens	20	40	20	Fair	Good	Moderate	Preserve	Perimeter Tree
46	Coast Redwood	Sequoia sempervirens	12	40	20	Fair	Good	Moderate	Preserve	Perimeter Tree
47	Coast Redwood	Sequoia sempervirens	16	40	20	Fair	Good	Moderate	Preserve	Perimeter Tree
48	Coast Redwood	Sequoia sempervirens	18	40	20	Fair	Good	Moderate	Preserve	Perimeter Tree
49	Coast Redwood	Sequoia sempervirens	16	40	20	Fair	Good	Moderate	Preserve	Perimeter Tree
50	Coast Redwood	Sequoia sempervirens	20	40	20	Fair	Good	Moderate	Preserve	Perimeter Tree
51	Coast Redwood	Sequoia sempervirens	20	40	20	Fair	Good	Moderate	Preserve	Perimeter Tree
52	Coast Redwood	Sequoia sempervirens	18	40	20	Fair	Good	Moderate	Preserve	Perimeter Tree
53	Coast Redwood	Sequoia sempervirens	52	40	20	Fair	Good	Moderate	Preserve	Perimeter Tree
54	Coast Live Oak	Quercus agrifolia	6	15	15	Fair	Fair	Moderate	Preserve	Perimeter Tree
55	Coast Redwood	Sequoia sempervirens	56	40	20	Fair	Good	Moderate	Preserve	Perimeter Tree
56	Coast Redwood	Sequoia sempervirens	12	40	20	Fair	Good	Moderate	Preserve	Perimeter Tree
57	Coast Redwood	Sequoia sempervirens	18	40	20	Fair	Good	Moderate	Preserve	Perimeter Tree
58	Coast Redwood	Sequoia sempervirens	24	40	20	Fair	Good	Moderate	Preserve	Perimeter Tree
59	Coast Redwood	Sequoia sempervirens	16	40	20	Fair	Good	Moderate	Preserve	Perimeter Tree
60	Coast Redwood	Sequoia sempervirens	16	40	20	Fair	Good	Moderate	Preserve	Perimeter Tree
61	Coast Redwood	Sequoia sempervirens	24	40	20	Fair	Good	Moderate	Preserve	Perimeter Tree
62	Coast Redwood	Sequoia sempervirens	24	40	20	Fair	Good	Moderate	Preserve	Perimeter Tree

Arborwell

ID	Common Name	Species	DBH (inches)	Height (feet)	Canopy Spread (feet)	Health Condition	Structural Condition	Suitability For Preservation	Disposition	Observations
63	Coast Redwood	Sequoia sempervirens	58	40	20	Fair	Good	Moderate	Preserve	Perimeter Tree
64	Coast Redwood	Sequoia sempervirens	8	40	20	Fair	Good	Moderate	Preserve	Perimeter Tree
65	Coast Redwood	Sequoia sempervirens	24	55	25	Good	Good	Good	Preserve	Perimeter Tree
66	Coast Redwood	Sequoia sempervirens	14	30	20	Good	Good	Good	Preserve	Perimeter Tree
67	Coast Redwood	Sequoia sempervirens	24	50	30	Good	Good	Good	Preserve	Perimeter Tree
68	Coast Redwood	Sequoia sempervirens	24	25	20	Good	Good	Good	Preserve	Perimeter Tree
69	Coast Redwood	Sequoia sempervirens	12	50	30	Good	Good	Good	Preserve	Perimeter Tree
70	Coast Redwood	Sequoia sempervirens	18	50	30	Good	Good	Good	Preserve	Perimeter Tree
71	Coast Redwood	Sequoia sempervirens	12	50	30	Good	Good	Good	Preserve	Perimeter Tree
72	Coast Redwood	Sequoia sempervirens	12	40	20	Good	Good	Good	Preserve	Perimeter Tree
73	Southern Live Oak	Quercus virginiana	3	10	10	Excellent	Excellent	Good	Removed Based On Design Plans	Young Tree
74	Coast Redwood	Sequoia sempervirens	18	30	20	Good	Good	Good	Preserve	Perimeter Tree
75	Coast Redwood	Sequoia sempervirens	6	15	10	Good	Good	Good	Preserve	Perimeter Tree
76	Coast Redwood	Sequoia sempervirens	22	45	20	Good	Good	Good	Preserve	Perimeter Tree
77	Coast Redwood	Sequoia sempervirens	12	40	20	Good	Good	Good	Preserve	Perimeter Tree
78	Coast Redwood	Sequoia sempervirens	22	50	30	Good	Good	Good	Preserve	Perimeter Tree
79	Coast Redwood	Sequoia sempervirens	22	50	30	Good	Good	Good	Preserve	Perimeter Tree
80	Coast Redwood	Sequoia sempervirens	18	45	30	Good	Good	Good	Preserve	Perimeter Tree
81	Coast Redwood	Sequoia sempervirens	24	45	30	Good	Good	Good	Preserve	Perimeter Tree
82	Coast Redwood	Sequoia sempervirens	20	55	30	Good	Good	Good	Preserve	Perimeter Tree
83	Coast Redwood	Sequoia sempervirens	20	55	30	Good	Good	Good	Preserve	Perimeter Tree
84	Coast Redwood	Sequoia sempervirens	6	55	30	Good	Good	Good	Preserve	Perimeter Tree
85	Coast Redwood	Sequoia sempervirens	20	55	30	Good	Good	Good	Preserve	Perimeter Tree
86	Coast Redwood	Sequoia sempervirens	24	55	30	Good	Good	Good	Preserve	Perimeter Tree
87	Coast Redwood	Sequoia sempervirens	18	55	30	Good	Good	Good	Preserve	Perimeter Tree
88	Coast Redwood	Sequoia sempervirens	22	55	30	Good	Good	Good	Preserve	Perimeter Tree
89	Coast Redwood	Sequoia sempervirens	24	55	30	Good	Good	Good	Preserve	Perimeter Tree
90	Coast Redwood	Sequoia sempervirens	24	55	30	Good	Good	Good	Preserve	Perimeter Tree
91	Southern Live Oak	Quercus virginiana	4	10	10	Excellent	Excellent	Good	Preserve	Young Tree
92	Coast Redwood	Sequoia sempervirens	20	45	30	Good	Good	Good	Preserve	Perimeter Tree
93	Coast Redwood	Sequoia sempervirens	18	45	31	Good	Good	Good	Preserve	Perimeter Tree
94	Coast Redwood	Sequoia sempervirens	14	40	32	Good	Good	Good	Preserve	Perimeter Tree
95	Evergreen Ash	Fraxinus uhdei	24	45	35	Fair	Fair	Moderate	Preserve	
96	Southern Live Oak	Quercus virginiana	2	10	5	Excellent	Excellent	Good	Preserve	Young Tree
97	Evergreen Ash	Fraxinus uhdei	28	60	40	Fair	Fair	Moderate	Preserve	
98	Southern Live Oak	Quercus virginiana	2	10	5	Excellent	Excellent	Good	Preserve	Young Tree
99	Evergreen Ash	Fraxinus uhdei	28	60	40	Fair	Fair	Moderate	Preserve	
100	Coast Live Oak	Quercus agrifolia	2	10	5	Excellent	Excellent	Good	Preserve	Young Tree
101	California Black Oak	Quercus kelloggii	2	10	5	Excellent	Excellent	Good	Preserve	Young Tree
102	Coast Redwood	Sequoia sempervirens	28	50	30	Good	Good	Good	Preserve	
103	Holly Oak	Quercus ilex	4	10	10	Excellent	Excellent	Good	Preserve	Young Tree
104	Holly Oak	Quercus ilex	4	10	10	Excellent	Excellent	Good	Preserve	Young Tree
105	Holly Oak	Quercus ilex	2	10	10	Excellent	Excellent	Good	Preserve	Young Tree
106	Holly Oak	Quercus ilex	2	10	10	Excellent	Excellent	Good	Preserve	Young Tree
107	Holly Oak	Quercus ilex	4	10	10	Excellent	Excellent	Good	Preserve	Young Tree
108	Holly Oak	Quercus ilex	6	10	10	Excellent	Excellent	Good	Preserve	Young Tree
109	Holly Oak	Quercus ilex	6	10	10	Excellent	Excellent	Good	Preserve	Young Tree
110	Holly Oak	Quercus ilex	6	10	10	Excellent	Excellent	Good	Preserve	Young Tree
111	Holly Oak	Quercus ilex	6	10	10	Excellent	Excellent	Good	Preserve	Young Tree
112	Holly Oak	Quercus ilex	6	10	10	Excellent	Excellent	Good	Preserve	Young Tree
113	Holly Oak	Quercus ilex	6	10	10	Excellent	Excellent	Good	Preserve	Young Tree
114	Holly Oak	Quercus ilex	2	10	10	Excellent	Excellent	Good	Preserve	Young Tree
115	Holly Oak	Quercus ilex	6	10	10	Excellent	Excellent	Good	Preserve	Young Tree
116	Southern Live Oak	Quercus virginiana	8	30	20	Good	Good	Good	Removed Based On Design Plans	
117	Valley Oak	Quercus lobata	4	10	10	Excellent	Excellent	Good	Removed Based On Design Plans	Young Tree
118	Valley Oak	Quercus lobata	12	30	30	Good	Good	Good	Removed Based On Design Plans	
119	London Plane	Platanus x acerifolia	10	30	30	Good	Good	Good	Removed Based On Design Plans	
120	Coast Live Oak	Quercus agrifolia	12	10	15	Good	Good	Good	Removed Based On Design Plans	
121	Cork Oak	Quercus suber	18	30	30	Good	Good	Good	Removed Based On Design Plans	
122	Coast Live Oak	Quercus agrifolia	10	10	15	Good	Good	Good	Removed Based On Design Plans	
123	Chinese Pistache	Pistacia chinensis	6	10	10	Excellent	Excellent	Good	Removed Based On Design Plans	
124	Chinese Pistache	Pistacia chinensis	6	10	10	Excellent	Excellent	Good	Removed Based On Design Plans	
125	Chinese Pistache	Pistacia chinensis	6	10	10	Excellent	Excellent	Good	Removed Based On Design Plans	
126	Chinese Pistache	Pistacia chinensis	6	10	10	Excellent	Excellent	Good	Removed Based On Design Plans	
127	Chinese Pistache	Pistacia chinensis	6	10	10	Excellent	Excellent	Good	Removed Based On Design Plans	

ID	Common Name	Species	DBH (inches)	Height (feet)	Canopy Spread (feet)	Health Condition	Structural Condition	Suitability For Preservation	Disposition	Observations
128	Chinese Pistache	Pistacia chinensis	6	10	10	Excellent	Excellent	Good	Removed Based On Design Plans	
129	Southern Live Oak	Quercus virginiana	2	10	5	Excellent	Excellent	Good	Removed Based On Design Plans	Young
130	Southern Live Oak	Quercus virginiana	6	20	10	Good	Good	Good	Removed Based On Design Plans	
131	Southern Live Oak	Quercus virginiana	4	15	10	Good	Good	Good	Removed Based On Design Plans	
132	Trident Maple	Acer buergerianum	6	15	10	Good	Good	Good	Removed Based On Design Plans	
133	Trident Maple	Acer buergerianum	6	10	10	Good	Good	Good	Removed Based On Design Plans	
134	Willow Oak	Quercus phellos	4	15	10	Good	Good	Good	Removed Based On Design Plans	
135	Trident Maple	Acer buergerianum	4	15	10	Good	Good	Good	Removed Based On Design Plans	
136	Trident Maple	Acer buergerianum	4	15	10	Good	Good	Good	Removed Based On Design Plans	
137	Willow Oak	Quercus phellos	4	15	10	Good	Good	Good	Removed Based On Design Plans	
138	Willow Oak	Quercus phellos	6	15	15	Good	Good	Good	Removed Based On Design Plans	
139	Willow Oak	Quercus phellos	6	15	15	Good	Good	Good	Removed Based On Design Plans	
140	Trident Maple	Acer buergerianum	4	10	10	Good	Good	Good	Removed Based On Design Plans	
141	Trident Maple	Acer buergerianum	4	10	10	Good	Good	Good	Removed Based On Design Plans	
142	Willow Oak	Quercus phellos	2	10	5	Good	Good	Good	Removed Based On Design Plans	
143	Willow Oak	Quercus phellos	2	10	5	Good	Good	Good	Removed Based On Design Plans	
144	Southern Live Oak	Quercus virginiana	4	15	5	Good	Good	Good	Removed Based On Design Plans	
145	Southern Live Oak	Quercus virginiana	2	10	5	Good	Good	Good	Removed Based On Design Plans	
146	Willow Oak	Quercus phellos	2	10	5	Good	Good	Good	Removed Based On Design Plans	
147	Willow Oak	Quercus phellos	2	10	5	Good	Good	Good	Removed Based On Design Plans	
148	Willow Oak	Quercus phellos	2	10	5	Good	Good	Good	Removed Based On Design Plans	
149	Trident Maple	Acer buergerianum	4	10	10	Good	Good	Good	Removed Based On Design Plans	
150	Willow Oak	Quercus phellos	6	10	10	Good	Good	Good	Removed Based On Design Plans	
151	Willow Oak	Quercus phellos	2	15	10	Good	Good	Good	Removed Based On Design Plans	
152	Willow Oak	Quercus phellos	2	10	5	Good	Good	Good	Removed Based On Design Plans	
153	Willow Oak	Quercus phellos	2	10	5	Good	Good	Good	Removed Based On Design Plans	
154	Willow Oak	Quercus phellos	2	10	5	Good	Good	Good	Removed Based On Design Plans	
155	Trident Maple	Acer buergerianum	4	10	10	Good	Good	Good	Removed Based On Design Plans	
156	Trident Maple	Acer buergerianum	4	10	10	Good	Good	Good	Removed Based On Design Plans	
157	Willow Oak	Quercus phellos	4	15	10	Good	Good	Good	Removed Based On Design Plans	
158	Willow Oak	Quercus phellos	4	15	10	Good	Good	Good	Removed Based On Design Plans	
159	Southern Live Oak	Quercus virginiana	2	10	5	Good	Good	Good	Removed Based On Design Plans	
160	Southern Live Oak	Quercus virginiana	6	10	10	Good	Good	Good	Removed Based On Design Plans	
161	Trident Maple	Acer buergerianum	4	10	10	Good	Good	Good	Removed Based On Design Plans	
162	Trident Maple	Acer buergerianum	6	10	10	Good	Good	Good	Removed Based On Design Plans	
163	Willow Oak	Quercus phellos	6	15	10	Good	Good	Good	Removed Based On Design Plans	
164	Willow Oak	Quercus phellos	6	15	10	Good	Good	Good	Removed Based On Design Plans	
165	Trident Maple	Acer buergerianum	6	10	10	Good	Good	Good	Removed Based On Design Plans	
166	Trident Maple	Acer buergerianum	6	15	10	Good	Good	Good	Removed Based On Design Plans	
167	Willow Oak	Quercus phellos	6	15	10	Good	Good	Good	Removed Based On Design Plans	
168	Southern Live Oak	Quercus virginiana	2	10	5	Good	Good	Good	Removed Based On Design Plans	
169	Southern Live Oak	Quercus virginiana	8	15	15	Good	Good	Good	Removed Based On Design Plans	
170	Southern Live Oak	Quercus virginiana	4	10	5	Good	Good	Good	Removed Based On Design Plans	
171	Trident Maple	Acer buergerianum	6	15	10	Good	Good	Good	Removed Based On Design Plans	
172	Trident Maple	Acer buergerianum	4	10	10	Good	Good	Good	Removed Based On Design Plans	
173	Willow Oak	Quercus phellos	6	15	10	Good	Good	Good	Removed Based On Design Plans	
174	Willow Oak	Quercus phellos	6	15	10	Good	Good	Good	Removed Based On Design Plans	
175	Chinese Pistache	Pistacia chinensis	4	15	10	Good	Good	Good	Removed Based On Design Plans	
176	Chinese Pistache	Pistacia chinensis	4	15	10	Good	Good	Good	Removed Based On Design Plans	
177	Chinese Pistache	Pistacia chinensis	6	15	10	Good	Good	Good	Removed Based On Design Plans	
178	Chinese Pistache	Pistacia chinensis	4	15	10	Good	Good	Good	Removed Based On Design Plans	
179	Chinese Pistache	Pistacia chinensis	6	15	10	Good	Good	Good	Removed Based On Design Plans	
180	Chinese Pistache	Pistacia chinensis	4	10	10	Good	Good	Good	Removed Based On Design Plans	
181	Chinese Pistache	Pistacia chinensis	4	10	10	Good	Good	Good	Removed Based On Design Plans	
182	Chinese Pistache	Pistacia chinensis	4	10	10	Good	Good	Good	Removed Based On Design Plans	
183	Chinese Pistache	Pistacia chinensis	4	10	10	Good	Good	Good	Removed Based On Design Plans	
184	Chinese Pistache	Pistacia chinensis	6	10	10	Good	Good	Good	Removed Based On Design Plans	
185	Chinese Pistache	Pistacia chinensis	6	10	10	Good	Good	Good	Removed Based On Design Plans	
186	Chinese Pistache	Pistacia chinensis	4	10	10	Good	Good	Good	Removed Based On Design Plans	
187	Chinese Pistache	Pistacia chinensis	4	10	10	Good	Good	Good	Removed Based On Design Plans	
188	Coast Live Oak	Quercus agrifolia	10	15	10	Good	Good	Good	Removed Based On Design Plans	
189	London Plane	Platanus x acerifolia	10	20	20	Good	Good	Good	Removed Based On Design Plans	
190	Coast Live Oak	Quercus agrifolia	12	15	15	Good	Good	Good	Removed Based On Design Plans	
191	Holly Oak	Quercus ilex	4	10	5	Good	Good	Good	Preserve	
192	Coast Live Oak	Quercus agrifolia	12	15	20	Good	Good	Good	Removed Based On Design Plans	

Arborwell

ID	Common Name	Species	DBH (inches)	Height (feet)	Canopy Spread (feet)	Health Condition	Structural Condition	Suitability For Preservation	Disposition	Observations
193	London Plane	Platanus x acerifolia	6	20	15	Good	Good	Good	Removed Based On Design Plans	
194	London Plane	Platanus x acerifolia	12	20	20	Good	Good	Good	Removed Based On Design Plans	
195	London Plane	Platanus x acerifolia	8	20	20	Good	Good	Good	Removed Based On Design Plans	
196	London Plane	Platanus x acerifolia	10	20	20	Good	Good	Good	Removed Based On Design Plans	
197	London Plane	Platanus x acerifolia	10	20	20	Good	Good	Good	Removed Based On Design Plans	
198	London Plane	Platanus x acerifolia	10	20	20	Good	Good	Good	Removed Based On Design Plans	
199	London Plane	Platanus x acerifolia	6	15	10	Good	Good	Good	Removed Based On Design Plans	
200	London Plane	Platanus x acerifolia	6	20	20	Good	Good	Good	Removed Based On Design Plans	
201	London Plane	Platanus x acerifolia	12	20	15	Good	Good	Good	Removed Based On Design Plans	
202	London Plane	Platanus x acerifolia	4	10	10	Good	Good	Good	Removed Based On Design Plans	
203	London Plane	Platanus x acerifolia	10	20	20	Good	Good	Good	Removed Based On Design Plans	Multistemmed
204	London Plane	Platanus x acerifolia	10	20	20	Good	Good	Good	Removed Based On Design Plans	Multistemmed
205	London Plane	Platanus x acerifolia	10	20	20	Good	Good	Good	Removed Based On Design Plans	Multistemmed
206	Olive	Olea europaea	10	15	15	Good	Good	Good	Removed Based On Design Plans	Multistemmed
207	Olive	Olea europaea	10	15	15	Good	Good	Good	Removed Based On Design Plans	Multistemmed
208	Southern Live Oak	Quercus virginiana	12	20	20	Good	Good	Good	Removed Based On Design Plans	