Appendix A – Air Quality and Greenhouse Gas Assessment

123 SHERMAN AVENUE OFFICE PROJECT AIR QUALITY & GREENHOUSE GAS ASSESSMENT

Palo Alto, California

May 20, 2022

Prepared for:

Connor Tutino
Associate Project Manager
David J. Powers & Associates, Inc.
1736 Franklin Street, Suite 400
Oakland, CA 94612

Prepared by:

Casey Divine
James A. Reyff

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality
429 East Cotati Avenue
Cotati, CA 94931
(707) 794-0400

I&R Project#: 22-025

Introduction

The purpose of this report is to address air quality, community health risk, and greenhouse gas (GHG) impacts associated with office project located at 123 Sherman Avenue in Palo Alto, California. The air quality impacts and GHG emissions would be associated with the demolition of the existing land uses at the site, construction of new building and infrastructure, and operation of the project. Air pollutant and GHG emissions associated with the construction and operation of the project were estimated using appropriate computer models. In addition, the potential project health risk impact (includes construction and operation) and the impacts of existing toxic air contaminant (TAC) sources affecting the nearby sensitive receptors were evaluated. This analysis addresses those issues following the guidance provided by the Bay Area Air Quality Management District (BAAQMD).[1]

Project Description

The project site is approximately 0.8-acres and currently developed with three office buildings and two garage/storage buildings totaling approximately 15,523 square-feet of existing building area along with surface parking. The project would demolish existing uses and associated surface parking to construct a three-story office building with approximately 48,074 square-feet (sf) of office use and 3,871-sf of retail uses on the ground floor. Parking would be distributed on the ground floor of the proposed building and on two levels of below-grade parking, totaling 76,899-sf and 172 vehicle parking spaces.

Setting

The project is located in Santa Clara County, which is in the San Francisco Bay Area Air Basin. Ambient air quality standards have been established at both the State and federal level. The Bay Area meets all ambient air quality standards with the exception of ground-level ozone, respirable particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$).

Air Pollutants of Concern

High ozone levels are caused by the cumulative emissions of reactive organic gases (ROG) and nitrogen oxides (NO_X). These precursor pollutants react under certain meteorological conditions to form high ozone levels. Controlling the emissions of these precursor pollutants is the focus of the Bay Area's attempts to reduce ozone levels. The highest ozone levels in the Bay Area occur in the eastern and southern inland valleys that are downwind of air pollutant sources. High ozone levels aggravate respiratory and cardiovascular diseases, reduce lung function, and increase coughing and chest discomfort.

Particulate matter is another problematic air pollutant of the Bay Area. Particulate matter is assessed and measured in terms of respirable particulate matter or particles that have a diameter of 10 micrometers or less (PM_{10}) and fine particulate matter where particles have a diameter of 2.5 micrometers or less ($PM_{2.5}$). Elevated concentrations of PM_{10} and $PM_{2.5}$ are the result of both region-wide (or cumulative) emissions and localized emissions. High particulate matter levels

[1] Bay Area Air Quality Management District, *CEQA Air Quality Guidelines*, May 2017.

aggravate respiratory and cardiovascular diseases, reduce lung function, increase mortality (e.g., lung cancer), and result in reduced lung function growth in children.

Toxic Air Contaminants

Toxic air contaminants (TAC) are a broad class of compounds known to cause morbidity or mortality. TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., diesel particulate matter [DPM] near a freeway). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, State, and federal level.

Diesel exhaust is the predominant TAC in urban air and is estimated to represent about three-quarters of the cancer risk from TACs (based on the Bay Area average). According to the California Air Resources Board (CARB), diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the CARB, and are listed as carcinogens either under the State's Proposition 65 or under the Federal Hazardous Air Pollutants programs. The most recent Office of Environmental Health Hazard Assessment (OEHHA) risk assessment guidelines were published in February of 2015.[2] See *Attachment 1* for a detailed description of the community risk modeling methodology used in this assessment.

Sensitive Receptors

There are groups of people more affected by air pollution than others. CARB has identified the following persons who are most likely to be affected by air pollution: children under 16, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, and elementary schools. For cancer risk assessments, infants and children are the most sensitive receptors, since they are more susceptible to cancer causing TACs. Residential locations are assumed to include infants and small children. The closest sensitive receptors to the project site are the residents in the adjacent homes to the north and east of the site. There are other residences to the south of the site at further distances. This project would not introduce new sensitive receptors (i.e., residents).

Regulatory Agencies

Federal Regulations

The United States Environmental Protection Agency (EPA) sets nationwide emission standards for mobile sources, which include on-road (highway) motor vehicles such trucks, buses, and

[2] OEHHA, 2015. *Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. Office of Environmental Health Hazard Assessment. February.

automobiles, and non-road (off-road) vehicles and equipment used in construction, agricultural, industrial, and mining activities (such as bulldozers and loaders). The EPA also sets nationwide fuel standards. California also has the ability to set motor vehicle emission standards and standards for fuel used in California, as long as they are the same or more stringent than the Federal standards.

In the past decade the EPA has established a number of emission standards for on- and non-road heavy-duty diesel engines used in trucks and other equipment. This was done in part because diesel engines are a significant source of nitrogen oxides, or NO_X, and particulate matter (PM_{10} and $PM_{2.5}$) and because the EPA has identified diesel particulate matter as a probable carcinogen. Implementation of the heavy-duty diesel on-road vehicle standards and the non-road diesel engine standards are estimated to reduce PM and NO_X emissions from diesel engines up to 95 percent in 2030 when the heavy-duty vehicle fleet is completely replaced with newer heavy-duty vehicles that comply with these emission standards.[3]

In concert with the diesel engine emission standards, the EPA has also substantially reduced the amount of sulfur allowed in diesel fuels. The sulfur contained in diesel fuel is a significant contributor to the formation of particulate matter in diesel-fueled engine exhaust. The new standards reduced the amount of sulfur allowed by 97 percent for highway diesel fuel (from 500 parts per million by weight [ppmw] to 15 ppmw), and by 99 percent for off-highway diesel fuel (from about 3,000 ppmw to 15 ppmw). The low sulfur highway fuel (15 ppmw sulfur), also called ultra-low sulfur diesel (ULSD) is currently required for use by all vehicles in the U.S.

All of the above Federal diesel engine and diesel fuel requirements have been adopted by California, in some cases with modifications making the requirements more stringent or the implementation dates sooner.

State Regulations

To address the issue of diesel emissions in the state, CARB developed the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles.[4] In addition to requiring more stringent emission standards for new on-road and off-road mobile sources and stationary diesel-fueled engines to reduce particulate matter emissions by 90 percent, a significant component of the plan involves application of emission control strategies to existing diesel vehicles and equipment. Many of the measures of the Diesel Risk Reduction Plan have been approved and adopted, including the Federal on-road and non-road diesel engine emission standards for new engines, as well as adoption of regulations for low sulfur fuel in California.

CARB has adopted and implemented a number of regulations for stationary and mobile sources to reduce emissions of DPM. Several of these regulatory programs affect medium and heavy-duty

[3] USEPA, 2000. *Regulatory Announcement, Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements*. EPA420-F-00-057. December.

[4] California Air Resources Board, 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. October.

diesel trucks that represent the bulk of DPM emissions from California highways. CARB regulations require on-road diesel trucks to be retrofitted with particulate matter controls or replaced to meet 2010 or later engine standards that have much lower DPM and $PM_{2.5}$ emissions. This regulation will substantially reduce these emissions between 2013 and 2023. While new trucks and buses will meet strict federal standards, this measure is intended to accelerate the rate at which the fleet either turns over so there are more cleaner vehicles on the road or is retrofitted to meet similar standards. With this regulation, older, more polluting trucks would be removed from the roads sooner.

CARB has also adopted and implemented regulations to reduce DPM and NO_X emissions from in-use (existing) and new off-road heavy-duty diesel vehicles (e.g., loaders, tractors, bulldozers, backhoes, off-highway trucks, etc.). The regulations apply to diesel-powered off-road vehicles with engines 25 horsepower (hp) or greater. The regulations are intended to reduce particulate matter and NO_X exhaust emissions by requiring owners to turn over their fleet (replace older equipment with newer equipment) or retrofit existing equipment in order to achieve specified fleet-averaged emission rates. Implementation of this regulation, in conjunction with stringent Federal off-road equipment engine emission limits for new vehicles, will significantly reduce emissions of DPM and NO_X in the future.

Bay Area Air Quality Management District (BAAQMD)

BAAQMD has jurisdiction over an approximately 5,600-square mile area, commonly referred to as the San Francisco Bay Area (Bay Area). The District's boundary encompasses nine San Francisco Bay Area counties, including Alameda County, Contra Costa County, Marin County, San Francisco County, San Mateo County, Santa Clara County, Napa County, southwestern Solano County, and southern Sonoma County.

BAAQMD is the lead agency in developing plans to address attainment and maintenance of the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS). The District also has permit authority over most types of stationary equipment utilized for the proposed project. The BAAQMD is responsible for permitting and inspection of stationary sources; enforcement of regulations, including setting fees, levying fines, and enforcement actions; and ensuring that public nuisances are minimized.

BAAQMD's Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposures to outdoor TACs in the Bay Area.[5] The program examines TAC emissions from point sources, area sources, and on-road and off-road mobile sources with an emphasis on diesel exhaust, which is a major contributor to airborne health risk in California. The CARE program is an on-going program that encourages community involvement and input. The technical analysis portion of the CARE program is being implemented in three phases that includes an assessment of the sources of TAC emissions, modeling and measurement programs to estimate concentrations of TAC, and an assessment of exposures and health risks. Throughout the program, information derived from the technical analyses will be used to focus emission reduction measures in areas with high TAC exposures and high density of sensitive

[5] See BAAQMD: https://www.baaqmd.gov/community-health/community-health-protection-program/community-air-risk-evaluation-care-program , accessed 2/18/2021.

populations. Risk reduction activities associated with the CARE program are focused on the most at-risk communities in the Bay Area. Overburdened communities are areas located (i) within a census tract identified by the California Communities Environmental Health Screening Tool (CalEnviroScreen), Version 4.0 implemented by OEHHA,[6] as having an overall CalEnviroScreen score at or above the 70th percentile, or (ii) within 1,000 feet of any such census tract.[7] The BAAQMD has identified six communities as impacted: Concord, Richmond/San Pablo, Western Alameda County, San José, Redwood City/East Palo Alto, and Eastern San Francisco. The project site is not within a CARE area and not within a BAAQMD overburdened area as identified by CalEnviroScreen since the Project site is scored at the 11th percentile.

The BAAQMD *California Environmental Quality Act (CEQA) Air Quality Guidelines*[8] were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process consistent with CEQA requirements including thresholds of significance, mitigation measures, and background air quality information. They also include assessment methodologies for TACs, odors, and greenhouse gas (GHG) emissions. *Attachment 1* includes detailed community risk modeling methodology.

BAAQMD Rules and Regulations

Combustion equipment associated with the proposed project includes new diesel engines to power fire pumps that would establish new sources of particulate matter and gaseous emissions. Emissions would primarily result from the testing of the emergency backup fire pumps. Certain emission sources would be subject to BAAQMD Regulations and Rules. The District's rules and regulations that may apply to the project include:

- Regulation 1 – General Provisions
  - Rule 1-30: Public Nuisance
- Regulation 2 – Permits
  - Rule 2-1: General Requirements
  - Rule 2-2: New Source Review
  - Rule 2-5: New Source Review of Toxic Air Contaminants
- Regulation 6 – Particulate Matter and Visible Emissions
  - Rule 6-2: Commercial Cooking Equipment
  - Rule 6-3: Wood-Burning Devices
  - Rule 6-7: Odorous Substances
- Regulation 9 – Inorganic Gaseous Pollutants
  - Rule 9-1: Sulfur Dioxide
  - Rule 9-7: Nitrogen Oxides and Carbon Monoxide from Industrial, Institutional, and Commercial Boilers, Steam Generators, And Process Heaters

[6] See California OEHHA: https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40, accessed May 16, 2022.
[7] See BAAQMD: https://www.baaqmd.gov/~/media/dotgov/files/rules/reg-2-permits/2021-amendments/documents/20210722_01_appendixd_mapsofoverburdenedcommunities-pdf.pdf?la=en , accessed 10/1/2021.
[8] Bay Area Air Quality Management District, 2011. *CEQA Air Quality Guidelines*. May. (Updated May 2017)

Rule 9-8: Nitrogen Oxides and Carbon Monoxide from Stationary Internal Combustion Engines

Permits

Rule 2-1-301 requires that any person installing, modifying, or replacing any equipment, the use of which may reduce or control the emission of air contaminants, shall first obtain an Authority to Construct (ATC).

Rule 2-1-302 requires that written authorization from the BAAQMD in the form of a Permit to Operate (PTO) be secured before any such equipment is used or operated.

Rule 2-1 lists sources that are exempt from permitting.

New Source Review

Rule 2-2, New Source Review (NSR), applies to all new and modified sources or facilities that are subject to the requirements of Rule 2-1-301. The purpose of the rule is to provide for review of such sources and to provide mechanisms by which no net increase in emissions will result.

Rule 2-2-301 requires that an applicant for an ATC or PTO apply Best Available Control Technology (BACT) to any new or modified source that results in an increase in emissions and has emissions of precursor organic compounds, non-precursor organic compounds, NOx, SO_2, PM_{10}, or CO of 10.0 pounds or more per highest day. Based on the estimated emissions from the proposed project, BACT will be required for NOx emissions from the diesel-fueled fire pump engines.

Rule 2-5 applies to new and modified sources of TAC emissions. BAAQMD evaluates the TAC emissions in order to evaluate potential public exposure and health risk, to mitigate potentially significant health risks resulting from these exposures, and to provide net health risk benefits by improving the level of control when existing sources are modified or replaced. Toxics BACT (or TBACT) is applied to any new or modified source of TACs where the source risk is a cancer risk greater than 1.0 in one million and/or a chronic hazard index greater than 0.20. Permits are not issued for any new or modified source that has risks or net project risks that exceed a cancer risk of 10.0 in one million or a chronic or acute hazard index of 1.0.

BACT for Diesel Generator Engines

Since the fire pump generator will be used exclusively for emergency use during involuntary loss of power, the BACT levels listed for IC compression engines in the BAAQMD BACT Guidelines would apply. These are provided for two separate size ranges of diesel engines:

> I.C. Engine – Compression Ignition >50hp and <1.000hp: BAAQMD applies BACT 2 emission limits based on the ATCM for stationary emergency standby diesel engines larger than 50 brake-horsepower (BHP). NOx emission factor limit is subject to the CARB ACTM that ranges from 3.0 to 3.5 grams per horsepower hour (g/hp-hr). The PM (PM10 or PM2.5) limit is 0.15 g/hp-hr per CARB's ACTM.

I.C. Engine – Compression Ignition >999hp: BAAQMD applies specific BACT emission limits for stationary emergency standby diesel engines equal or larger than 1,000 brake-horsepower (BHP). NOx emission factor limit is subject to the CARB ACTM that ranges from 0.5 g/hp-hr. The PM (PM10 or PM2.5) limit is 0.02 g/hp-hr. POC (i.e., ROG) limits are 0.14 g/hp-hr.

Offsets

Rule 2-2-302 require that offsets be provided for a new or modified source that emits more than 10 tons per year of NOx or precursor organic compounds. It is not expected that emissions of any pollutant will exceed the offset thresholds.

Prohibitory Rules

Regulation 6 pertains to particulate matter and visible emissions. Although the engines will be fueled with diesel, they will be modern, low emission engines. Thus, the engines are expected to comply with Regulation 6.

Rule 6-3 applies to emissions from wood-burning devices. Effective November 1, 2016, no person or builder shall install a wood-burning device in a new building construction.

Regulation 7 places general limitations on odorous substances and specific emission limitations on certain odorous compounds when the District receives odor complaints. The regulation prohibits discharge of odorous substance that causes the ambient air at or beyond the property line to be odorous and to remain odorous after dilution with four parts of odor-free air and places limits on certain odorous compounds or family of compounds.

Rule 9-1 applies to sulfur dioxide. The engines will use ultra-low sulfur diesel fuel (less than 15 ppm sulfur) and will not be a significant source of sulfur dioxide emissions and are expected to comply with the requirements of Rule 9-1.

Rule 9-7 limits the emissions of NOx CO from industrial, institutional and commercial boilers, steam generators and process heaters. This regulation typically applies to boilers with a heat rating of 2 million British Thermal Units (BTU) per hour

Rule 9-8 prescribes NOx and CO emission limits for stationary internal combustion engines. Since the proposed engines will be used with emergency standby generators, Regulation 9-8-110 exempts the engines from the requirements of this Rule, except for the recordkeeping requirements (9-8-530) and limitations on hours of operation for reliability-related operation (maintenance and testing). The engines will not operate more than 50 hours per year, which will satisfy the requirements of 9-8-111.

City of Palo Alto Comprehensive Plan Update Environmental Impact Report (EIR)

Published February 2016, the Comprehensive Plan Update EIR for the City of Palo Alto, evaluated potential impacts of future development under the Comprehensive Plan. The Comprehensive Plan EIR identified mitigation measures that would make impacts less than significant. Chapter 4.2 in the document evaluated air quality impacts.[9] The following mitigation measures are applicable to this project:

Air Quality

> Mitigation Measure AIR-2a: As part of the City's development approval process, the City shall require applicants for future development projects to comply with the current BAAQMD basic control measures for reducing construction emissions of PM_{10} (Table 8-2, Basic Construction Mitigation Measures Recommended for All Proposed Projects, of the BAAQMD CEQA Guidelines).
>
> Mitigation Measure AIR-2b: Prior to issuance of construction permits, development project applicants that are subject to CEQA and have the potential to exceed the BAAQMD screening-criteria listed in the BAAQMD CEQA Guidelines shall prepare and submit to the City of Palo Alto a technical assessment evaluating potential project construction-related air quality impacts. The evaluation shall be prepared in conformance with BAAQMD methodology in assessing air quality impacts. If construction-related criteria air pollutants are determined to have the potential to exceed the BAAQMD thresholds of significance, as identified in the BAAQMD CEQA Guidelines, the City of Palo Alto shall require that applicants for new development projects incorporate mitigation measures (Table 8-3, Additional Construction Mitigation Measures Recommended for Projects with Construction Emissions Above the Threshold, of the BAAQMD CEQA Guidelines or applicable construction mitigation measures subsequently approved by BAAQMD) to reduce air pollutant emissions during construction activities to below these thresholds. These identified measures shall be incorporated into all appropriate construction documents (e.g., construction management plans) submitted to the City and shall be verified by the City's Planning and Community Environment Department.
>
> Mitigation Measure AIR-2c: Prior to issuance of construction permits, development project applicants that are subject to CEQA and have the potential to exceed the BAAQMD screening-criteria listed in the BAAQMD CEQA Guidelines shall prepare and submit to the City of Palo Alto a technical assessment evaluating potential project operation phase-related air quality impacts. The evaluation shall be prepared in conformance with BAAQMD methodology in assessing air quality impacts. If operational-related criteria air pollutants are determined to have the potential to exceed the BAAQMD thresholds of significance, as identified in BAAQMD's CEQA Guidelines, the City of Palo Alto Planning and Community Environment Department shall require that applicants for new development projects incorporate mitigation measures to reduce air pollutant emissions during operational activities.

[9] Placeworks, 2016. *Comprehensive Plan Update Environmental Impact Report*. February. Web: https://www.cityofpaloalto.org/civicax/filebank/documents/63453

Significance Thresholds

In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA and these significance thresholds were contained in the District's 2011 *CEQA Air Quality Guidelines*. These thresholds were designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA. The thresholds were challenged through a series of court challenges and were mostly upheld. BAAQMD updated the *CEQA Air Quality Guidelines* in 2017 to include the latest significance thresholds that were used in this analysis are summarized in Table 1. Community risks are considered significant if they exceed these levels.

Table 1. BAAQMD CEQA Significance Thresholds

Criteria Air Pollutant	**Construction Thresholds**	**Operational Thresholds**	
	Average Daily Emissions (lbs./day)	**Average Daily Emissions (lbs./day)**	**Annual Average 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
CO	Not Applicable	9.0 ppm (8-hour average) or 20.0 ppm (1-hour average)	
Fugitive Dust	Construction Dust Ordinance or other Best Management Practices	Not Applicable	
Health Risks and Hazards	**Single Sources Within 1,000-foot Zone of Influence**	**Combined Sources (Cumulative from all sources within 1,000-foot zone of influence)**	
Excess Cancer Risk	10 per one million	100 per one million	
Hazard Index	1.0	10.0	
Incremental annual $PM_{2.5}$	0.3 µg/m^3	0.8 µg/m^3	

Note: ROG = reactive organic gases, NOx = nitrogen oxides, PM_{10} = course particulate matter or particulates with an aerodynamic diameter of 10 micrometers (µm) or less, $PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less.

AIR QUALITY IMPACTS AND MITIGATION MEASURES

Impact AIR-1: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

The Bay Area is considered a non-attainment area for ground-level O_3 and $PM_{2.5}$ under both the Federal Clean Air Act and the California Clean Air Act. The area is also considered non-attainment for PM_{10} under the California Clean Air Act, but not the federal act. The area has attained both State and Federal ambient air quality standards for carbon monoxide. As part of an effort to attain and maintain ambient air quality standards for O_3, $PM_{2.5}$ and PM_{10}, the BAAQMD has established thresholds of significance for these air pollutants and their precursors. These thresholds are for O_3 precursor pollutants (ROG and NOx), PM_{10}, and $PM_{2.5}$ and apply to both construction period and operational period impacts.

Construction Period Emissions

The California Emissions Estimator Model (CalEEMod) Version 2020.4.0 was used to estimate emissions from on-site construction activity, construction vehicle trips, and evaporative emissions. The project land use types, size, and anticipated construction schedule were input to CalEEMod. The CARB EMission FACtors 2021 (EMFAC2021) model was used to predict emissions from construction traffic, which includes worker travel, vendor trucks, and haul trucks.[10] The CalEEMod model output along with construction inputs are included in *Attachment 2* and EMFAC2021 vehicle emissions modeling outputs are included in *Attachment 3*.

CalEEMod Inputs

Land Use Inputs

The proposed project land uses were entered into CalEEMod as described in Table 2.

Table 2. Summary of Project Land Use Inputs

Project Land Uses	Size	Units	Square Feet (sf)	Acreage
General Office Building	48.07	1,000-sf	48,074	0.8
Strip Mall	3.87	1,000-sf	3,871	
Enclosed Parking with Elevator	172	Parking Spaces	76,899	

Construction Inputs

CalEEMod computes annual emissions for construction that are based on the project type, size, and acreage. The model provides emission estimates for both on-site and off-site construction activities. On-site activities are primarily made up of construction equipment emissions, while off-site activity includes worker, hauling, and vendor traffic.

[10] See CARB's EMFAC2021 Emissions Inventory at https://arb.ca.gov/emfac/emissions-inventory

The CalEEMod model generates a default set of construction assumptions for "typical construction site scenarios"; however, these are not appropriate for a project like this that involves demolition, excavation, and vertical construction on a relatively small site.[11] For this project, the construction build-out scenario, including equipment list and schedule, were based on project-specific construction information provided by the project applicant. The project construction equipment worksheet provided by the applicant included the schedule for each phase (included in *Attachment 2*). Within each phase, the quantity of equipment to be used along with the average hours per day and total number of workdays was based on provided information. The construction schedule assumed that the earliest possible start date would be March 2023 and the project would be built out over a period of approximately 16 months or 226 construction workdays. The earliest year of operation was assumed to be 2025.

Construction Truck Traffic Emissions

Construction would produce traffic in the form of worker trips and truck traffic. The traffic-related emissions are based on worker and vendor trip estimates produced by CalEEMod and haul trips that were computed based on the estimate of demolition material to be exported, soil material imported and/or exported to the site, and the estimate of cement and asphalt truck trips. CalEEMod provides daily estimates of worker and vendor trips for each applicable phase. The total trips for those were computed by multiplying the daily trip rate by the number of days in that phase. Haul trips for demolition and grading were estimated from the provided demolition and grading volumes and assuming each truck could carry 10 tons per load. The number of concrete and asphalt total round haul trips were provided for the project and converted to total one-way trips, assuming two trips per delivery.

The latest version of the CalEEMod model is based on the older version of the CARB EMFAC2017 motor vehicle emission factor model. This model has been superseded by the EMFAC2021 model; however, CalEEMod has not been updated to include EMFAC2021. The construction traffic information was combined with EMFAC2021 motor vehicle emissions factors. EMFAC2021 provides aggregate emission rates in grams per mile for each vehicle type. The vehicle mix for this study was based on CalEEMod defaults, where worker trips are assumed to be comprised of light-duty autos (EMFAC category LDA) and light duty trucks (EMFAC category LDT1 and LDT2). Vendor trips are comprised of delivery and large trucks (EMFAC category MHDT and HHDT) and haul trips, including cement trucks, are comprised of large trucks (EMFAC category HHDT). Travel distances are based on CalEEMod default lengths, which are 10.8 miles for worker travel, 7.3 miles for vendor trips and 20 miles for hauling (demolition material export and soil import/export). Since CalEEMod does not address cement or asphalt trucks, these were treated as vendor travel distances. Each trip was assumed to include an idle time of 5 minutes. Emissions associated with vehicle starts were also included. On-road emission rates from the years 2023-2024 for Santa Clara County was used. Table 3 provides the traffic inputs that were combined with the EMFAC2021 emission database to compute vehicle emissions.

[11] SCAQMD. 2005. S*ample Construction Scenarios for Projects Less than Five Acres in Size* February. Note that this is the supporting report used to develop CalEEMod default construction inputs (see Appendix E – Technical Source Documentation of the CalEEMod User's Guide).

Table 3. Construction Traffic Data Used for EMFAC2021 Model Runs

CalEEMod Run/Land Uses and Construction Phase	Trips by Trip Type			Notes
	Total Worker[1]	Total Vendor[1]	Total Haul[2]	
Vehicle mix[1]	50% LDA 25% LDT1 25% LDT2	50% MHDT 50% HHDT	100% HHDT	
Trip Length (miles)	10.8	7.3	20.0 (Demo/Soil) 7.3 (Cement/Asphalt)	CalEEMod default distance with 5-min truck idle time.
Demolition	200	-	221	15,523-sf existing building and 750 tons pavement demolition. Default worker trips.
Site Preparation	50	-	-	CalEEMod default worker trips.
Grading	160	-	3,375	27,000-cy soil export. CalEEMod default worker trips.
Trenching	520	-	294	147 cement truck round trips. CalEEMod default worker trips.
Building Construction	3,185	1,365	-	CalEEMod default worker and vendor trips.
Interior Construction	1,250	-	-	CalEEMod default worker trips.
Paving	260	-	80	40 asphalt truck round trips. CalEEMod default worker trips.

Notes: [1] Based on 2023-2024 EMFAC2021 light-duty vehicle fleet mix for Santa Clara County.
[2] Includes demolition and grading trips estimated by CalEEMod based on amount of material to be removed. Cement and asphalt trips estimated based on data provided by the applicant.

Summary of Computed Construction Emissions

Average daily emissions were annualized for each year of construction by dividing the annual construction emissions by the number of active workdays during that year. Table 4 shows the unmitigated annualized average daily construction emissions of ROG, NO_X, PM_{10} exhaust, and $PM_{2.5}$ exhaust during construction of the project. As indicated in Table 4, predicted unmitigated annualized project construction emissions would not exceed the BAAQMD significance thresholds during any year of construction.

Table 4. Construction Period Emissions - Unmitigated

Year	ROG	NOx	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
Construction Emissions Per Year (Tons)				
2023	0.03	0.38	0.02	0.01
2024	0.30	0.20	0.01	0.01
Average Daily Construction Emissions Per Year (pounds/day)				
2023 (114 construction workdays)	0.58	6.74	0.33	0.24
2024 (112 construction workdays)	5.42	3.59	0.20	0.12
BAAQMD Thresholds (pounds per day)	*54* lbs./day	*54* lbs./day	*82* lbs./day	*54* lbs./day
Exceed Threshold?	No	No	No	No

Construction activities, particularly during site preparation and grading, would temporarily generate fugitive dust in the form of PM_{10} and $PM_{2.5}$. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly

controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after it dries. The BAAQMD *CEQA Air Quality Guidelines* consider these impacts to be less-than-significant if best management practices are implemented to reduce these emissions. The EIR for the Comprehensive Plan Update has Mitigation Measure AIR-2a, which requires the implementation of the standard BAAQMD best management practices to control dust and exhaust during construction.

Required Comprehensive Plan Update EIR Mitigation Measure AIR-2a: **Include measures to control dust and exhaust during construction.**

During any construction period ground disturbance, the applicant shall ensure that the project contractor implement measures to control dust and exhaust. Implementation of the measures recommended by BAAQMD and listed below would reduce the air quality impacts associated with grading and new construction to a less-than-significant level. Additional measures are identified to reduce construction equipment exhaust emissions. The contractor shall implement the following best management practices that are required of all projects:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.

2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.

3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

4. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).

5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.

6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

8. Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Effectiveness of Comprehensive Plan Update EIR Mitigation Measure AIR-2a

The measures above are consistent with BAAQMD-recommended basic control measures for reducing fugitive particulate matter that are contained in the BAAQMD CEQA Air Quality Guidelines.

Operational Period Emissions

Operational air emissions from the project would be generated primarily from autos driven by future employees and customers. Evaporative ROG emissions from architectural coatings and maintenance products (classified as consumer products) are also associated with these types of projects. CalEEMod was used to estimate emissions from operation of the proposed project assuming full build-out.

CalEEMod Inputs

Land Uses

The project land uses were input to CalEEMod as described above for the construction period modeling.

Model Year

Emissions associated with vehicle travel depend on the year of analysis because emission control technology requirements are phased-in over time. Therefore, the earlier the year analyzed in the model, the higher the emission rates utilized by CalEEMod. The earliest year of full operation would be 2025 if construction begins in 2023. Emissions associated with build-out later than 2025 would be lower.

Traffic Information

CalEEMod allows the user to enter specific vehicle trip generation rates. Therefore, the project-specific daily trip generation rate provided by the traffic consultant was entered into the model.[12] The project would produce approximately 669 daily trips. When considering the *Employment & Retail Reduction and Employment Near LRT, BRT, or Caltrain Station Reduction* adjustments and the 158 existing use trips applied in the traffic analysis, the project would then produce 511 net daily trips. The daily trip generation was calculated using the size of the project and the adjusted total automobile trips. The Saturday and Sunday trip rates were adjusted by multiplying the ratio of the CalEEMod default rates for Saturday and Sunday trips to the default weekday rate with the project-specific daily weekday trip rate. The default trip lengths and trip types specified by CalEEMod were used.

[12] Hexagon Transportation Consultants, Inc., *123 Sherman Avenue Office Development Transportation Analysis,* May 12, 2022.

EMFAC2021 Adjustment

The vehicle emission factors and fleet mix used in CalEEMod are based on EMFAC2017, which is an older CARB emission inventory for on road and off-road mobile sources. Since the release of CalEEMod Version 2020.4.0, new emission factors have been produced by CARB. EMFAC2021 became available for use in January 2021. It includes the latest data on California's car and truck fleets and travel activity. The CalEEMod default vehicle emission factors and fleet mix were updated using the emission rates and fleet mix from EMFAC2021. On road emission rates from 2025 Santa Clara County were used (See *Attachment 3*). More details about the updates in emissions calculation methodologies and data are available in the EMFAC2021 Technical Support Document.[13]

Energy

CalEEMod defaults for energy use were used, which include the 2019 Title 24 Building Standards. GHG emissions modeling includes those indirect emissions from electricity consumption. The model has a default rate of 0 pounds of CO_2 per megawatt of electricity produced, which is based on City of Palo Alto Utilities Department 2021 emissions rate.

The City of Palo Alto adopted reach code ordinances in November 2019 that promotes building electrification and prohibits the use of natural gas infrastructure in new buildings.[14] This ordinance applies to any new residential and commercial construction starting April 2020. All project natural gas use was set to zero and assigned to electricity use in CalEEMod.

Project Generator

The project proposes to include one stand-by emergency generator on the roof of the building. The generator would be 375-kilowatts (kW) powered by a 503 horsepower (HP) natural gas engine. The generator would be tested periodically and power the buildings in the event of a power failure. For modeling purposes, it was assumed that the generator would be operated primarily for testing and maintenance purposes. CARB and BAAQMD requirements limit the engine operations to 50 hours each per year of non-emergency operation. During testing periods, the engine would typically be run for less than one hour. The natural gas generator emissions were modeled using CalEEMod.

Other Inputs

Default model assumptions for emissions associated with solid waste generation and water/wastewater use were applied to the project. Water/wastewater use was changed to 100 percent aerobic/anerobic conditions to represent wastewater treatment plant conditions, as the project site would not send wastewater to septic tanks or facultative lagoons.

---

[13] See CARB 2021: https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-modeling-tools-emfac

[14] City of Palo Alto, 2020. "Energy Reach Code for Building Construction", November. Web: https://www.cityofpaloalto.org/files/assets/public/agendas-minutes-reports/reports/city-manager-reports-cmrs/year-archive/2019/id-10875.pdf?t=63989.2

Existing Uses

The existing site consist of three office buildings and two garage/storage buildings totaling approximately 15,523-sf and associated surface parking. A CalEEMod model run was developed to compute emissions from use of the existing land uses in 2022. Inputs for the existing conditions scenario included 15,523-sf entered as "General Office Building" and 0.44 acres entered as "Parking Lot". The existing trip generation rates and other inputs were applied to the existing modeling in the same manner described for the proposed project.

Summary of Computed Operational Emissions

Annual emissions were predicted using CalEEMod and daily emissions were estimating assuming 365 days of operation. Table 5 shows unmitigated net average daily operational emissions of ROG, NO_X, total PM_{10}, and total $PM_{2.5}$ during operation of the project. The unmitigated operational period emissions would not exceed the BAAQMD significance thresholds.

Table 5. Operational Period Emissions

Scenario	ROG	NOx	PM_{10}	$PM_{2.5}$
2025 Annual Project Operational Emissions (*tons/year*)	0.66	0.22	0.39	0.10
2022 Existing Use Emissions (*tons/year*)	0.15	0.08	0.10	0.03
Net Annual Emissions (*tons/year*)	0.51	0.14	0.29	0.07
BAAQMD Thresholds (tons /year)	*10 tons*	*10 tons*	*15 tons*	*10 tons*
Exceed Threshold?	*No*	*No*	*No*	*No*
2025 Daily Project Operational Emissions (*pounds/day*)[1]	2.77	0.75	1.58	0.40
BAAQMD Thresholds (pounds/day)	*54* lbs.	*54* lbs.	*82* lbs.	*54* lbs.
Exceed Threshold?	*No*	*No*	*No*	*No*
Notes: [1]Assumes 365-day operation.				

Impact AIR-2: Expose sensitive receptors to substantial pollutant concentrations?

Project impacts related to increased community risk can occur either by introducing a new source of TACs with the potential to adversely affect existing sensitive receptors in the project vicinity or by significantly exacerbating existing cumulative TAC impacts. This project would introduce new sources of TACs during construction (i.e., on-site construction and truck hauling emissions) and operation (i.e., mobile and stationary sources).

Project construction activity would generate dust and equipment exhaust that would affect nearby sensitive receptors. The project would include the installation of a natural gas-powered generator and would generate some traffic consisting of mostly light-duty gasoline-powered vehicles, which would produce TAC and air pollutant emissions.

Project impacts to existing sensitive receptors were addressed for temporary construction activities and long-term operational conditions. There are also several sources of existing TACs and localized air pollutants in the vicinity of the project. The impact of the existing sources of TAC was also assessed in terms of the cumulative risk that includes the project contribution.

Community Risk Methodology for Construction

Community risk impacts were addressed by predicting increased cancer risk, the increase in annual $PM_{2.5}$ concentrations and computing the Hazard Index (HI) for non-cancer health risks. The risk impacts from the project are the combination of risks from construction and operation sources. These sources include on-site construction activity, construction truck hauling, and increased traffic from the project. To evaluate the increased cancer risks from the project, a 30-year exposure period was used, per BAAQMD guidance,[15] with the sensitive receptors being exposed to both project construction and operation emissions during this timeframe.

The project increased cancer risk is computed by summing the project construction cancer risk and operation cancer risk contributions. Unlike, the increased maximum cancer risk, the annual $PM_{2.5}$ concentration and HI values are not additive but based on the annual maximum values for the entirety of the project. The project maximally exposed individual (MEI) is identified as the sensitive receptor that is most impacted by the project's construction and operation.

The methodology for computing community risks impacts is contained in *Attachment 1*. This involved the calculation of TAC and $PM_{2.5}$ emissions, dispersion modeling of these emissions, and computations of cancer risk and non-cancer health effects.

Modeled Sensitive Receptors

Receptors for this assessment included locations where sensitive populations closest to the project would be present for extended periods of time (i.e., chronic exposures). This includes the existing residences to the north, east, and south of the site, as shown in Figure 1. Residential receptors are assumed to include all receptor groups (i.e., third trimester, infants, children, and adults) with almost continuous exposure to project emissions. While there are additional sensitive receptors within 1,000 feet of the project site, the receptors chosen are adequate to identify maximum impacts from the project.

Community Health Risk from Project Construction

Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known TAC. These exhaust air pollutant emissions would not be considered to contribute substantially to existing or projected air quality violations. Construction exhaust emissions may still pose health risks for sensitive receptors such as surrounding residents. The primary community risk impacts associated with construction emissions are cancer risk and exposure to $PM_{2.5}$. Diesel exhaust (i.e., DPM) poses both a potential health and nuisance impact to nearby receptors. A health risk assessment of the project construction activities was conducted that evaluated potential health effects to nearby sensitive receptors from construction emissions of DPM and $PM_{2.5}$.[16] This assessment included dispersion modeling to predict the off-site and on-site concentrations resulting from project construction, so that increased cancer risks and non-cancer health effects could be evaluated.

[15] BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines.* December 2016.

[16] DPM is identified by California as a toxic air contaminant due to the potential to cause cancer.

Construction Emissions

The CalEEMod and EMFAC2021 models provided total annual PM_{10} exhaust emissions (assumed to be DPM) for the off-road construction equipment and for exhaust emissions from on-road vehicles, with total DPM emissions from all construction stages estimated to be 0.02 tons (33 pounds). The on-road emissions are a result of haul truck travel during demolition and grading activities, worker travel, and vendor deliveries during construction. A trip length of half a mile was used to represent vehicle travel while at or near the construction site. It was assumed that these emissions from on-road vehicles traveling at or near the site would occur at the construction site. Fugitive $PM_{2.5}$ dust emissions were calculated by CalEEMod and EMFAC2021 to be 0.02 tons (39 pounds) for the overall construction period.

Dispersion Modeling

The U.S. EPA AERMOD dispersion model was used to predict DPM and $PM_{2.5}$ concentrations at sensitive receptors (i.e., residences, school) in the vicinity of the project construction area. The AERMOD dispersion model is a BAAQMD-recommended model for use in modeling analysis of these types of emission activities for CEQA projects. [17,18] Emission sources for the construction site were grouped into two categories: exhaust emissions of DPM and fugitive $PM_{2.5}$ dust emissions.

Combustion equipment DPM exhaust emissions were modeled as a series of point sources with a nine-foot release height (construction equipment exhaust stack height) placed at 23 feet (7 meter) intervals throughout the construction site. This resulted in 79 individual point sources being used to represent mobile equipment DPM exhaust emissions in the construction area, with DPM emissions occurring throughout the project construction site. In addition, the following stack parameters were used: a vertical release, a stack diameter of 2.5 inches, an exhaust temperature of 918˚F, and an exit velocity of 309 feet per second. Since these are point sources, plume rise is calculated by the AERMOD dispersion model. Emissions from vehicle travel on- and off-site were also distributed among the point sources throughout the site. The locations of the point sources used for the modeling are identified in Figure 1.

For modeling fugitive $PM_{2.5}$ emissions, an area source was used with a near-ground level release height of 7 feet (2 meters). Fugitive dust emissions at construction sites come from a variety of sources, including truck and equipment travel, grading activities, truck loading (with loaders) and unloading (rear or bottom dumping), loaders and excavators moving and transferring soil and other materials, etc. All of these activities result in fugitive dust emissions at various heights at the point(s) of generation. Once generated, the dust plume will tend to rise as it moves downwind across the site and exit the site at a higher elevation than when it was generated. For all these reasons, a 7-foot release height was used as the average release height across the construction site.

[17] BAAQMD, 2012, *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0.* May. Web: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/risk-modeling-approach-may-2012.pdf?la=en

[18] BAAQMD, 2020, *BAAQMD Health Risk Assessment Modeling Protocol.* December. Web: https://www.baaqmd.gov/~/media/files/ab617-community-health/facility-risk-reduction/documents/baaqmd_hra_modeling_protocol-pdf.pdf?la=en

Emissions from the construction equipment and on-road vehicle travel were distributed throughout the modeled area sources.

The modeling used a five-year data set (2013-2017) of hourly meteorological data from the Moffett Federal Airfield that was prepared for use with the AERMOD model by BAAQMD. Construction emissions were modeled as occurring daily between 8:00 a.m. to 6:00 p.m., when the majority of construction activity would occur. Annual DPM and $PM_{2.5}$ concentrations from construction activities during the 2023-2024 period were calculated using the model. DPM and $PM_{2.5}$ concentrations were calculated at nearby sensitive receptors. Receptor heights of 5 feet (1.5 meters) and 15 feet (4.5 meters) were used to represent the breathing height on the first and second floors of nearby residences.[19]

Summary of Construction Community Risk Impacts

The maximum increased cancer risks were calculated using the modeled TAC concentrations combined with the OEHHA guidance for age sensitivity factors and exposure parameters as recommended by BAAQMD, as described in *Attachment 1*. Non-cancer health hazards and maximum $PM_{2.5}$ concentrations were also calculated and identified. Age-sensitivity factors reflect the greater sensitivity of infants and small children to cancer causing TACs. Third trimester, infant, child, and adult exposures were assumed to occur at all residences during the entire construction period.

The maximum modeled annual $PM_{2.5}$ concentration was calculated based on combined exhaust and fugitive concentrations. The maximum computed HI values was based on the ratio of the maximum DPM concentration modeled and the chronic inhalation reference exposure level of 5 $\mu g/m^3$.

The maximum modeled annual DPM and $PM_{2.5}$ concentrations were identified at nearby sensitive receptors to find the maximally exposed individuals (MEI). Results of this assessment indicated that the construction MEIs were located in two places. The cancer risk MEI was located at a residence on the first floor (5 feet above ground) to the southeast of the project site. The $PM_{2.5}$ concentration MEI was located at a residence on the first floor (5 feet above ground) to the east of the project site. The location of the MEIs and nearby sensitive receptors are shown in Figure 1. Table 6 summarizes the maximum cancer risks, $PM_{2.5}$ concentrations, and health hazard indexes for project related construction activities. *Attachment 4* to this report includes the emission calculations used for the construction modeling and the cancer risk calculations.

Community Risks from Project Operation

The project proposes to include one 375-kW, 503-HP natural-gas powered emergency generator on the roof of the building. Since the generator is powered by natural gas (and not diesel), it would not emit substantial TACs; therefore, a health risk assessment for the generator was not performed. Diesel powered vehicles are the primary concern with local traffic-generated TAC impacts. Per BAAQMD recommended risks and methodology, a road with less than 10,000 total vehicle per

[19] Bay Area Air Quality Management District, 2012, Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0. May. Web: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/risk-modeling-approach-may-2012.pdf?la=en

day is considered a low-impact source of TACs.[20] This project would generate 669 daily trips or 511 net daily trips when taking into account the existing land use.[21] The project traffic would be dispersed on the roadway system with a majority of the trips being from light-duty vehicles (i.e., passenger automobiles), which is a fraction of 10,000 daily vehicles. In addition, projects with the potential to cause or contribute to increased cancer risk from traffic include those that have attract high numbers of diesel-powered on road trucks or use off-road diesel equipment on site, such as a distribution center, a quarry, or a manufacturing facility, may potentially expose existing or future planned receptors to substantial cancer risk levels and/or health hazards. This is not a project of concern for non-BAAQMD permitted mobile sources. Therefore, emissions from project traffic are considered negligible and not included within this analysis.

Summary of Project-Related Community Risks at the Off-Site Project MEIs

For this project, the sensitive receptors identified in Figure 1 as the construction MEIs are also the project MEIs. At these locations, the MEIs would be exposed to emissions from 2 years of construction. The annual $PM_{2.5}$ concentration and HI values are based on an annual maximum risk for the entirety of the project. As shown in Table 6, the unmitigated maximum cancer risks, annual $PM_{2.5}$ concentration, and HI from construction activities at the MEI locations would not exceed the respective BAAQMD single-source significance thresholds.

Table 6. Construction Risk Impacts at the Off-Site Receptors

Source		Cancer Risk* (per million)	Annual $PM_{2.5}$* ($\mu g/m^3$)	Hazard Index
Project Construction	Unmitigated	4.38 (infant)	0.13	<0.01
BAAQMD Single-Source Threshold		***10***	***0.3***	***1.0***
Exceed Threshold?	Unmitigated	*No*	*No*	*No*

* Cancer risk MEI and $PM_{2.5}$ concentration MEI are located at different receptors.

[20] BAAQMD, 2012, *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0.* May. Web: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/risk-modeling-approach-may-2012.pdf?la=en

[21] [21] Hexagon Transportation Consultants, Inc., *123 Sherman Avenue Office Development Transportation Analysis,* May 12, 2022.

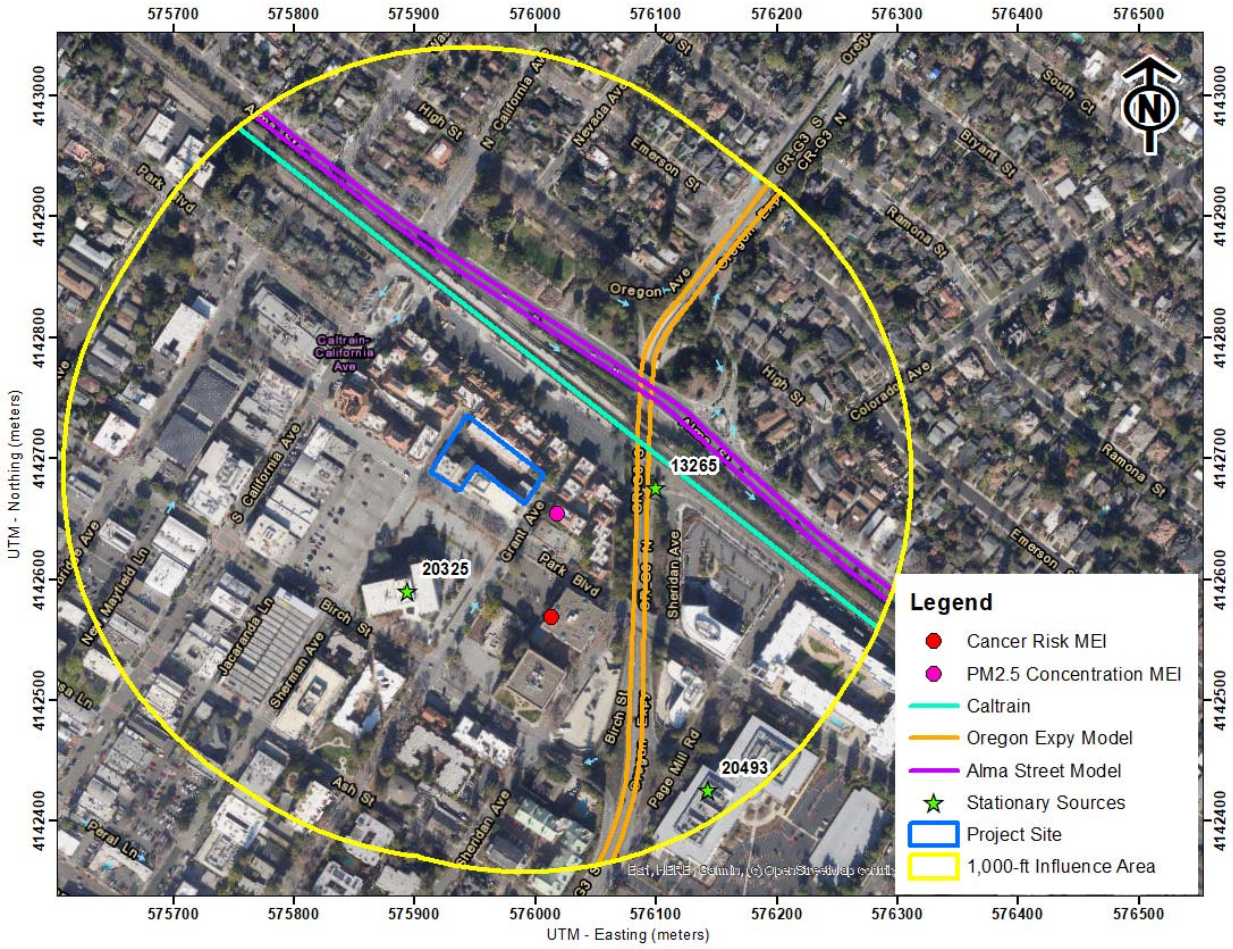
Figure 1. Locations of Project Construction Site, DPM Point Sources, Off-Site Sensitive Receptors, and Maximum TAC Impact Locations (MEIs)

Cumulative Community Risks of all TAC Sources at the Off-Site Project MEIs

Community health risk assessments typically look at all substantial sources of TACs that can affect sensitive receptors that are located within 1,000 feet of the project site (i.e., influence area). These sources include rail lines, freeways or highways, busy surface streets, and stationary sources identified by BAAQMD.

A review of the project area and based on provided traffic information indicated that traffic on Oregon Expressway and Alma Street would exceed 10,000 vehicles per day. Other nearby streets would have less than 10,000 vehicles per day. There are Caltrain tracks to the north of the project site. A review of BAAQMD's stationary source map website identified three stationary sources with the potential to affect the project MEI. Figure 2 shows the location of the sources affecting the MEIs. Community risk impacts from these sources upon the MEIs are reported in Table 7. Details of the modeling and community risk calculations are included in *Attachment 5*.

Figure 2. Project Site and Nearby TAC and $PM_{2.5}$ Sources



Railways – Caltrain

The project cancer risk MEI and $PM_{2.5}$ concentration MEI are approximately 500 feet southwest and 250 feet southwest of the Caltrain tracks, respectively. Screening data reported by BAAQMD for railways were incorporated into this analysis. BAAQMD provided raster files with cancer risk and $PM_{2.5}$ values for all highways, roadways (ADT > 30,000), and rail lines within the Bay Area. Note that the BAAQMD screening data do not reflect the future electrification of Caltrain that will substantially reduce impacts. The risk values shown in the raster files were modeled in AERMOD in 20x20-meter grid cells. The files incorporate AADT for the highway using EMFAC2014 data for fleet mix and include the OEHHA 2015 factor. These raster files were used to screen Caltrain risks and hazards upon the MEIs. The railway screening level impacts are listed in Table 7 and included in *Attachment 5*. Note that the cancer risk value is not adjusted for age sensitivity or exposure duration. It is conservatively higher than adjusted cancer risk values. Refined modeling of the railway would have resulted in even lower risk values. Note that BAAQMD has found that non-cancer hazards were found to be minimal, so an HI value is not included.

Local Roadways – Oregon Expressway and Alma Street

A refined analysis of potential health impacts from vehicle traffic on the Oregon Expressway and Alma Street was conducted. This analysis involved predicting emissions for the traffic volume and mix of vehicle types on the roadways near the project site and using an atmospheric dispersion model to predict exposure to TACs. The associated cancer risks were then computed based on the modeled exposures. *Attachment 1* includes a description of how community risk impacts, including cancer risk are computed.

Traffic Emissions Modeling

This analysis involved the development of DPM, organic TACs, and $PM_{2.5}$ emissions for traffic on Oregon Expressway and Alma Street using the Caltrans version of the CARB EMFAC2017 emissions model, known as CT-EMFAC2017. CT-EMFAC2017 provides emission factors for mobile source criteria pollutants and TACs, including DPM. Emission processes modeled include running exhaust for DPM, $PM_{2.5}$ and total organic compounds (TOG), running evaporative losses for TOG, and tire and brake wear and fugitive road dust for $PM_{2.5}$. All $PM_{2.5}$ emissions from all vehicles were used, rather than just the $PM_{2.5}$ fraction from diesel powered vehicles, because all vehicle types (i.e., gasoline and diesel powered) produce $PM_{2.5}$. Additionally, $PM_{2.5}$ emissions from vehicle tire and brake wear and from re-entrained roadway dust were included in these emissions. DPM emissions are projected to decrease in the future and are reflected in the CT-EMFAC2017 emissions data. Inputs to the model include region (Santa Clara County), type of road (major/collector), truck percentage for non-state highways in Santa Clara County (3.51 percent),[22] traffic mix assigned by CT-EMFAC2017 for the county, year of analysis (2023 – construction start year), and season (annual).

In order to estimate TAC and $PM_{2.5}$ emissions over the 30-year exposure period used for calculating the increased cancer risks for sensitive receptors at the MEI and project site, the CT-EMFAC2017 model was used to develop vehicle emission factors for the year 2023 (construction start year). Emissions associated with vehicle travel depend on the year of analysis because emission control technology requirements are phased-in over time. Therefore, the earlier the year analyzed in the model, the higher the emission rates utilized by CT-EMFAC2017. Year 2023 emissions were conservatively assumed as being representative of future conditions over the time period that cancer risks are evaluated since overall vehicle emissions, and in particular diesel truck emissions, will decrease in the future.

The average daily traffic (ADT) on Oregon Expressway and Alma Street was based on either AM and PM peak-hour background plus project traffic volumes for the nearby roadway provided by the project's traffic consultant[23] or nearby project traffic data. The calculated ADT on Oregon Expressway was 33,252 vehicles and on Alma Street was 26,000 vehicles. Average hourly traffic

[22] Bay Area Air Quality Management District, 2012, *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0.* May. Web: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/risk-modeling-approach-may-2012.pdf?la=en

[23] Hexagon Transportation Consultants, Inc., *123 Sherman Avenue Office Development Transportation Analysis,* May 12, 2022.

distributions for Santa Clara County roadways were developed using the EMFAC model,[24] which were then applied to the ADT volumes to obtain estimated hourly traffic volumes and emissions for the roadway. For all hours of the day, other than during peak AM and PM periods, an average speed of 35 mph on the roadways was assumed for all vehicles based on posted speed limit signs on the roadway. Traffic speeds during the peak AM and PM periods were assumed to be 10 miles per hour slower (i.e., 25 mph) to account for commute congestion and the amount of access in the area.

Dispersion Modeling

Dispersion modeling of TAC and $PM_{2.5}$ emissions was conducted using the EPA AERMOD air quality dispersion model, which is recommended by the BAAQMD for this type of analysis.[25] TAC and $PM_{2.5}$ emissions from traffic on roadways within about 1,000 feet of the project site was evaluated with the model. Emissions from vehicle traffic were modeled in AERMOD using a series of volume sources along a line (line volume sources), with line segments used to represent the opposing travel lanes on the roadways. The same meteorological data used in the construction dispersion modeling were used in the roadway modeling. Other inputs to the model included road geometry, hourly traffic emissions, and receptor locations and heights. Annual TAC and $PM_{2.5}$ concentrations at the project MEIs for 2023 from traffic on the roadway were calculated using receptor heights of 5 feet (1.5 meters) to represent the breathing heights on the first floor of the nearby residences.

Computed Cancer and Non-Cancer Health Impacts

The cancer risk, $PM_{2.5}$ concentration, and HI impacts from Oregon Expressway and Alma Street on the project MEIs are shown in Table 7. Figure 2 shows the roadway links used for the modeling. Details of the emission calculations, dispersion modeling, and cancer risk calculations for the receptors with the maximum cancer risk from the roadways' traffic are provided in *Attachment 5*.

BAAQMD Permitted Stationary Sources

Permitted stationary sources of air pollution near the project site were identified using BAAQMD's *Permitted Stationary Sources 2018* geographic information system (GIS) map website.[26] This mapping tool identifies the location of nearby stationary sources and their estimated risk and hazard impacts, including emissions and adjustments to account for new OEHHA guidance. Three sources were identified using this tool; two diesel generators and one auto body coating operation. A Stationary Source Information Form (SSIF) containing the identified sources was prepared and submitted to BAAQMD. BAAQMD provided input and clarification about the stationary sources.[27]

[24] The Burden output from EMFAC2007, a previous version of CARB's EMFAC model, was used for this since the current web-based version of EMFAC2014 does not include Burden type output with hour-by-hour traffic volume information.
[25] BAAQMD. *Recommended Methods for Screening and Modeling Local Risks and Hazards*. May 2012
[26] BAAQMD, Web: https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=2387ae674013413f987b1071715daa65
[27] Email correspondence with Matthew Hanson, Environmental Planner II, BAAQMD, March 25, 2022.

The screening risk and hazard levels provided by BAAQMD for the stationary sources were adjusted for distance using BAAQMD's *Distance Adjustment Multiplier Tool for Diesel Internal Combustion Engines and Generic Sources*. Community risk impacts from the stationary sources upon the MEIs are reported in Table 7.

Summary of Cumulative Risks at the Project MEIs

Table 7 reports both the project and cumulative community risk impacts at the sensitive receptors most affected by project construction (i.e., the MEIs). The project would not have any exceedances with respect to health risk caused by project activities, since the maximum unmitigated cancer risk, $PM_{2.5}$ concentration, and HI do not exceed the BAAQMD single-source thresholds. In addition, the unmitigated cancer risk, $PM_{2.5}$ concentration, and HI do not exceed their cumulative-source thresholds.

Table 7. Cumulative Community Risk Impacts at the Project MEIs

Source		Cancer Risk* (per million)	Annual $PM_{2.5}$* ($\mu g/m^3$)	Hazard Index
Project Impacts				
Project Construction	Unmitigated	4.38 (infant)	0.13	<0.01
BAAQMD Single-Source Threshold		***10***	***0.3***	***1.0***
Exceed Threshold?	Unmitigated	*No*	*No*	*No*
Cumulative Impacts				
Caltrain BAAQMD Raster		18.32	0.06	-
Oregon Expressway, ADT 33,252		1.83	0.14	<0.01
Alma Street, ADT 26,000		0.77	0.12	<0.01
Santa Clara County Roads & Airports Dept (Facility ID #13265, Auto Body Coating), Cancer/$PM_{2.5}$ MEIs at 460/260 feet		1.31	-	<0.01
Judicial Council of California, JCC 43-D1 (Facility ID #20325, Generator), Cancer/$PM_{2.5}$ MEIs at 285/350 feet		0.56	<0.01	<0.01
Cloudera Inc. (Facility ID #20493, Generator), Cancer/$PM_{2.5}$ MEIs at 550/750 feet		0.11	<0.01	<0.01
Combined Sources	Unmitigated	27.28	<0.47	<0.06
BAAQMD Cumulative Source Threshold		***100***	***0.8***	***10.0***
Exceed Threshold?	Unmitigated	*No*	*No*	*No*

* Cancer risk MEI and $PM_{2.5}$ concentration MEI are located at different receptors.

GREENHOUSE GAS EMISSIONS

Setting

Gases that trap heat in the atmosphere, GHGs, regulate the earth's temperature. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate. The most common GHGs are carbon dioxide (CO_2) and water vapor but there are also several others, most importantly methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). These are released into the earth's atmosphere through a variety of natural processes and human activities. Sources of GHGs are generally as follows:

- CO_2, CH_4, and N_2O are byproducts of fossil fuel combustion.
- N_2O is associated with agricultural operations such as fertilization of crops.
- CH_4 is commonly created by off-gassing from agricultural practices (e.g., keeping livestock) and landfill operations.
- Chlorofluorocarbons (CFCs) were widely used as refrigerants, propellants, and cleaning solvents but their production has been stopped by international treaty.
- HFCs are now used as a substitute for CFCs in refrigeration and cooling.
- PFCs and sulfur hexafluoride emissions are commonly created by industries such as aluminum production and semi-conductor manufacturing.

Each GHG has its own potency and effect upon the earth's energy balance. This is expressed in terms of a global warming potential (GWP), with CO_2 being assigned a value of 1 and sulfur hexafluoride being several orders of magnitude stronger. In GHG emission inventories, the weight of each gas is multiplied by its GWP and is measured in units of CO_2 equivalents (CO_2e).

An expanding body of scientific research supports the theory that global climate change is currently affecting changes in weather patterns, average sea level, ocean acidification, chemical reaction rates, and precipitation rates, and that it will increasingly do so in the future. The climate and several naturally occurring resources within California are adversely affected by the global warming trend. Increased precipitation and sea level rise will increase coastal flooding, saltwater intrusion, and degradation of wetlands. Mass migration and/or loss of plant and animal species could also occur. Potential effects of global climate change that could adversely affect human health include more extreme heat waves and heat-related stress; an increase in climate-sensitive diseases; more frequent and intense natural disasters such as flooding, hurricanes and drought; and increased levels of air pollution.

Recent Regulatory Actions for GHG Emissions

Executive Order S-3-05 – California GHG Reduction Targets

Executive Order (EO) S-3-05 was signed by Governor Arnold Schwarzenegger in 2005 to set GHG emission reduction targets for California. The three targets established by this EO are as follows: (1) reduce California's GHG emissions to 2000 levels by 2010, (2) reduce California's GHG emissions to 1990 levels by 2020, and (3) reduce California's GHG emissions by 80 percent below 1990 levels by 2050.

Assembly Bill 32 – California Global Warming Solutions Act (2006)

Assembly Bill (AB) 32, the Global Warming Solutions Act of 2006, codified the State's GHG emissions target by directing CARB to reduce the State's global warming emissions to 1990 levels by 2020. AB 32 was signed and passed into law by Governor Schwarzenegger on September 27, 2006. Since that time, the CARB, CEC, California Public Utilities Commission (CPUC), and Building Standards Commission have all been developing regulations that will help meet the goals of AB 32 and Executive Order S-3-05, which has a target of reducing GHG emissions 80 percent below 1990 levels.

A Scoping Plan for AB 32 was adopted by CARB in December 2008. It contains the State's main strategies to reduce GHGs from business-as-usual emissions projected in 2020 back down to 1990 levels. Business-as-usual (BAU) is the projected emissions in 2020, including increases in emissions caused by growth, without any GHG reduction measures. The Scoping Plan has a range of GHG reduction actions, including direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system.

As directed by AB 32, CARB has also approved a statewide GHG emissions limit. On December 6, 2007, CARB staff resolved an amount of 427 million metric tons (MMT) of CO_2e as the total statewide GHG 1990 emissions level and 2020 emissions limit. The limit is a cumulative statewide limit, not a sector- or facility-specific limit. CARB updated the future 2020 BAU annual emissions forecast, in light of the economic downturn, to 545 MMT of CO_2e. Two GHG emissions reduction measures currently enacted that were not previously included in the 2008 Scoping Plan baseline inventory were included, further reducing the baseline inventory to 507 MMT of CO_2e. Thus, an estimated reduction of 80 MMT of CO_2e is necessary to reduce statewide emissions to meet the AB 32 target by 2020.

Executive Order B-30-15 & Senate Bill 32 GHG Reduction Targets – 2030 GHG Reduction Target

In April 2015, Governor Brown signed EO B-30-15, which extended the goals of AB 32, setting a greenhouse gas emissions target at 40 percent of 1990 levels by 2030. On September 8, 2016, Governor Brown signed Senate Bill (SB) 32, which legislatively established the GHG reduction target of 40 percent of 1990 levels by 2030. In November 2017, CARB issued *California's 2017 Climate Change Scoping Plan*. [28] While the State is on track to exceed the AB 32 scoping plan 2020 targets, this plan is an update to reflect the enacted SB 32 reduction target.

SB 32 was passed in 2016, which codified a 2030 GHG emissions reduction target of 40 percent below 1990 levels. CARB is currently working on a second update to the Scoping Plan to reflect the 2030 target set by Executive Order B-30-15 and codified by SB 32. The proposed Scoping Plan Update was published on January 20, 2017 as directed by SB 32 companion legislation AB 197. The mid-term 2030 target is considered critical by CARB on the path to obtaining an even deeper GHG emissions target of 80 percent below 1990 levels by 2050, as directed in Executive

[28] California Air Resource Board, 2017. *California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Targets.* November. Web: https://ww2.arb.ca.gov/sites/default/files/classic//cc/scopingplan/scoping_plan_2017.pdf

Order S-3-05. The Scoping Plan outlines the suite of policy measures, regulations, planning efforts, and investments in clean technologies and infrastructure, providing a blueprint to continue driving down GHG emissions and obtain the statewide goals.

The new Scoping Plan establishes a strategy that will reduce GHG emissions in California to meet the 2030 target (note that the AB 32 Scoping Plan only addressed 2020 targets and a long-term goal). Key features of this plan are:

- Cap and Trade program places a firm limit on 80 percent of the State's emissions;
- Achieving a 50-percent Renewable Portfolio Standard by 2030 (currently at about 29 percent statewide);
- Increase energy efficiency in existing buildings;
- Develop fuels with an 18-percent reduction in carbon intensity;
- Develop more high-density, transit-oriented housing;
- Develop walkable and bikeable communities;
- Greatly increase the number of electric vehicles on the road and reduce oil demand in half;
- Increase zero-emissions transit so that 100 percent of new buses are zero emissions;
- Reduce freight-related emissions by transitioning to zero emissions where feasible and near-zero emissions with renewable fuels everywhere else; and
- Reduce "super pollutants" by reducing methane and hydrofluorocarbons or HFCs by 40 percent.

In the updated Scoping Plan, CARB recommends statewide targets of no more than 6 metric tons (MT) CO_2e per capita (statewide) by 2030 and no more than 2 metric tons CO_2e per capita by 2050. The statewide per capita targets account for all emissions sectors in the State, statewide population forecasts, and the statewide reductions necessary to achieve the 2030 statewide target under SB 32 and the longer-term State emissions reduction goal of 80 percent below 1990 levels by 2050.

Executive Order B-55-18 – Carbon Neutrality

In 2018, a new statewide goal was established to achieve carbon neutrality as soon as possible, but no later than 2045, and to maintain net negative emissions thereafter. CARB and other relevant state agencies are tasked with establishing sequestration targets and create policies/programs that would meet this goal.

Senate Bill 375 – California's Regional Transportation and Land Use Planning Efforts (2008)

California enacted legislation (SB 375) to expand the efforts of AB 32 by controlling indirect GHG emissions caused by urban sprawl. SB 375 provides incentives for local governments and applicants to implement new conscientiously planned growth patterns. This includes incentives for creating attractive, walkable, and sustainable communities and revitalizing existing communities. The legislation also allows applicants to bypass certain environmental reviews under CEQA if they build projects consistent with the new sustainable community strategies. Development of more alternative transportation options that would reduce vehicle trips and miles traveled, along with traffic congestion, would be encouraged. SB 375 enhances CARB's ability to reach the AB 32

goals by directing the agency in developing regional GHG emission reduction targets to be achieved from the transportation sector for 2020 and 2035. CARB works with the metropolitan planning organizations (e.g. Association of Bay Area Governments [ABAG] and Metropolitan Transportation Commission [MTC]) to align their regional transportation, housing, and land use plans to reduce vehicle miles traveled and demonstrate the region's ability to attain its GHG reduction targets. A similar process is used to reduce transportation emissions of ozone precursor pollutants in the Bay Area.

Senate Bill 350 and 100 – Current Renewable Portfolio Standards

In September 2015, the California Legislature passed SB 350, which increases the states Renewables Portfolio Standard (RPS) for content of electrical generation from the 33 percent target for 2020 to 50 percent renewables target by 2030.

In September 2018, SB 100 was signed by Governor Brown to revise California's RPS program goals, furthering California's focus on using renewable energy and carbon-free power sources for its energy needs. The bill would require all California utilities to supply a specific percentage of their retail sales from renewable resources by certain target years. By December 31, 2024, 44 percent of the retails sales would need to be from renewable energy sources, by December 31, 2026 the target would be 40 percent, by December 31, 2017 the target would be 52 percent, and by December 31, 2030 the target would be 60 percent. By December 31, 2045, all California utilities would be required to supply retail electricity that is 100 percent carbon-free and sourced from eligible renewable energy resource to all California end-use customers.

California Building Standards Code – Title 24 Part 11 & Part 6

The California Green Building Standards Code (CALGreen Code) is part of the California Building Standards Code under Title 24, Part 11.[29] The CALGreen Code encourages sustainable construction standards that involve planning/design, energy efficiency, water efficiency resource efficiency, and environmental quality. These green building standard codes are mandatory statewide and are applicable to residential and non-residential developments. The most recent CALGreen Code (2019 California Building Standard Code) was effective as of January 1, 2020.

The California Building Energy Efficiency Standards (California Energy Code) is under Title 24, Part 6 and is overseen by the California Energy Commission (CEC). This code includes design requirements to conserve energy in new residential and non-residential developments, while being cost effective for homeowners. This Energy Code is enforced and verified by cities during the planning and building permit process. The current energy efficiency standards (2019 Energy Code) replaced the 2016 Energy Code as of January 1,2020. Under the 2019 standards, single-family homes are predicted to be 53 percent more efficient than homes built under the 2016 standard due more stringent energy-efficiency standards and mandatory installation of solar photovoltaic systems. For nonresidential developments, it is predicted that these buildings will use 30 percent less energy due to lightening upgrades.[30]

[29] See: https://www.dgs.ca.gov/BSC/Resources/Page-Content/Building-Standards-Commission-Resources-List-Folder/CALGreen#:~:text=CALGreen%20is%20the%20first%2Din,to%201990%20levels%20by%202020.
[30] See: https://www.energy.ca.gov/sites/default/files/2020-03/Title_24_2019_Building_Standards_FAQ_ada.pdf

CEC studies have identified the most aggressive electrification scenario as putting the building sector on track to reach the carbon neutrality goal by 2045.[31] Installing new natural gas infrastructure in new buildings will interfere with this goal. To meet the State's goal, communities have been adopting "Reach" codes that prohibit natural gas connections in new and remodeled buildings.

Requirements for electric vehicle (EV) charging infrastructure are set forth in Title 24 of the California Code of Regulations and are regularly updated on a 3-year cycle. The CALGreen standards consist of a set of mandatory standards required for new development, as well as two more voluntary standards known as Tier 1 and Tier 2. The CalGreen standards have recently been updated (2022 version) to require deployment of additional EV chargers in various building types, including multifamily residential and nonresidential land uses. They include requirements for both EV capable parking spaces and the installation of Level 2 EV supply equipment for multifamily residential and nonresidential buildings. The 2022 CALGreen standards include requirements for both EV readiness and the actual installation of EV chargers. The 2022 CALGreen standards include both mandatory requirements and more aggressive voluntary Tier 1 and Tier 2 provisions. Providing EV charging infrastructure that meets current CALGreen requirements will not be sufficient to power the anticipated more extensive level of EV penetration in the future that is needed to meet SB 30 climate goals.

SB 743 Transportation Impacts

Senate Bill 743 required lead agencies to abandon the old "level of service" metric for evaluating a project's transportation impacts, which was based solely on the amount of delay experienced by motor vehicles. In response, the Governor's Office of Planning and Research (OPR) developed a VMT metric that considered other factors such as reducing GHG emissions and developing multimodal transportation[32]. A VMT-per-capita metric was adopted into the CEQA Guidelines Section 15064.3 in November 2017. Given current baseline per-capita VMT levels computed by CARB in the 2030 Scoping Plan of 22.24 miles per day for light-duty vehicles and 24.61 miles per day for all vehicle types, the reductions needed to achieve the 2050 climate goal are 16.8 percent for light-duty vehicles and 14.3 percent for all vehicle types combined. Based on this analysis (as well as other factors), OPR recommended using a 15-percent reduction in per capita VMT as an appropriate threshold of significance for evaluating transportation impacts.

Federal and Statewide GHG Emissions

The U.S. EPA reported that in 2018, total gross nationwide GHG emissions were 6,676.6 million metric tons (MMT) carbon dioxide equivalent (CO_2e).[33] These emissions were lower than peak levels of 7,416 MMT that were emitted in 2007. CARB updates the statewide GHG emission

[31] California Energy Commission. 2021. F*inal Commission Report: California Building Decarbonization Assessment. Publication Number CEC-400-2021-006-CMF*.August

[32] Governor's Office of Planning and Research. 2018. *Technical Advisory on Evaluating Transportation Impacts in CEQA*. December.

[33] United States Environmental Protection Agency, 2020. *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2018*. April. Web: https://www.epa.gov/sites/production/files/2020-04/documents/us-ghg-inventory-2020-main-text.pdf

inventory on an annual basis where the latest inventory includes 2000 through 2017 emissions.[34] In 2017, GHG emissions from statewide emitting activities were 424 MMT. The 2017 emissions have decreased by 14 percent since peak levels in 2004 and are 7 MMT below the 1990 emissions level and the State's 2020 GHG limit. Per capita GHG emissions in California have dropped from a 2001 peak of 14.1 MT per person to 10.7 MT per person in 2017. The most recent Bay Area emission inventory was computed for the year 2011.[35] The Bay Area GHG emission were 87 MMT. As a point of comparison, statewide emissions were about 444 MMT in 2011

Palo Alto Sustainability and Climate Action Plan

The City of Palo Alto adopted a Sustainability and Climate Action Plan Framework (S/CAP)[36] in 2016 that included goals and strategies to reduce GHG emissions 80 percent below 1990 levels by 2030 (the "80 x 30" goal). In 2017 the City accepted a 2018-2022 Sustainability Implementation Plan,[37] which focuses on key concern and action areas to help achieve the S/CAP goal. The City is also in the process of updating the S/CAP to develop the actions and strategies needed to meet our sustainability goals, including the "80 x 30" goal. However, the S/CAP is not qualified GHG reductions plan, does not have specific metric ton or service population GHG threshold for project-level construction or operation, or a S/CAP Compliance Checklist. Therefore, the BAAQMD's CEQA Air Quality Guideline's thresholds are used.

BAAQMD GHG Significance Thresholds

The BAAQMD's CEQA Air Quality Guidelines do not use quantified thresholds for projects that are in a jurisdiction with a qualified GHG reductions plan (i.e., a Climate Action Plan). The plan has to address emissions associated with the period that the project would operate (e.g., beyond year 2020). For quantified emissions, the guidelines recommended a GHG threshold of 1,100 metric tons or 4.6 metric tons (MT) per capita. These thresholds were developed based on meeting the 2020 GHG targets set in the scoping plan that addressed AB 32. Development of the project would occur beyond 2020, so a threshold that addresses a future target is appropriate.

This assessment uses a "Substantial Progress" efficiency metric of 2.8 MT CO_2e/year/service population and a bright-line threshold of 660 MT CO_2e/year based on the GHG reduction goals of EO B-30-15. The service population metric of 2.8 is calculated for 2030 based on the 1990 inventory and the projected 2030 statewide population and employment levels.[38] The 2030 bright-line threshold is a 40 percent reduction of the 2020 1,100 MT CO_2e/year threshold. Evidence

[34] CARB. 2019. *2019 Edition, California Greenhouse Gas Emission Inventory: 2000 – 2017*. Web: https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2017/ghg_inventory_trends_00-17.pdf

[35] BAAQMD. 2015. *Bay Area Emissions Inventory Summary Report: Greenhouse Gases Base Year 2011*. January. Web: http://www.baaqmd.gov/~/media/files/planning-and-research/emission-inventory/by2011_ghgsummary.pdf accessed Nov. 26, 2019.

[36] City of Palo Alto. *Sustainability and Climate Action Plan*. November 2016. Web: https://www.cityofpaloalto.org/files/assets/public/sustainability/policies-and-plans/scap_framework_november2016.pdf

[37] City of Palo Alto. *Sustainability Implementation Plan (SIP) Key Actions*. 2017. Web: https://www.cityofpaloalto.org/files/assets/public/sustainability/policies-and-plans/2018-2020-sustainability-implementation-plan-with-council-amendments.pdf

[38] Bay Area Air Quality Management District, 2016. *CLE International 12th Annual Super-Conference CEQA Guidelines, Case Law and Policy Update*. December.

published by the State indicates the AB 32 goal of reducing statewide GHG emissions to 1990 levels was met prior to 2020. Current State plans are to further reduce emissions to 40% below 1990 levels by 2030. Assuming statewide emissions are at 1990 levels or lower in 2020, it would be logical to reduce the BAAQMD-recommended threshold for meeting the AB 32 threshold by 40% to develop a threshold for 2030.

On April 20, 2022, BAAQMD adopted new thresholds of significance for operational GHG emissions from land use projects for projects beginning the CEQA process. The following framework is how BAAQMD will determine GHG significance moving forward.[39]

A. Projects must include, at a minimum, the following project design elements:
    a. Buildings
        i. The project will not include natural gas appliances or natural gas plumbing (in both residential and non-residential development).
        ii. The project will not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines.
    b. Transportation
        i. 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 (currently 15 percent) or meet a locally adopted Senate Bill 743 VMT target, reflecting the recommendations provided in the Governor's Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA:
            1. Residential Projects: 15 percent below the existing VMT per capita
            2. Office Projects: 15 percent below the existing VMT per employee
            3. Retail Projects: no net increase in existing VMT
        ii. Achieve compliance with off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2.

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

Any new land use project would have to include either section A or B from the above list, not both, to be considered in compliance for GHG emissions from project operation.

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

Impact GHG-1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

GHG emissions associated with development of the proposed project would occur over the short-term from construction activities, consisting primarily of emissions from equipment exhaust and worker and vendor trips. There would also be long-term operational emissions associated with vehicular traffic within the project vicinity, energy and water usage, and solid waste disposal. Emissions for the proposed project are discussed below and were analyzed using the methodology recommended in the BAAQMD CEQA Air Quality Guidelines.

CalEEMod Modeling

CalEEMod was used to predict GHG emissions from operation of the site assuming full build-out of the project. The project land use types and size and other project-specific information were input to the model, as described above within the operational period emissions. CalEEMod output is included in *Attachment 2*.

Service Population Emissions

The project service population efficiency rate is based on the number of future full-time employees. For this project, the number of employees was provided at 220 for the office component and 20 for the retail component, for a total population of 240. This total service population was used to calculate the per capita emissions

Construction Emissions

GHG emissions associated with construction were computed to be 226 MT of CO_2e for the total construction period. These are the emissions from on-site operation of construction equipment, vendor and hauling truck trips, and worker trips. Neither the City nor BAAQMD have an adopted threshold of significance for construction-related GHG emissions, though BAAQMD recommends quantifying emissions and disclosing that GHG emissions would occur during construction. BAAQMD also encourages the incorporation of best management practices to reduce GHG emissions during construction where feasible and applicable.

Operational Emissions

The CalEEMod model, along with the project vehicle trip generation rates, was used to estimate daily emissions associated with operation of the fully developed site under the proposed project. As shown in Table 9, the net annual emissions resulting from operation of the proposed project are predicted to be 287 MT of CO_2e in 2025 and 248 MT of CO_2e in 2030. The service population emission for the year 2025 and 2030 are predicted to be 1.7 and 1.6 MT/CO_{2e}/year/service population, respectively.

To be considered an exceedance, the project must exceed both the GHG significance threshold in metric tons per year and the service population significance threshold in the future year of 2030. As shown in Table 9, the project would not exceed the annual emissions bright-line threshold of

660 MT CO_2e/year in 2030 and would not exceed the per service population threshold of 2.8 MT of CO_2e/year/service population in 2030. Therefore, the project would not exceed thresholds for GHG emissions.

Table 9. Annual Project GHG Emissions (CO_2e) in Metric Tons and Per Capita

Source Category	Existing Land Use	Proposed Project	
	2022	2025	2030
Area	0	0	0
Energy Consumption	13	0	0
Mobile	104	385	346
Solid Waste Generation	7	25	25
Water Usage	4	5	5
Total (MT CO_{2e}/year)	128	415	376
Net Emissions		287 MT CO_{2e}/year	248 MT CO_{2e}/year
Significance Threshold			***660 MT CO_2e/year***
Service Population Emissions (MT CO_{2e}/year/service population)		1.7	1.6
Significance Threshold			***2.8 in 2030***
Exceeds Both Thresholds?			***No***

Impact GHG-2: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The proposed building would be constructed in conformance with CALGreen and the Title 24 Building Code, which requires high-efficiency water fixtures, water-efficient irrigation systems, and compliance with current energy efficacy standards. To avoid interference with statewide GHG reduction measures identified in CARB's Scoping Plan and SB 100 goals, the Project should include the following measures:

1. Avoid construction of new natural gas connections for the residential building,
    - Conforms – compliance with City Reach Code would prohibit natural gas infrastructure in new buildings.
2. Avoid wasteful or inefficient use of electricity,
    - Conforms – would meet CALGreen Building Standards Code requirements that are considered to be energy efficient.
3. Include electric vehicle charging infrastructure that meets current Building Code CALGreen Tier 2 compliance, and
    - Conforms – project would provide 43 EV stalls, 25 percent of total stalls.
4. Reduce VMT per capita by 15 percent over baseline conditions.
    - Conforms – project meets Palo Alto VMT screening criteria. It is located within ½-mile of a major transit stop (Caltrain Station), is high density, does not exceed parking requirements, and is consistent with Plan Bay Area. Therefore, it is expected to cause a less-than-significant VMT impact and meets the VMT reduction condition.

Supporting Documentation

Attachment 1 is the methodology used to compute community risk impacts, including the methods to compute lifetime cancer risk from exposure to project emissions.

Attachment 2 includes the CalEEMod output for project construction and operational criteria air pollutant and GHG emissions. The operational outputs for existing and 2030 uses are also included in this attachment. Also included are any modeling assumptions.

Attachment 3 includes the EMFAC2021 emissions modeling. The input files for these calculations are voluminous and are available upon request in digital format.

Attachment 4 is the construction health risk assessment. AERMOD dispersion modeling files for these assessments, which are quite voluminous, are available upon request and would be provided in digital format.

Attachment 5 includes the cumulative community risk calculations, modeling results, and health risk calculations from sources affecting the MEIs.

Attachment 1: Health Risk Calculation Methodology

A health risk assessment (HRA) for exposure to Toxic Air Contaminates (TACs) requires the application of a risk characterization model to the results from the air dispersion model to estimate potential health risk at each sensitive receptor location. The State of California Office of Environmental Health Hazard Assessment (OEHHA) and California Air Resources Board (CARB) develop recommended methods for conducting health risk assessments. The most recent OEHHA risk assessment guidelines were published in February of 2015.[40] These guidelines incorporate substantial changes designed to provide for enhanced protection of children, as required by State law, compared to previous published risk assessment guidelines. CARB has provided additional guidance on implementing OEHHA's recommended methods.[41] This HRA used the 2015 OEHHA risk assessment guidelines and CARB guidance. The BAAQMD has adopted recommended procedures for applying the newest OEHHA guidelines as part of Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants.[42] Exposure parameters from the OEHHA guidelines and the recent BAAQMD HRA Guidelines were used in this evaluation.

Cancer Risk

Potential increased cancer risk from inhalation of TACs is calculated based on the TAC concentration over the period of exposure, inhalation dose, the TAC cancer potency factor, and an age sensitivity factor to reflect the greater sensitivity of infants and children to cancer causing TACs. The inhalation dose depends on a person's breathing rate, exposure time and frequency and duration of exposure. These parameters vary depending on the age, or age range, of the persons being exposed and whether the exposure is considered to occur at a residential location or other sensitive receptor location.

The current OEHHA guidance recommends that cancer risk be calculated by age groups to account for different breathing rates and sensitivity to TACs. Specifically, they recommend evaluating risks for the third trimester of pregnancy to age zero, ages zero to less than two (infant exposure), ages two to less than 16 (child exposure), and ages 16 to 70 (adult exposure). Age sensitivity factors (ASFs) associated with the different types of exposure are an ASF of 10 for the third trimester and infant exposures, an ASF of 3 for a child exposure, and an ASF of 1 for an adult exposure. Also associated with each exposure type are different breathing rates, expressed as liters per kilogram of body weight per day (L/kg-day) or liters per kilogram of body weight per 8-hour period for the case of worker or school child exposures. As recommended by the BAAQMD for residential exposures, 95th percentile breathing rates are used for the third trimester and infant exposures, and 80th percentile breathing rates for child and adult exposures. For children at schools and daycare facilities, BAAQMD recommends using the 95th percentile 8-hour breathing rates. Additionally, CARB and the BAAQMD recommend the use of a residential exposure duration of

[40] OEHHA, 2015. *Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. Office of Environmental Health Hazard Assessment. February.
[41] CARB, 2015. *Risk Management Guidance for Stationary Sources of Air Toxics*. July 23.
[42] BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*. December 2016.

30 years for sources with long-term emissions (e.g., roadways). For workers, assumed to be adults, a 25-year exposure period is recommended by the BAAQMD. For school children a 9-year exposure period is recommended by the BAAQMD.

Under previous OEHHA and BAAQMD HRA guidance, residential receptors are assumed to be at their home 24 hours a day, or 100 percent of the time. In the 2015 Risk Assessment Guidance, OEHHA includes adjustments to exposure duration to account for the fraction of time at home (FAH), which can be less than 100 percent of the time, based on updated population and activity statistics. The FAH factors are age-specific and are: 0.85 for third trimester of pregnancy to less than 2 years old, 0.72 for ages 2 to less than 16 years, and 0.73 for ages 16 to 70 years. Use of the FAH factors is allowed by the BAAQMD if there are no schools in the project vicinity have a cancer risk of one in a million or greater assuming 100 percent exposure (FAH = 1.0).

Functionally, cancer risk is calculated using the following parameters and formulas:

Cancer Risk (per million) = $CPF \times Inhalation\ Dose \times ASF \times ED/AT \times FAH \times 10^6$

Where:

CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = $C_{air} \times DBR^* \times A \times (EF/365) \times 10^{-6}$

Where:

C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
8HrBR = 8-hour breathing rate (L/kg body weight-8 hours)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

* An 8-hour breathing rate (8HrBR) is used for worker and school child exposures.

The health risk parameters used in this evaluation are summarized as follows:

Parameter	*Exposure Type* →	Infant		Child	Adult
	Age Range →	3rd Trimester	0<2	2 < 16	16 - 30
DPM Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$		1.10E+00	1.10E+00	1.10E+00	1.10E+00
Daily Breathing Rate (L/kg-day) 80th Percentile Rate		273	758	572	261
Daily Breathing Rate (L/kg-day) 95th Percentile Rate		361	1,090	745	335
8-hour Breathing Rate (L/kg-8 hours) 95th Percentile Rate		-	1,200	520	240
Inhalation Absorption Factor		1	1	1	1
Averaging Time (years)		70	70	70	70
Exposure Duration (years)		0.25	2	14	14*
Exposure Frequency (days/year)		350	350	350	350*
Age Sensitivity Factor		10	10	3	1
Fraction of Time at Home (FAH)		0.85-1.0	0.85-1.0	0.72-1.0	0.73*

Non-Cancer Hazards

Non-cancer health risk is usually determined by comparing the predicted level of exposure to a chemical to the level of exposure that is not expected to cause any adverse effects (reference exposure level), even to the most susceptible people. Potential non-cancer health hazards from TAC exposure are expressed in terms of a hazard index (HI), which is the ratio of the TAC concentration to a reference exposure level (REL). OEHHA has defined acceptable concentration levels for contaminants that pose non-cancer health hazards. TAC concentrations below the REL are not expected to cause adverse health impacts, even for sensitive individuals. The total HI is calculated as the sum of the HIs for each TAC evaluated and the total HI is compared to the BAAQMD significance thresholds to determine whether a significant non-cancer health impact from a project would occur.

Typically, for residential projects located near roadways with substantial TAC emissions, the primary TAC of concern with non-cancer health effects is diesel particulate matter (DPM). For DPM, the chronic inhalation REL is 5 micrograms per cubic meter ($\mu g/m^3$).

Annual $PM_{2.5}$ Concentrations

While not a TAC, fine particulate matter ($PM_{2.5}$) has been identified by the BAAQMD as a pollutant with potential non-cancer health effects that should be included when evaluating potential community health impacts under the California Environmental Quality Act (CEQA). The thresholds of significance for $PM_{2.5}$ (project level and cumulative) are in terms of an increase in the annual average concentration. When considering $PM_{2.5}$ impacts, the contribution from all sources of $PM_{2.5}$ emissions should be included. For projects with potential impacts from nearby local roadways, the $PM_{2.5}$ impacts should include those from vehicle exhaust emissions, $PM_{2.5}$ generated from vehicle tire and brake wear, and fugitive emissions from re-suspended dust on the roads.

Attachment 2: CalEEMod Modeling Inputs and Outputs

Air Quality/Noise Construction Information Data Request

Project Name: 123 Sherman Ave.

Complete ALL Portions in Yellow

See Equipment Type TAB for type, horsepower and load factor

Project Size

0 Dwelling Units ~.8 acres onsite total project acres disturbed

0 s.f. residential

3871 s.f. retail

48074 s.f. office/commercial

16,729 s.f. other, specify: grade level parking (covered)

57140 s.f. parking garage 172 min. spaces

see above s.f. parking lot spaces

Construction Hours am to pm

Pile Driving? Y/N? N

Project include OPERATIONAL GENERATOR OR FIRE PUMP on-site? Y/N? Y

IF YES (if BOTH separate values) -->

Kilowatts/Horsepower: 375 kW

Fuel Type: natural gas

Location in project (Plans Desired if Available): Roof

DO NOT MULTIPLY EQUIPMENT HOURS/DAY BY THE QUANTITY OF EQUIPMENT

Quantity	Description	HP	Load Factor	Hours/day	Total Work Days	Avg. Hours per day	Annual Hours	Comments
	Demolition	**Start Date:**	**3/6/2023**	**Total phase:**	**20**			**Overall Import/Export Volumes**
		End Date:	**3/31/2023**					
1	Concrete/Industrial Saws	81	0.73	4	8	1.6	32	**Demolition Volume**
1	Excavators	158	0.38	8	15	6	120	Square footage of buildings to be demolished
1	Rubber-Tired Dozers	247	0.4	8	15	6	120	(*or* total tons to be hauled)
1	Tractors/Loaders/Backhoes	97	0.37	4	15	3	60	**15,523** square feet *or*
								? Hauling volume (tons)
								Any pavement demolished and hauled? **750 tons**
	Site Preparation	**Start Date:**	**4/3/2023**	**Total phase:**	**10**			
		End Date:	**4/14/2023**					
1	Graders	187	0.41	8	10	8	80	
1	Rubber Tired Dozers	247	0.4	8	10	8	80	
	Tractors/Loaders/Backhoes	97	0.37			0	0	
	Grading / Excavation	**Start Date:**	**4/17/2023**	**Total phase:**	**20**			
		End Date:	**5/12/2023**					**Soil Hauling Volume**
1	Excavators	158	0.38	8	20	8	160	Export volume = **27,000** cubic yards
1	Graders	187	0.41	8	20	8	160	Import volume = **?** cubic yards?
	Rubber Tired Dozers	247	0.4			0	0	
	Concrete/Industrial Saws	81	0.73	8	20	8	0	
1	Tractors/Loaders/Backhoes	97	0.37			0	0	
	Other Equipment?							
	Trenching/Foundation	**Start Date:**	**5/15/2023**	**Total phase:**	**60**			
		End Date:	**8/11/2023**					
1	Tractor/Loader/Backhoe	97	0.37	6	40	4	240	
1	Excavators	158	0.38	6	40	4	240	
1	Cranes	231	0.29	8	5	0.7	40	**Cement Trucks? 147 Total Round-Trips**
	Building - Exterior	**Start Date:**	**1/8/2024**	**Total phase:**	**60**			**Cement Trucks? ? Total Round-Trips**
		End Date:	**4/5/2024**					
1	Cranes	231	0.29	8	7	0.9	56	Electric? (Y/N) N Otherwise assumed diesel
1	Forklifts	89	0.2	4	40	2.7	160	Liquid Propane (LPG)? (Y/N)
	Generator Sets	84	0.74			0	0	Or temporary line power? (Y/N)
1	Tractors/Loaders/Backhoes	97	0.37	4	10	0.7	40	
1	Welders	46	0.45	4	40	2.7	160	
2	Aerial Lift	62	0.31	4	15	1.0	120	
	Building - Interior/Architectural Coating	**Start Date:**	**2/5/2024**	**Total phase:**	**120**			
		End Date:	**7/26/2024**					
1	Air Compressors	78	0.48	8	15	1	120	
	Aerial Lift	62	0.31			0	0	
1	Cranes	231	0.29	8	10	0.7	80	
	Paving	**Start Date:**	**5/15/2024**	**Total phase:**	**20**			
		Start Date:	**6/10/2024**					
1	Cement and Mortar Mixers	9	0.56	8	8	3.2	64	
1	Pavers	130	0.42	8	4	1.6	32	**Asphalt? ___ cubic yards or 40 round trips**
1	Paving Equipment	132	0.36	8	4	1.6	32	
1	Rollers	80	0.38	8	4	1.6	32	
1	Tractors/Loaders/Backhoes	97	0.37	8	10	4	80	
	Other Equipment?							
	Additional Phases	**Start Date:**		**Total phase:**				
		Start Date:						

Equipment types listed in "Equipment Types" worksheet tab.

Equipment listed in this sheet is to provide an example of inputs

It is assumed that water trucks would be used during grading

Add or subtract phases and equipment, as appropriate

Modify horepower or load factor, as appropriate

Complete one sheet for each project component

Traffic Consultant Trip Gen						CalEEMod Default			
Land Use		**Size**	**Daily Trips**	**New Trips**	**Weekday Trip Gen**	**Weekday**	**Sat**	**Sun**
General Office Buidling	ksf	48.074	521	474	***9.86***	9.74	2.21	0.7
Employment & Retail Reduction			*-16*			*Rev*	***2.24***	***0.71***
Employment near LRT, BRT, or Caltrain Station Reduction			*-31*					
Retail	ksf	3.871	211	195	***50.37***	44.32	42.04	20.43
Employment & Retail Reduction			*-16*			*Rev*	***47.78***	***23.22***
Existing Office Building	ksf	15.523	168	158	***10.18***	9.74	2.21	0.7
Employment near LRT, BRT, or Caltrain Station Reduction			*-10*			*Rev*	***2.31***	***0.73***

				Daily		AM Peak Hour				PM Peak Hour			
	Reduction						Trip				Trip		
Land Use	**%**	**Size**		**Rate**	**Trip**	**Rate**	**In**	**Out**	**Total**	**Rate**	**In**	**Out**	**Total**
Proposed Land Uses													
#710 - General Office Building		**48,074**	Square Feet	10.840	521	1.520	64	9	73	1.440	12	57	69
Employment & Retail Reduction [1]	*3%*				*-16*		*-2*	*0*	*-2*		*0*	*-2*	*-2*
Employment near LRT, BRT, or Caltrain Station Reduction [1]	*6%*				*-31*		*-4*	*-1*	*-5*		*-1*	*-3*	*-4*
#822 - Strip Retail Plaza (<40k)		**3,871**	Square Feet	54.450	211	2.360	5	4	9	6.590	13	13	26
Employment & Retail Reduction [1]	*3%*				*-16*		*0*	*-2*	*-2*		*-2*	*0*	*-2*
Total Project Trips					669		63	10	73		22	65	87
Existing Land Uses													
#710 - General Office Building		**15,523**	Square Feet	10.840	168	1.520	21	3	24	1.440	4	18	22
Employment near LRT, BRT, or Caltrain Station Reduction [1]	*6%*				*-10*		*-1*	*0*	*-1*		*0*	*-1*	*-1*
Total Existing Trips					158		20	3	23		4	17	21
Net Project Trips					**511**		**43**	**7**	**50**		**18**	**48**	**66**

Source: ITE Trip Generation Manual, 11th Edition 2021.

[1] The following trip reductions are prescribed by the VTA Transportation Impact Analysis Guidelines (October 2014).

Mixed-Used Development Project

with employment and employee-serving retail - 3% off employment component

Location Within 2,000=Foot Walk of Transit Facility

Employment near LRT, BRT, or Caltrain Station - 6%

Construction Criteria Air Pollutants						
Unmitigated	ROG	NOX	PM10 Exhaust	PM2.5 Exhaust	**CO2e**	
Year	Tons				MT	
Construction Equipment						
2023	0.03	0.27	0.01	0.01	44.48	
2024	0.30	0.10	0.004	0.004	16.46	
EMFAC						
2023	0.01	0.11	0.01	0.003	84.09	
2024	0.01	0.10	0.01	0.003	81.12	
Total Construction Emissions by Year						
2023	0.03	0.38	0.02	0.01	128.57	
2024	0.30	0.20	0.01	0.01	97.58	
	Total Construction Emissions					
Tons	0.34	0.59	0.03	0.02	226.15	
Pounds/Workdays	*Average Daily Emissions*				Workdays	
2023	0.58	6.74	0.33	0.24		**114**
2024	5.42	3.59	0.20	0.12		**112**
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**		
	Total Construction Emissions					
Pounds	6.00	10.33	0.53	0.37	0.00	
Average	2.98	5.18	0.27	0.18	0.00	226.00
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**		

Operational Criteria Air Pollutants						
Unmitigated	ROG	NOX	Total PM10	Total PM2.5		
Year	Tons					
Total	0.66	0.22	0.39	0.10		
	Existing Use Emissions					
Total	0.15	0.08	0.10	0.03		
	Net Annual Operational Emissions					
Tons/year	0.51	0.14	0.29	0.07		
Threshold - Tons/year	**10.0**	**10.0**	**15.0**	**10.0**		
	Average Daily Emissions					
Pounds Per Day	2.77	0.75	1.58	0.40		
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**		

Category	**CO2e**			
	Project	Existing	Project 2030	Existing
Area	0.004	0.0003	0.004	0.0003
Energy	0.00	13.50	0.00	13.50
Mobile	384.67	103.76	346.40	103.76
Waste	24.53	7.26	24.53	7.26
Water	5.42	3.75	5.42	3.75
TOTAL	414.62	128.28	376.35	128.28
Net GHG Emissions		286.34		248.07
Service Population	240.00			
Per Capita Emissions		1.73		1.57

	0	units
CA DOF 1920 =	0	pphh

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

123 Sherman Ave, Palo Alto

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	48.07	1000sqft	0.80	48,074.00	0
Enclosed Parking with Elevator	172.00	Space	0.00	76,899.00	0
Strip Mall	3.87	1000sqft	0.00	3,871.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2025
Utility Company	City of Palo Alto Utilities Department				
CO2 Intensity (lb/MWhr)	0	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Provided land uses - project plans, description, and construction worksheet

Construction Phase - Provided construction schedule

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

Trips and VMT - EMFAC2021 0 trip adjustment, pavement demo = 750 tons, trenching = 147 cement truck round trips, paving = 40 asphalt truck round trips

Demolition - existing building demo = 15,523-sf

Grading - grading = 27,000-cy export

Vehicle Trips - Provided trip gen w/ reductions

Vehicle Emission Factors - EMFAC2021 vehicle emission factors 2025 Santa Clara County

Energy Use - City reach code - all electric no natural gas

Water And Wastewater - Wastewater treatment 100% aerobic, no septic tanks or lagoons

Construction Off-road Equipment Mitigation - BMPs, Tier 4 interim mitigation

Fleet Mix - EMFAC2021 fleet mix 2025 Santa Clara County

Stationary Sources - Emergency Generators and Fire Pumps - one 375-kw, 503-hp natural gas powered generator

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	5.00	125.00
tblConstructionPhase	NumDays	100.00	65.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	2.00	20.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	1.00	10.00
tblEnergyUse	NT24NG	0.06	0.00
tblEnergyUse	T24E	5.45	5.46
tblEnergyUse	T24NG	16.14	0.00
tblEnergyUse	T24NG	2.34	0.00
tblFleetMix	HHD	6.3770e-003	7.4400e-003
tblFleetMix	HHD	6.3770e-003	7.4400e-003
tblFleetMix	HHD	6.3770e-003	7.4400e-003
tblFleetMix	LDA	0.57	0.53
tblFleetMix	LDA	0.57	0.53
tblFleetMix	LDA	0.57	0.53
tblFleetMix	LDT1	0.06	0.04

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblFleetMix	LDT1	0.06	0.04
tblFleetMix	LDT1	0.06	0.04
tblFleetMix	LDT2	0.19	0.23
tblFleetMix	LDT2	0.19	0.23
tblFleetMix	LDT2	0.19	0.23
tblFleetMix	LHD1	0.02	0.02
tblFleetMix	LHD1	0.02	0.02
tblFleetMix	LHD1	0.02	0.02
tblFleetMix	LHD2	5.1580e-003	5.7400e-003
tblFleetMix	LHD2	5.1580e-003	5.7400e-003
tblFleetMix	LHD2	5.1580e-003	5.7400e-003
tblFleetMix	MCY	0.02	0.02
tblFleetMix	MCY	0.02	0.02
tblFleetMix	MCY	0.02	0.02
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MH	2.7200e-003	2.5850e-003
tblFleetMix	MH	2.7200e-003	2.5850e-003
tblFleetMix	MH	2.7200e-003	2.5850e-003
tblFleetMix	MHD	8.0300e-003	9.4250e-003
tblFleetMix	MHD	8.0300e-003	9.4250e-003
tblFleetMix	MHD	8.0300e-003	9.4250e-003
tblFleetMix	OBUS	8.9300e-004	1.0570e-003
tblFleetMix	OBUS	8.9300e-004	1.0570e-003
tblFleetMix	OBUS	8.9300e-004	1.0570e-003
tblFleetMix	SBUS	9.0000e-004	6.8400e-004
tblFleetMix	SBUS	9.0000e-004	6.8400e-004
tblFleetMix	SBUS	9.0000e-004	6.8400e-004

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblFleetMix	UBUS	3.7200e-004	4.1300e-004
tblFleetMix	UBUS	3.7200e-004	4.1300e-004
tblFleetMix	UBUS	3.7200e-004	4.1300e-004
tblGrading	MaterialExported	0.00	27,000.00
tblLandUse	LandUseSquareFeet	48,070.00	48,074.00
tblLandUse	LandUseSquareFeet	68,800.00	76,899.00
tblLandUse	LandUseSquareFeet	3,870.00	3,871.00
tblLandUse	LotAcreage	1.10	0.80
tblLandUse	LotAcreage	1.55	0.00
tblLandUse	LotAcreage	0.09	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	1.00
tblOffRoadEquipment	UsageHours	6.00	3.20
tblOffRoadEquipment	UsageHours	8.00	1.60
tblOffRoadEquipment	UsageHours	4.00	0.90
tblOffRoadEquipment	UsageHours	6.00	2.70
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	1.60
tblOffRoadEquipment	UsageHours	7.00	1.60
tblOffRoadEquipment	UsageHours	1.00	6.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.70
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	7.00	8.00

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	503.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	HaulingTripNumber	71.00	0.00
tblTripsAndVMT	HaulingTripNumber	3,375.00	0.00
tblTripsAndVMT	VendorTripNumber	21.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	0.00
tblTripsAndVMT	WorkerTripNumber	8.00	0.00
tblTripsAndVMT	WorkerTripNumber	8.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblVehicleEF	HHD	0.02	0.23
tblVehicleEF	HHD	0.05	0.12
tblVehicleEF	HHD	6.32	5.18
tblVehicleEF	HHD	0.41	0.76
tblVehicleEF	HHD	5.9250e-003	6.8500e-004
tblVehicleEF	HHD	1,030.26	813.97
tblVehicleEF	HHD	1,386.58	1,586.83
tblVehicleEF	HHD	0.05	0.02
tblVehicleEF	HHD	0.16	0.13
tblVehicleEF	HHD	0.22	0.25
tblVehicleEF	HHD	6.0000e-006	1.4000e-005
tblVehicleEF	HHD	5.35	3.97
tblVehicleEF	HHD	2.67	1.77
tblVehicleEF	HHD	2.32	2.75

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	HHD	2.5050e-003	2.0970e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.02	0.03
tblVehicleEF	HHD	2.3970e-003	2.0000e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8870e-003	8.7820e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	2.0000e-006	1.6100e-004
tblVehicleEF	HHD	8.6000e-005	4.8000e-005
tblVehicleEF	HHD	0.43	0.33
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	3.8000e-005	4.3200e-004
tblVehicleEF	HHD	2.0000e-006	0.00
tblVehicleEF	HHD	9.5860e-003	7.0990e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	2.0000e-006	1.6100e-004
tblVehicleEF	HHD	8.6000e-005	4.8000e-005
tblVehicleEF	HHD	0.49	0.59
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.08	0.14
tblVehicleEF	HHD	3.8000e-005	4.3200e-004
tblVehicleEF	HHD	3.0000e-006	0.00
tblVehicleEF	LDA	1.5230e-003	1.8410e-003
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.49	0.61
tblVehicleEF	LDA	2.00	2.71

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	LDA	226.89	237.67
tblVehicleEF	LDA	48.21	61.73
tblVehicleEF	LDA	3.7350e-003	3.8850e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.15	0.22
tblVehicleEF	LDA	0.04	7.1370e-003
tblVehicleEF	LDA	1.2360e-003	1.1200e-003
tblVehicleEF	LDA	1.6250e-003	1.8490e-003
tblVehicleEF	LDA	0.02	2.4980e-003
tblVehicleEF	LDA	1.1380e-003	1.0310e-003
tblVehicleEF	LDA	1.4940e-003	1.7000e-003
tblVehicleEF	LDA	0.03	0.26
tblVehicleEF	LDA	0.08	0.08
tblVehicleEF	LDA	0.03	0.00
tblVehicleEF	LDA	5.5720e-003	6.9420e-003
tblVehicleEF	LDA	0.03	0.20
tblVehicleEF	LDA	0.18	0.27
tblVehicleEF	LDA	2.2440e-003	2.3490e-003
tblVehicleEF	LDA	4.7700e-004	6.1000e-004
tblVehicleEF	LDA	0.03	0.26
tblVehicleEF	LDA	0.08	0.08
tblVehicleEF	LDA	0.03	0.00
tblVehicleEF	LDA	8.1000e-003	0.01
tblVehicleEF	LDA	0.03	0.20
tblVehicleEF	LDA	0.19	0.30
tblVehicleEF	LDT1	3.1240e-003	5.5770e-003
tblVehicleEF	LDT1	0.05	0.10
tblVehicleEF	LDT1	0.77	1.31

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	LDT1	2.16	4.86
tblVehicleEF	LDT1	272.37	319.18
tblVehicleEF	LDT1	58.50	84.00
tblVehicleEF	LDT1	5.2980e-003	8.6270e-003
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.06	0.11
tblVehicleEF	LDT1	0.20	0.36
tblVehicleEF	LDT1	0.04	9.2190e-003
tblVehicleEF	LDT1	1.5310e-003	1.8130e-003
tblVehicleEF	LDT1	1.9900e-003	2.7500e-003
tblVehicleEF	LDT1	0.02	3.2270e-003
tblVehicleEF	LDT1	1.4090e-003	1.6690e-003
tblVehicleEF	LDT1	1.8300e-003	2.5290e-003
tblVehicleEF	LDT1	0.07	0.56
tblVehicleEF	LDT1	0.13	0.16
tblVehicleEF	LDT1	0.06	0.00
tblVehicleEF	LDT1	0.01	0.02
tblVehicleEF	LDT1	0.07	0.44
tblVehicleEF	LDT1	0.25	0.50
tblVehicleEF	LDT1	2.6950e-003	3.1550e-003
tblVehicleEF	LDT1	5.7900e-004	8.3000e-004
tblVehicleEF	LDT1	0.07	0.56
tblVehicleEF	LDT1	0.13	0.16
tblVehicleEF	LDT1	0.06	0.00
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.07	0.44
tblVehicleEF	LDT1	0.27	0.54
tblVehicleEF	LDT2	2.6570e-003	2.5920e-003
tblVehicleEF	LDT2	0.06	0.08

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	LDT2	0.69	0.78
tblVehicleEF	LDT2	2.60	3.42
tblVehicleEF	LDT2	290.83	327.62
tblVehicleEF	LDT2	63.01	84.01
tblVehicleEF	LDT2	5.2770e-003	5.6470e-003
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.05	0.06
tblVehicleEF	LDT2	0.23	0.31
tblVehicleEF	LDT2	0.04	8.8600e-003
tblVehicleEF	LDT2	1.3020e-003	1.2920e-003
tblVehicleEF	LDT2	1.6610e-003	2.0610e-003
tblVehicleEF	LDT2	0.02	3.1010e-003
tblVehicleEF	LDT2	1.1980e-003	1.1890e-003
tblVehicleEF	LDT2	1.5270e-003	1.8950e-003
tblVehicleEF	LDT2	0.06	0.28
tblVehicleEF	LDT2	0.11	0.08
tblVehicleEF	LDT2	0.06	0.00
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.06	0.21
tblVehicleEF	LDT2	0.26	0.35
tblVehicleEF	LDT2	2.8770e-003	3.2380e-003
tblVehicleEF	LDT2	6.2400e-004	8.3000e-004
tblVehicleEF	LDT2	0.06	0.28
tblVehicleEF	LDT2	0.11	0.08
tblVehicleEF	LDT2	0.06	0.00
tblVehicleEF	LDT2	0.02	0.01
tblVehicleEF	LDT2	0.06	0.21
tblVehicleEF	LDT2	0.29	0.39
tblVehicleEF	LHD1	4.8220e-003	5.1940e-003

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	LHD1	7.2910e-003	7.2220e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.18	0.20
tblVehicleEF	LHD1	0.66	0.82
tblVehicleEF	LHD1	1.01	2.16
tblVehicleEF	LHD1	8.77	8.60
tblVehicleEF	LHD1	764.47	764.97
tblVehicleEF	LHD1	11.28	17.60
tblVehicleEF	LHD1	7.4300e-004	6.3700e-004
tblVehicleEF	LHD1	0.04	0.04
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.05	0.05
tblVehicleEF	LHD1	0.57	0.59
tblVehicleEF	LHD1	0.29	0.42
tblVehicleEF	LHD1	8.5700e-004	6.8500e-004
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	9.8070e-003	9.4200e-003
tblVehicleEF	LHD1	9.0910e-003	0.01
tblVehicleEF	LHD1	2.3900e-004	2.0600e-004
tblVehicleEF	LHD1	8.2000e-004	6.5600e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.4520e-003	2.3550e-003
tblVehicleEF	LHD1	8.6510e-003	0.01
tblVehicleEF	LHD1	2.2000e-004	1.8900e-004
tblVehicleEF	LHD1	1.8120e-003	0.12
tblVehicleEF	LHD1	0.07	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	9.4400e-004	0.00
tblVehicleEF	LHD1	0.09	0.08

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	LHD1	0.19	0.17
tblVehicleEF	LHD1	0.06	0.11
tblVehicleEF	LHD1	8.5000e-005	8.4000e-005
tblVehicleEF	LHD1	7.4620e-003	7.4710e-003
tblVehicleEF	LHD1	1.1200e-004	1.7400e-004
tblVehicleEF	LHD1	1.8120e-003	0.12
tblVehicleEF	LHD1	0.07	0.03
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	9.4400e-004	0.00
tblVehicleEF	LHD1	0.10	0.10
tblVehicleEF	LHD1	0.19	0.17
tblVehicleEF	LHD1	0.07	0.12
tblVehicleEF	LHD2	2.9270e-003	3.0230e-003
tblVehicleEF	LHD2	6.3420e-003	6.4550e-003
tblVehicleEF	LHD2	7.0910e-003	0.01
tblVehicleEF	LHD2	0.14	0.14
tblVehicleEF	LHD2	0.56	0.53
tblVehicleEF	LHD2	0.57	1.20
tblVehicleEF	LHD2	13.74	13.69
tblVehicleEF	LHD2	740.94	811.00
tblVehicleEF	LHD2	7.36	9.64
tblVehicleEF	LHD2	1.7280e-003	1.6800e-003
tblVehicleEF	LHD2	0.07	0.08
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.68	0.81
tblVehicleEF	LHD2	0.16	0.23
tblVehicleEF	LHD2	1.4520e-003	1.3890e-003
tblVehicleEF	LHD2	0.09	0.09

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.2200e-004	9.1000e-005
tblVehicleEF	LHD2	1.3890e-003	1.3290e-003
tblVehicleEF	LHD2	0.04	0.03
tblVehicleEF	LHD2	2.6970e-003	2.6660e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.1200e-004	8.4000e-005
tblVehicleEF	LHD2	9.1300e-004	0.06
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	4.8500e-004	0.00
tblVehicleEF	LHD2	0.11	0.11
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	LHD2	7.1520e-003	7.8120e-003
tblVehicleEF	LHD2	7.3000e-005	9.5000e-005
tblVehicleEF	LHD2	9.1300e-004	0.06
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	4.8500e-004	0.00
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	MCY	0.32	0.16
tblVehicleEF	MCY	0.25	0.18
tblVehicleEF	MCY	18.37	12.31
tblVehicleEF	MCY	9.09	7.97
tblVehicleEF	MCY	210.00	187.27

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	MCY	60.43	47.31
tblVehicleEF	MCY	0.07	0.04
tblVehicleEF	MCY	0.02	7.6910e-003
tblVehicleEF	MCY	1.14	0.56
tblVehicleEF	MCY	0.27	0.13
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	2.0310e-003	1.9250e-003
tblVehicleEF	MCY	2.9300e-003	3.4640e-003
tblVehicleEF	MCY	5.0400e-003	4.2000e-003
tblVehicleEF	MCY	1.8970e-003	1.7990e-003
tblVehicleEF	MCY	2.7510e-003	3.2530e-003
tblVehicleEF	MCY	0.90	3.86
tblVehicleEF	MCY	0.67	3.56
tblVehicleEF	MCY	0.48	0.00
tblVehicleEF	MCY	2.18	1.02
tblVehicleEF	MCY	0.52	3.76
tblVehicleEF	MCY	1.92	1.31
tblVehicleEF	MCY	2.0780e-003	1.8510e-003
tblVehicleEF	MCY	5.9800e-004	4.6800e-004
tblVehicleEF	MCY	0.90	0.09
tblVehicleEF	MCY	0.67	3.56
tblVehicleEF	MCY	0.48	0.00
tblVehicleEF	MCY	2.71	1.24
tblVehicleEF	MCY	0.52	3.76
tblVehicleEF	MCY	2.09	1.42
tblVehicleEF	MDV	2.9890e-003	3.3070e-003
tblVehicleEF	MDV	0.06	0.09
tblVehicleEF	MDV	0.72	0.87
tblVehicleEF	MDV	2.79	3.62

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	MDV	351.34	394.23
tblVehicleEF	MDV	74.92	100.26
tblVehicleEF	MDV	6.9960e-003	7.5830e-003
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.06	0.09
tblVehicleEF	MDV	0.26	0.38
tblVehicleEF	MDV	0.04	8.9720e-003
tblVehicleEF	MDV	1.3680e-003	1.3100e-003
tblVehicleEF	MDV	1.7330e-003	2.0690e-003
tblVehicleEF	MDV	0.02	3.1400e-003
tblVehicleEF	MDV	1.2620e-003	1.2070e-003
tblVehicleEF	MDV	1.5940e-003	1.9020e-003
tblVehicleEF	MDV	0.07	0.34
tblVehicleEF	MDV	0.12	0.09
tblVehicleEF	MDV	0.06	0.00
tblVehicleEF	MDV	0.01	0.01
tblVehicleEF	MDV	0.06	0.26
tblVehicleEF	MDV	0.31	0.45
tblVehicleEF	MDV	3.4720e-003	3.8950e-003
tblVehicleEF	MDV	7.4100e-004	9.9100e-004
tblVehicleEF	MDV	0.07	0.34
tblVehicleEF	MDV	0.12	0.09
tblVehicleEF	MDV	0.06	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.06	0.26
tblVehicleEF	MDV	0.34	0.49
tblVehicleEF	MH	8.5740e-003	0.01
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	0.80	1.11

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	MH	1.94	2.37
tblVehicleEF	MH	1,472.19	1,680.13
tblVehicleEF	MH	17.63	22.07
tblVehicleEF	MH	0.06	0.07
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.26	1.49
tblVehicleEF	MH	0.24	0.30
tblVehicleEF	MH	0.13	0.04
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	2.5000e-004	2.9600e-004
tblVehicleEF	MH	0.06	0.02
tblVehicleEF	MH	3.2830e-003	3.3090e-003
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	2.3000e-004	2.7200e-004
tblVehicleEF	MH	0.58	30.56
tblVehicleEF	MH	0.05	7.99
tblVehicleEF	MH	0.21	0.00
tblVehicleEF	MH	0.06	0.08
tblVehicleEF	MH	0.01	0.19
tblVehicleEF	MH	0.09	0.11
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	1.7400e-004	2.1800e-004
tblVehicleEF	MH	0.58	30.56
tblVehicleEF	MH	0.05	7.99
tblVehicleEF	MH	0.21	0.00
tblVehicleEF	MH	0.08	0.10
tblVehicleEF	MH	0.01	0.19
tblVehicleEF	MH	0.10	0.12

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	MHD	3.6170e-003	0.01
tblVehicleEF	MHD	1.5120e-003	9.5360e-003
tblVehicleEF	MHD	8.8700e-003	8.3140e-003
tblVehicleEF	MHD	0.39	0.67
tblVehicleEF	MHD	0.21	0.30
tblVehicleEF	MHD	1.02	1.00
tblVehicleEF	MHD	70.85	158.59
tblVehicleEF	MHD	1,065.91	1,213.65
tblVehicleEF	MHD	8.98	8.21
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.14	0.16
tblVehicleEF	MHD	7.2880e-003	5.8580e-003
tblVehicleEF	MHD	0.40	0.85
tblVehicleEF	MHD	1.45	1.01
tblVehicleEF	MHD	1.70	1.40
tblVehicleEF	MHD	3.2300e-004	1.7620e-003
tblVehicleEF	MHD	0.13	0.05
tblVehicleEF	MHD	7.0640e-003	0.01
tblVehicleEF	MHD	1.1300e-004	1.0100e-004
tblVehicleEF	MHD	3.0900e-004	1.6850e-003
tblVehicleEF	MHD	0.06	0.02
tblVehicleEF	MHD	6.7520e-003	0.01
tblVehicleEF	MHD	1.0400e-004	9.3000e-005
tblVehicleEF	MHD	3.5500e-004	0.02
tblVehicleEF	MHD	0.02	5.6030e-003
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	1.8800e-004	0.00
tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	0.02	0.05

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	6.7200e-004	1.4720e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	8.9000e-005	8.1000e-005
tblVehicleEF	MHD	3.5500e-004	0.02
tblVehicleEF	MHD	0.02	5.6030e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	1.8800e-004	0.00
tblVehicleEF	MHD	0.02	0.05
tblVehicleEF	MHD	0.02	0.05
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	OBUS	7.0670e-003	7.5140e-003
tblVehicleEF	OBUS	3.3170e-003	9.5930e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.60	0.52
tblVehicleEF	OBUS	0.39	0.44
tblVehicleEF	OBUS	1.79	1.87
tblVehicleEF	OBUS	94.25	87.04
tblVehicleEF	OBUS	1,303.83	1,366.10
tblVehicleEF	OBUS	14.82	14.86
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.13	0.16
tblVehicleEF	OBUS	0.02	0.01
tblVehicleEF	OBUS	0.39	0.36
tblVehicleEF	OBUS	1.46	0.97
tblVehicleEF	OBUS	1.10	0.99
tblVehicleEF	OBUS	1.2700e-004	4.0400e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	7.4740e-003	0.02

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	OBUS	1.4700e-004	1.3100e-004
tblVehicleEF	OBUS	1.2200e-004	3.8700e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	7.1370e-003	0.01
tblVehicleEF	OBUS	1.3500e-004	1.2100e-004
tblVehicleEF	OBUS	1.0870e-003	0.07
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.05	0.04
tblVehicleEF	OBUS	4.8600e-004	0.00
tblVehicleEF	OBUS	0.02	0.04
tblVehicleEF	OBUS	0.04	0.08
tblVehicleEF	OBUS	0.09	0.09
tblVehicleEF	OBUS	8.9500e-004	8.2300e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	1.0870e-003	0.07
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.06	0.05
tblVehicleEF	OBUS	4.8600e-004	0.00
tblVehicleEF	OBUS	0.03	0.06
tblVehicleEF	OBUS	0.04	0.08
tblVehicleEF	OBUS	0.09	0.10
tblVehicleEF	SBUS	0.06	0.08
tblVehicleEF	SBUS	5.7290e-003	0.09
tblVehicleEF	SBUS	5.1560e-003	4.8980e-003
tblVehicleEF	SBUS	2.37	1.69
tblVehicleEF	SBUS	0.47	0.86
tblVehicleEF	SBUS	0.74	0.67
tblVehicleEF	SBUS	345.98	189.05
tblVehicleEF	SBUS	1,037.30	1,017.84

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	SBUS	4.26	3.78
tblVehicleEF	SBUS	0.05	0.02
tblVehicleEF	SBUS	0.13	0.13
tblVehicleEF	SBUS	5.0100e-003	4.3540e-003
tblVehicleEF	SBUS	3.34	1.34
tblVehicleEF	SBUS	4.41	2.41
tblVehicleEF	SBUS	0.90	0.49
tblVehicleEF	SBUS	3.3290e-003	1.2090e-003
tblVehicleEF	SBUS	0.74	0.04
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	5.1000e-005	4.1000e-005
tblVehicleEF	SBUS	3.1850e-003	1.1550e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7110e-003	2.6430e-003
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	4.7000e-005	3.8000e-005
tblVehicleEF	SBUS	5.9800e-004	0.03
tblVehicleEF	SBUS	5.7950e-003	7.7750e-003
tblVehicleEF	SBUS	0.26	0.19
tblVehicleEF	SBUS	2.6700e-004	0.00
tblVehicleEF	SBUS	0.08	0.05
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	3.2940e-003	1.7180e-003
tblVehicleEF	SBUS	9.9090e-003	9.4580e-003
tblVehicleEF	SBUS	4.2000e-005	3.7000e-005
tblVehicleEF	SBUS	5.9800e-004	0.03
tblVehicleEF	SBUS	5.7950e-003	7.7750e-003

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	SBUS	0.38	0.30
tblVehicleEF	SBUS	2.6700e-004	0.00
tblVehicleEF	SBUS	0.09	0.15
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	UBUS	1.66	0.50
tblVehicleEF	UBUS	1.6700e-003	3.7330e-003
tblVehicleEF	UBUS	12.57	5.88
tblVehicleEF	UBUS	0.14	0.52
tblVehicleEF	UBUS	1,657.49	1,082.15
tblVehicleEF	UBUS	1.39	3.18
tblVehicleEF	UBUS	0.28	0.17
tblVehicleEF	UBUS	1.1100e-003	6.1420e-003
tblVehicleEF	UBUS	0.71	0.30
tblVehicleEF	UBUS	0.01	0.04
tblVehicleEF	UBUS	0.07	0.12
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	5.2020e-003	5.6850e-003
tblVehicleEF	UBUS	1.5000e-005	1.2000e-005
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	8.3320e-003	0.01
tblVehicleEF	UBUS	4.9760e-003	5.4350e-003
tblVehicleEF	UBUS	1.4000e-005	1.1000e-005
tblVehicleEF	UBUS	2.4000e-005	0.01
tblVehicleEF	UBUS	2.0100e-004	3.7860e-003
tblVehicleEF	UBUS	1.1000e-005	0.00
tblVehicleEF	UBUS	0.02	0.06
tblVehicleEF	UBUS	4.0000e-005	7.9870e-003
tblVehicleEF	UBUS	6.9810e-003	0.01

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	UBUS	0.01	8.8540e-003
tblVehicleEF	UBUS	1.4000e-005	3.1000e-005
tblVehicleEF	UBUS	2.4000e-005	0.01
tblVehicleEF	UBUS	2.0100e-004	3.7860e-003
tblVehicleEF	UBUS	1.1000e-005	0.00
tblVehicleEF	UBUS	1.70	0.57
tblVehicleEF	UBUS	4.0000e-005	7.9870e-003
tblVehicleEF	UBUS	7.6430e-003	0.01
tblVehicleTrips	ST_TR	2.21	2.24
tblVehicleTrips	ST_TR	42.04	47.78
tblVehicleTrips	SU_TR	0.70	0.71
tblVehicleTrips	SU_TR	20.43	23.22
tblVehicleTrips	WD_TR	9.74	9.86
tblVehicleTrips	WD_TR	44.32	50.37
tblWater	AerobicPercent	87.46	100.00
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	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

Date: 5/16/2022 12:55 PM

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0269	0.2732	0.2536	5.0000e-004	0.0499	0.0118	0.0617	0.0191	0.0109	0.0300	0.0000	44.1352	44.1352	0.0140	0.0000	44.4846
2024	0.2981	0.0961	0.1081	1.9000e-004	0.0000	4.17E-03	4.1700e-003	0.0000	3.93E-03	3.9300e-003	0.0000	16.3549	16.3549	4.0800e-003	0.0000	16.457
Maximum	**0.2981**	**0.2732**	**0.2536**	**5.0000e-004**	**0.0499**	**0.0118**	**0.0617**	**0.0191**	**0.0109**	**0.0300**	**0.0000**	**44.1352**	**44.1352**	**0.0140**	**0.0000**	**44.4846**

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					
2023	8.1000e-003	0.1805	0.3283	5.0000e-004	0.0225	8.2000e-004	0.0233	8.5900e-003	8.2000e-004	9.4100e-003	0.0000	44.1351	44.1351	0.0140	0.0000	44.4846
2024	0.2904	0.0789	0.1223	1.9000e-004	0.0000	1.0600e-003	1.0600e-003	0.0000	1.0600e-003	1.0600e-003	0.0000	16.3549	16.3549	4.0800e-003	0.0000	16.4570
Maximum	**0.2904**	**0.1805**	**0.3283**	**5.0000e-004**	**0.0225**	**1.0600e-003**	**0.0233**	**8.5900e-003**	**1.0600e-003**	**9.4100e-003**	**0.0000**	**44.1351**	**44.1351**	**0.0140**	**0.0000**	**44.4846**

	ROG	NOx	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	**8.14**	**29.77**	**-24.58**	**0.00**	**54.99**	**88.24**	**63.08**	**54.98**	**87.31**	**69.12**	**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)

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

1	**3-6-2023**	**6-5-2023**	0.2277	0.1285
2	**6-6-2023**	**9-5-2023**	0.0497	0.0484
4	**12-6-2023**	**3-5-2024**	0.0881	0.0810
5	**3-6-2024**	**6-5-2024**	0.2029	0.1905
6	**6-6-2024**	**9-5-2024**	0.0983	0.0933
		Highest	0.2277	0.1905

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	0.2367	2.0000e-005	2.0500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.0000e-003	4.0000e-003	1.0000e-005	0.0000	4.26E-03
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.3121	0.2069	1.8990	4.1000e-003	0.3837	2.9100e-003	0.3866	0.0957	2.7100e-003	0.0984	0.0000	378.5961	378.5961	0.0222	0.0185	384.6716
Stationary	0.1106	8.5200e-003	0.2882	4.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	6.4125	6.4125	0.0134	0.0000	6.7477
Waste						0.0000	0.0000		0.0000	0.0000	9.8999	0.0000	9.8999	0.5851	0.0000	24.5265
Water						0.0000	0.0000		0.0000	0.0000	3.1242	0.0000	3.1242	0.0108	6.7900e-003	5.4176
Total	**0.6595**	**0.2154**	**2.1892**	**4.1400e-003**	**0.3837**	**3.5300e-003**	**0.3872**	**0.0957**	**3.3300e-003**	**0.099**	**13.0241**	**385.0125**	**398.0366**	**0.6315**	**0.0253**	**421.3677**

Mitigated Operational

Date: 5/16/2022 12:55 PM

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2367	2.0000e-005	2.0500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.0000e-003	4.0000e-003	1.0000e-005	0.0000	4.2600e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.3121	0.2069	1.8990	4.1000e-003	0.3837	2.9100e-003	0.3866	0.0957	2.7100e-003	0.0984	0.0000	378.5961	378.5961	0.0222	0.0185	384.6716
Stationary	0.1106	8.5200e-003	0.2882	4.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	6.4125	6.4125	0.0134	0.0000	6.7477
Waste						0.0000	0.0000		0.0000	0.0000	9.8999	0.0000	9.8999	0.5851	0.0000	24.5265
Water						0.0000	0.0000		0.0000	0.0000	3.1242	0.0000	3.1242	0.0108	6.7900e-003	5.4176
Total	**0.6595**	**0.2154**	**2.1892**	**4.1400e-003**	**0.3837**	**3.5300e-003**	**0.3872**	**0.0957**	**3.3300e-003**	**0.0990**	**13.0241**	**385.0125**	**398.0366**	**0.6315**	**0.0253**	**421.3677**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/6/2023	3/31/2023	5	20	
2	Site Preparation	Site Preparation	4/3/2023	4/14/2023	5	10	
3	Grading	Grading	4/17/2023	5/12/2023	5	20	
4	Trenching	Trenching	5/15/2023	8/11/2023	5	65	

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

5	Building Construction	Building Construction	1/8/2024	4/5/2024	5	65	
6	Architectural Coating	Architectural Coating	2/5/2024	7/26/2024	5	125	
7	Paving	Paving	5/15/2024	6/11/2024	5	20	

Acres of Grading (Site Preparation Phase): 10

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 77,918; Non-Residential Outdoor: 25,973; Striped Parking Area: 4,614

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	1.60	81	0.73
Demolition	Excavators	1	6.00	158	0.38
Demolition	Rubber Tired Dozers	1	6.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	1	3.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	0	0.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Cranes	1	0.70	231	0.29
Trenching	Excavators	1	4.00	158	0.38
Trenching	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Building Construction	Aerial Lifts	2	1.00	63	0.31
Building Construction	Cranes	1	0.90	231	0.29
Building Construction	Forklifts	1	2.70	89	0.20

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

Building Construction	Tractors/Loaders/Backhoes	1	0.70	97	0.37
Building Construction	Welders	1	2.70	46	0.45
Architectural Coating	Air Compressors	1	1.00	78	0.48
Architectural Coating	Cranes	1	0.70	231	0.29
Paving	Cement and Mortar Mixers	1	3.20	9	0.56
Paving	Pavers	1	1.60	130	0.42
Paving	Paving Equipment	1	1.60	132	0.36
Paving	Rollers	1	1.60	80	0.38
Paving	Tractors/Loaders/Backhoes	1	4.00	97	0.37

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	4	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	3	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	6	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	2	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2023

Unmitigated Construction On-Site

Date: 5/16/2022 12:55 PM

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.6400e-003	0.0000	7.6400e-003	1.1600e-003	0.0000	1.1600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.7900e-003	0.0760	0.0634	1.3000e-004		3.5200e-003	3.5200e-003		3.2600e-003	3.2600e-003	0.0000	11.1307	11.1307	3.3100e-003	0.0000	11.2134
Total	**7.7900e-003**	**0.0760**	**0.0634**	**1.3000e-004**	**7.6400e-003**	**3.5200e-003**	**0.0112**	**1.1600e-003**	**3.2600e-003**	**4.4200e-003**	**0.0000**	**11.1307**	**11.1307**	**3.3100e-003**	**0.0000**	**11.2134**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.4400e-003	0.0000	3.4400e-003	5.2000e-004	0.0000	5.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0100e-003	0.0435	0.0799	1.3000e-004		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	11.1307	11.1307	3.3100e-003	0.0000	11.2134
Total	**2.0100e-003**	**0.0435**	**0.0799**	**1.3000e-004**	**3.4400e-003**	**2.0000e-004**	**3.6400e-003**	**5.2000e-004**	**2.0000e-004**	**7.2000e-004**	**0.0000**	**11.1307**	**11.1307**	**3.3100e-003**	**0.0000**	**11.2134**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

Date: 5/16/2022 12:55 PM

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0354	0.0000	0.0354	0.0171	0.0000	0.0171	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.3400e-003	0.0589	0.0240	8.0000e-005		2.3600e-003	2.3600e-003		2.1700e-003	2.1700e-003	0.0000	6.6581	6.6581	2.1500e-003	0.0000	6.7119
Total	**5.3400e-003**	**0.0589**	**0.0240**	**8.0000e-005**	**0.0354**	**2.3600e-003**	**0.0378**	**0.0171**	**2.1700e-003**	**0.0193**	**0.0000**	**6.6581**	**6.6581**	**2.1500e-003**	**0.0000**	**6.7119**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0159	0.0000	0.0159	7.7100e-003	0.0000	7.7100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.2400e-003	0.0200	0.0402	8.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	6.6581	6.6581	2.1500e-003	0.0000	6.7119
Total	**1.2400e-003**	**0.0200**	**0.0402**	**8.0000e-005**	**0.0159**	**1.2000e-004**	**0.0161**	**7.7100e-003**	**1.2000e-004**	**7.8300e-003**	**0.0000**	**6.6581**	**6.6581**	**2.1500e-003**	**0.0000**	**6.7119**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2023

Unmitigated Construction On-Site

Date: 5/16/2022 12:55 PM

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.8300e-003	0.0000	6.8300e-003	8.0000e-004	0.0000	8.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.2300e-003	0.0774	0.0718	1.5000e-004		3.0200e-003	3.0200e-003		2.7800e-003	2.7800e-003	0.0000	13.0865	13.0865	4.2300e-003	0.0000	13.1923
Total	**7.2300e-003**	**0.0774**	**0.0718**	**1.5000e-004**	**6.8300e-003**	**3.0200e-003**	**9.8500e-003**	**8.0000e-004**	**2.7800e-003**	**3.5800e-003**	**0.0000**	**13.0865**	**13.0865**	**4.2300e-003**	**0.0000**	**13.1923**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.0700e-003	0.0000	3.0700e-003	3.6000e-004	0.0000	3.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4100e-003	0.0538	0.0978	1.5000e-004		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	13.0865	13.0865	4.2300e-003	0.0000	13.1923
Total	**2.4100e-003**	**0.0538**	**0.0978**	**1.5000e-004**	**3.0700e-003**	**2.4000e-004**	**3.3100e-003**	**3.6000e-004**	**2.4000e-004**	**6.0000e-004**	**0.0000**	**13.0865**	**13.0865**	**4.2300e-003**	**0.0000**	**13.1923**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Trenching - 2023

Unmitigated Construction On-Site

Date: 5/16/2022 12:55 PM

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.5200e-003	0.0610	0.0944	1.5000e-004		2.9200e-003	2.9200e-003		2.6800e-003	2.6800e-003	0.0000	13.2598	13.2598	4.2900e-003	0.0000	13.3671
Total	**6.5200e-003**	**0.0610**	**0.0944**	**1.5000e-004**		**2.9200e-003**	**2.9200e-003**		**2.6800e-003**	**2.6800e-003**	**0.0000**	**13.2598**	**13.2598**	**4.2900e-003**	**0.0000**	**13.3671**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.4300e-003	0.0633	0.1105	1.5000e-004		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004	0.0000	13.2598	13.2598	4.2900e-003	0.0000	13.3670
Total	**2.4300e-003**	**0.0633**	**0.1105**	**1.5000e-004**		**2.5000e-004**	**2.5000e-004**		**2.5000e-004**	**2.5000e-004**	**0.0000**	**13.2598**	**13.2598**	**4.2900e-003**	**0.0000**	**13.3670**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 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

Date: 5/16/2022 12:55 PM

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

Category	tons/yr										MT/yr					
Off-Road	5.5200e-003	0.0460	0.0525	9.0000e-005		1.8800e-003	1.8800e-003		1.7700e-003	1.7700e-003	0.0000	7.3682	7.3682	1.9300e-003	0.0000	7.4164
Total	**5.5200e-003**	**0.0460**	**0.0525**	**9.0000e-005**		**1.8800e-003**	**1.8800e-003**		**1.7700e-003**	**1.7700e-003**	**0.0000**	**7.3682**	**7.3682**	**1.9300e-003**	**0.0000**	**7.4164**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

Off-Road	1.7400e-003	0.0427	0.0574	9.0000e-005		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	7.3682	7.3682	1.9300e-003	0.0000	7.4164
Total	**1.7400e-003**	**0.0427**	**0.0574**	**9.0000e-005**		**9.0000e-004**	**9.0000e-004**		**9.0000e-004**	**9.0000e-004**	**0.0000**	**7.3682**	**7.3682**	**1.9300e-003**	**0.0000**	**7.4164**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 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	0.2869					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

Off-Road	3.7000e-003	0.0319	0.0286	6.0000e-005		1.4300e-003	1.4300e-003		1.3700e-003	1.3700e-003	0.0000	5.4320	5.4320	1.0500e-003	0.0000	5.4581
Total	**0.2906**	**0.0319**	**0.0286**	**6.0000e-005**		**1.4300e-003**	**1.4300e-003**		**1.3700e-003**	**1.3700e-003**	**0.0000**	**5.4320**	**5.4320**	**1.0500e-003**	**0.0000**	**5.4581**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0.2869					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

Off-Road	1.0800e-003	0.0194	0.0359	6.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	5.4320	5.4320	1.0500e-003	0.0000	5.4581
Total	**0.2880**	**0.0194**	**0.0359**	**6.0000e-005**		**9.0000e-005**	**9.0000e-005**		**9.0000e-005**	**9.0000e-005**	**0.0000**	**5.4320**	**5.4320**	**1.0500e-003**	**0.0000**	**5.4581**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.8 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	1.9400e-003	0.0182	0.0270	4.0000e-005		8.6000e-004	8.6000e-004		7.9000e-004	7.9000e-004	0.0000	3.5548	3.5548	1.1100e-003	0.0000	3.5825

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.9400e-003**	**0.0182**	**0.0270**	**4.0000e-005**		**8.6000e-004**	**8.6000e-004**		**7.9000e-004**	**7.9000e-004**	**0.0000**	**3.5548**	**3.5548**	**1.1100e-003**	**0.0000**	**3.5825**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	6.8000e-004	0.0168	0.0290	4.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	3.5548	3.5548	1.1100e-003	0.0000	3.5825

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

Paving	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**	**0.0168**	**0.0290**	**4.0000e-005**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**3.5548**	**3.5548**	**1.1100e-003**	**0.0000**	**3.5825**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3121	0.2069	1.8990	4.1000e-003	0.3837	2.9100e-003	0.3866	0.0957	2.7100e-003	0.0984	0.0000	378.5961	378.5961	0.0222	0.0185	384.6716
Unmitigated	0.3121	0.2069	1.8990	4.1000e-003	0.3837	2.9100e-003	0.3866	0.0957	2.7100e-003	0.0984	0.0000	378.5961	378.5961	0.0222	0.0185	384.6716

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Enclosed Parking with Elevator	0.00	0.00	0.00		
General Office Building	473.97	107.68	34.13	857,463	857,463
Strip Mall	194.93	184.91	89.86	274,880	274,880
Total	668.90	292.59	123.99	1,132,343	1,132,343

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
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elevator	0.528224	0.040364	0.230108	0.128589	0.023276	0.005740	0.009425	0.007440	0.001057	0.000413	0.022096	0.000684	0.002585
General Office Building	0.528224	0.040364	0.230108	0.128589	0.023276	0.005740	0.009425	0.007440	0.001057	0.000413	0.022096	0.000684	0.002585
Strip Mall	0.528224	0.040364	0.230108	0.128589	0.023276	0.005740	0.009425	0.007440	0.001057	0.000413	0.022096	0.000684	0.002585

5.0 Energy Detail

Historical Energy Use: N

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

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	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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					
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	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
Strip Mall	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

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					
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	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
Strip Mall	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		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	418331	0.0000	0.0000	0.0000	0.0000
General Office Building	825911	0.0000	0.0000	0.0000	0.0000

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

Strip Mall	40219.7	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	418331	0.0000	0.0000	0.0000	0.0000
General Office Building	825911	0.0000	0.0000	0.0000	0.0000
Strip Mall	40219.7	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

Category	tons/yr										MT/yr					
Mitigated	0.2367	2.0000e-005	2.0500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.0000e-003	4.0000e-003	1.0000e-005	0.0000	4.2600e-003
Unmitigated	0.2367	2.0000e-005	2.0500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.0000e-003	4.0000e-003	1.0000e-005	0.0000	4.2600e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0287					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2078					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.9000e-004	2.0000e-005	2.0500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.0000e-003	4.0000e-003	1.0000e-005	0.0000	4.2600e-003
Total	**0.2367**	**2.0000e-005**	**2.0500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**4.0000e-003**	**4.0000e-003**	**1.0000e-005**	**0.0000**	**4.2600e-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					

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

Architectural Coating	0.0287					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2078					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.9000e-004	2.0000e-005	2.0500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.0000e-003	4.0000e-003	1.0000e-005	0.0000	4.2600e-003
Total	**0.2367**	**2.0000e-005**	**2.0500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**4.0000e-003**	**4.0000e-003**	**1.0000e-005**	**0.0000**	**4.2600e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	3.1242	0.0108	6.7900e-003	5.4176
Unmitigated	3.1242	0.0108	6.7900e-003	5.4176

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	8.54366 / 5.23644	3.0228	0.0104	6.5700e-003	5.2418
Strip Mall	0.286661 / 0.175695	0.1014	3.5000e-004	2.2000e-004	0.1759
Total		**3.1242**	**0.0108**	**6.7900e-003**	**5.4176**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	8.54366 / 5.23644	3.0228	0.0104	6.5700e-003	5.2418
Strip Mall	0.286661 / 0.175695	0.1014	3.5000e-004	2.2000e-004	0.1759
Total		**3.1242**	**0.0108**	**6.7900e-003**	**5.4176**

8.0 Waste Detail

8.1 Mitigation Measures Waste

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	9.8999	0.5851	0.0000	24.5265
Unmitigated	9.8999	0.5851	0.0000	24.5265

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	44.71	9.0757	0.5364	0.0000	22.4847
Strip Mall	4.06	0.8241	0.0487	0.0000	2.0418
Total		**9.8999**	**0.5851**	**0.0000**	**24.5265**

Mitigated

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	44.71	9.0757	0.5364	0.0000	22.4847
Strip Mall	4.06	0.8241	0.0487	0.0000	2.0418
Total		**9.8999**	**0.5851**	**0.0000**	**24.5265**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0	50	503	0.73	CNG

Boilers

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

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

Unmitigated/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
Equipment Type	tons/yr										MT/yr					
Emergency Generator - CNG (50 - 9999 HP)	0.1106	8.5200e-003	0.2882	4.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	6.4125	6.4125	0.0134	0.0000	6.7477
Total	**0.1106**	**8.5200e-003**	**0.2882**	**4.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**6.4125**	**6.4125**	**0.0134**	**0.0000**	**6.7477**

11.0 Vegetation

123 Sherman Ave, Palo Alto - Existing - Santa Clara County, Annual

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

123 Sherman Ave, Palo Alto - Existing

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	15.52	1000sqft	0.36	15,523.00	0
Parking Lot	0.44	Acre	0.44	19,166.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2022
Utility Company	City of Palo Alto Utilities Department				
CO2 Intensity (lb/MWhr)	0	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Provided existing use - traffic

Construction Phase - Existing use - no construction

Off-road Equipment - Existing use - no construction

Grading -

Vehicle Trips - Provided trip gen w/ reductions

Vehicle Emission Factors - EMFAC2021 vehicle emission factors 2022 Santa Clara County

Fleet Mix - EMFAC2021 fleet mix 2022 Santa Clara County

Table Name	Column Name	Default Value	New Value
tblFleetMix	HHD	6.4120e-003	7.0510e-003

123 Sherman Ave, Palo Alto - Existing - Santa Clara County, Annual

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

tblFleetMix	HHD	6.4120e-003	7.0510e-003
tblFleetMix	LDA	0.57	0.54
tblFleetMix	LDA	0.57	0.54
tblFleetMix	LDT1	0.06	0.04
tblFleetMix	LDT1	0.06	0.04
tblFleetMix	LDT2	0.19	0.22
tblFleetMix	LDT2	0.19	0.22
tblFleetMix	LHD1	0.02	0.02
tblFleetMix	LHD1	0.02	0.02
tblFleetMix	LHD2	4.9710e-003	5.4180e-003
tblFleetMix	LHD2	4.9710e-003	5.4180e-003
tblFleetMix	MCY	0.02	0.02
tblFleetMix	MCY	0.02	0.02
tblFleetMix	MDV	0.12	0.12
tblFleetMix	MDV	0.12	0.12
tblFleetMix	MH	2.9050e-003	2.8740e-003
tblFleetMix	MH	2.9050e-003	2.8740e-003
tblFleetMix	MHD	8.0870e-003	9.3840e-003
tblFleetMix	MHD	8.0870e-003	9.3840e-003
tblFleetMix	OBUS	9.3900e-004	1.0660e-003
tblFleetMix	OBUS	9.3900e-004	1.0660e-003
tblFleetMix	SBUS	9.3900e-004	6.7800e-004
tblFleetMix	SBUS	9.3900e-004	6.7800e-004
tblFleetMix	UBUS	3.9800e-004	4.2400e-004
tblFleetMix	UBUS	3.9800e-004	4.2400e-004
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00

123 Sherman Ave, Palo Alto - Existing - Santa Clara County, Annual

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

tblVehicleEF	HHD	0.02	0.21
tblVehicleEF	HHD	0.05	0.13
tblVehicleEF	HHD	5.94	4.98
tblVehicleEF	HHD	0.53	0.80
tblVehicleEF	HHD	5.8680e-003	4.3700e-004
tblVehicleEF	HHD	1,105.70	879.58
tblVehicleEF	HHD	1,510.66	1,666.15
tblVehicleEF	HHD	0.05	0.03
tblVehicleEF	HHD	0.17	0.14
tblVehicleEF	HHD	0.24	0.27
tblVehicleEF	HHD	1.2000e-005	2.4000e-005
tblVehicleEF	HHD	5.92	4.48
tblVehicleEF	HHD	3.51	2.39
tblVehicleEF	HHD	2.05	2.43
tblVehicleEF	HHD	3.3620e-003	2.4760e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.04	0.03
tblVehicleEF	HHD	3.2170e-003	2.3640e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8730e-003	8.7800e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	3.0000e-006	3.3600e-004
tblVehicleEF	HHD	1.5200e-004	1.0000e-004
tblVehicleEF	HHD	0.43	0.33
tblVehicleEF	HHD	2.0000e-006	0.00
tblVehicleEF	HHD	0.09	0.03
tblVehicleEF	HHD	8.1000e-005	9.0000e-004
tblVehicleEF	HHD	3.0000e-006	1.0000e-006

123 Sherman Ave, Palo Alto - Existing - Santa Clara County, Annual

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

tblVehicleEF	HHD	0.01	7.8120e-003
tblVehicleEF	HHD	0.01	0.02
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	3.0000e-006	3.3600e-004
tblVehicleEF	HHD	1.5200e-004	1.0000e-004
tblVehicleEF	HHD	0.49	0.57
tblVehicleEF	HHD	2.0000e-006	0.00
tblVehicleEF	HHD	0.15	0.16
tblVehicleEF	HHD	8.1000e-005	9.0000e-004
tblVehicleEF	HHD	3.0000e-006	1.0000e-006
tblVehicleEF	LDA	2.2480e-003	2.6200e-003
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.61	0.76
tblVehicleEF	LDA	2.22	3.32
tblVehicleEF	LDA	249.80	259.46
tblVehicleEF	LDA	52.94	67.11
tblVehicleEF	LDA	4.5590e-003	4.9100e-003
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.19	0.26
tblVehicleEF	LDA	0.04	7.2330e-003
tblVehicleEF	LDA	1.4180e-003	1.2910e-003
tblVehicleEF	LDA	1.8170e-003	2.0630e-003
tblVehicleEF	LDA	0.02	2.5320e-003
tblVehicleEF	LDA	1.3060e-003	1.1890e-003
tblVehicleEF	LDA	1.6710e-003	1.8970e-003
tblVehicleEF	LDA	0.04	0.30
tblVehicleEF	LDA	0.10	0.09
tblVehicleEF	LDA	0.04	0.00

123 Sherman Ave, Palo Alto - Existing - Santa Clara County, Annual

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

tblVehicleEF	LDA	8.7510e-003	0.01
tblVehicleEF	LDA	0.03	0.23
tblVehicleEF	LDA	0.23	0.35
tblVehicleEF	LDA	2.4710e-003	2.5650e-003
tblVehicleEF	LDA	5.2400e-004	6.6300e-004
tblVehicleEF	LDA	0.04	0.30
tblVehicleEF	LDA	0.10	0.09
tblVehicleEF	LDA	0.04	0.00
tblVehicleEF	LDA	0.01	0.02
tblVehicleEF	LDA	0.03	0.23
tblVehicleEF	LDA	0.26	0.38
tblVehicleEF	LDT1	4.8360e-003	7.7670e-003
tblVehicleEF	LDT1	0.07	0.12
tblVehicleEF	LDT1	1.06	1.69
tblVehicleEF	LDT1	2.43	6.09
tblVehicleEF	LDT1	297.63	336.34
tblVehicleEF	LDT1	63.89	89.88
tblVehicleEF	LDT1	7.1620e-003	0.01
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.09	0.16
tblVehicleEF	LDT1	0.25	0.43
tblVehicleEF	LDT1	0.04	9.2260e-003
tblVehicleEF	LDT1	1.9010e-003	2.1970e-003
tblVehicleEF	LDT1	2.3990e-003	3.2560e-003
tblVehicleEF	LDT1	0.02	3.2290e-003
tblVehicleEF	LDT1	1.7490e-003	2.0230e-003
tblVehicleEF	LDT1	2.2060e-003	2.9940e-003
tblVehicleEF	LDT1	0.09	0.65
tblVehicleEF	LDT1	0.17	0.18

123 Sherman Ave, Palo Alto - Existing - Santa Clara County, Annual

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

tblVehicleEF	LDT1	0.07	0.00
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.09	0.53
tblVehicleEF	LDT1	0.34	0.63
tblVehicleEF	LDT1	2.9450e-003	3.3250e-003
tblVehicleEF	LDT1	6.3200e-004	8.8900e-004
tblVehicleEF	LDT1	0.09	0.65
tblVehicleEF	LDT1	0.17	0.18
tblVehicleEF	LDT1	0.07	0.00
tblVehicleEF	LDT1	0.03	0.05
tblVehicleEF	LDT1	0.09	0.53
tblVehicleEF	LDT1	0.37	0.69
tblVehicleEF	LDT2	3.6070e-003	3.3830e-003
tblVehicleEF	LDT2	0.07	0.09
tblVehicleEF	LDT2	0.85	0.95
tblVehicleEF	LDT2	2.87	4.09
tblVehicleEF	LDT2	324.07	354.17
tblVehicleEF	LDT2	70.13	91.20
tblVehicleEF	LDT2	6.6840e-003	7.0190e-003
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.08	0.09
tblVehicleEF	LDT2	0.29	0.38
tblVehicleEF	LDT2	0.04	8.8860e-003
tblVehicleEF	LDT2	1.4330e-003	1.4300e-003
tblVehicleEF	LDT2	1.7980e-003	2.2210e-003
tblVehicleEF	LDT2	0.02	3.1100e-003
tblVehicleEF	LDT2	1.3190e-003	1.3160e-003
tblVehicleEF	LDT2	1.6530e-003	2.0420e-003
tblVehicleEF	LDT2	0.06	0.31

123 Sherman Ave, Palo Alto - Existing - Santa Clara County, Annual

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

tblVehicleEF	LDT2	0.13	0.09
tblVehicleEF	LDT2	0.06	0.00
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.06	0.23
tblVehicleEF	LDT2	0.33	0.44
tblVehicleEF	LDT2	3.2060e-003	3.5010e-003
tblVehicleEF	LDT2	6.9400e-004	9.0200e-004
tblVehicleEF	LDT2	0.06	0.31
tblVehicleEF	LDT2	0.13	0.09
tblVehicleEF	LDT2	0.06	0.00
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.23
tblVehicleEF	LDT2	0.36	0.48
tblVehicleEF	LHD1	5.3430e-003	5.7150e-003
tblVehicleEF	LHD1	9.3450e-003	0.01
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.19	0.20
tblVehicleEF	LHD1	0.84	1.06
tblVehicleEF	LHD1	1.13	2.14
tblVehicleEF	LHD1	9.02	8.91
tblVehicleEF	LHD1	808.85	817.34
tblVehicleEF	LHD1	12.12	18.22
tblVehicleEF	LHD1	7.3500e-004	6.4300e-004
tblVehicleEF	LHD1	0.04	0.04
tblVehicleEF	LHD1	0.03	0.04
tblVehicleEF	LHD1	0.06	0.05
tblVehicleEF	LHD1	0.82	0.85
tblVehicleEF	LHD1	0.34	0.48
tblVehicleEF	LHD1	8.0800e-004	6.6800e-004

123 Sherman Ave, Palo Alto - Existing - Santa Clara County, Annual

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

tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	9.7110e-003	9.3800e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	2.7000e-004	2.7200e-004
tblVehicleEF	LHD1	7.7300e-004	6.3900e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.4280e-003	2.3450e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	2.4800e-004	2.5000e-004
tblVehicleEF	LHD1	2.1470e-003	0.14
tblVehicleEF	LHD1	0.08	0.04
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.0820e-003	0.00
tblVehicleEF	LHD1	0.10	0.10
tblVehicleEF	LHD1	0.21	0.20
tblVehicleEF	LHD1	0.08	0.13
tblVehicleEF	LHD1	8.8000e-005	8.7000e-005
tblVehicleEF	LHD1	7.9010e-003	7.9900e-003
tblVehicleEF	LHD1	1.2000e-004	1.8000e-004
tblVehicleEF	LHD1	2.1470e-003	0.14
tblVehicleEF	LHD1	0.08	0.04
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.0820e-003	0.00
tblVehicleEF	LHD1	0.12	0.13
tblVehicleEF	LHD1	0.21	0.20
tblVehicleEF	LHD1	0.09	0.14
tblVehicleEF	LHD2	3.2840e-003	3.4590e-003
tblVehicleEF	LHD2	7.5540e-003	8.3140e-003
tblVehicleEF	LHD2	9.2300e-003	0.01

123 Sherman Ave, Palo Alto - Existing - Santa Clara County, Annual

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

tblVehicleEF	LHD2	0.14	0.15
tblVehicleEF	LHD2	0.66	0.68
tblVehicleEF	LHD2	0.67	1.26
tblVehicleEF	LHD2	14.10	13.96
tblVehicleEF	LHD2	782.55	858.12
tblVehicleEF	LHD2	8.09	10.56
tblVehicleEF	LHD2	1.7430e-003	1.6790e-003
tblVehicleEF	LHD2	0.07	0.08
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.10	0.10
tblVehicleEF	LHD2	1.00	1.12
tblVehicleEF	LHD2	0.19	0.27
tblVehicleEF	LHD2	1.4080e-003	1.3340e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.02	0.03
tblVehicleEF	LHD2	1.4100e-004	1.2800e-004
tblVehicleEF	LHD2	1.3470e-003	1.2760e-003
tblVehicleEF	LHD2	0.04	0.03
tblVehicleEF	LHD2	2.6820e-003	2.6520e-003
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.3000e-004	1.1700e-004
tblVehicleEF	LHD2	1.1650e-003	0.08
tblVehicleEF	LHD2	0.05	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	5.8300e-004	0.00
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.11	0.11
tblVehicleEF	LHD2	0.05	0.07

123 Sherman Ave, Palo Alto - Existing - Santa Clara County, Annual

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

tblVehicleEF	LHD2	1.3500e-004	1.3400e-004
tblVehicleEF	LHD2	7.5590e-003	8.2760e-003
tblVehicleEF	LHD2	8.0000e-005	1.0400e-004
tblVehicleEF	LHD2	1.1650e-003	0.08
tblVehicleEF	LHD2	0.05	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	5.8300e-004	0.00
tblVehicleEF	LHD2	0.14	0.15
tblVehicleEF	LHD2	0.11	0.11
tblVehicleEF	LHD2	0.05	0.08
tblVehicleEF	MCY	0.33	0.17
tblVehicleEF	MCY	0.26	0.19
tblVehicleEF	MCY	19.19	13.58
tblVehicleEF	MCY	9.00	8.11
tblVehicleEF	MCY	210.27	188.98
tblVehicleEF	MCY	61.40	50.91
tblVehicleEF	MCY	0.07	0.04
tblVehicleEF	MCY	0.02	8.7610e-003
tblVehicleEF	MCY	1.15	0.61
tblVehicleEF	MCY	0.27	0.15
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	1.9370e-003	1.8910e-003
tblVehicleEF	MCY	3.1610e-003	3.7730e-003
tblVehicleEF	MCY	5.0400e-003	4.2000e-003
tblVehicleEF	MCY	1.8120e-003	1.7720e-003
tblVehicleEF	MCY	2.9780e-003	3.5560e-003
tblVehicleEF	MCY	0.91	3.98
tblVehicleEF	MCY	0.70	3.56
tblVehicleEF	MCY	0.50	0.00

123 Sherman Ave, Palo Alto - Existing - Santa Clara County, Annual

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

tblVehicleEF	MCY	2.23	1.16
tblVehicleEF	MCY	0.56	3.73
tblVehicleEF	MCY	1.95	1.44
tblVehicleEF	MCY	2.0810e-003	1.8680e-003
tblVehicleEF	MCY	6.0800e-004	5.0300e-004
tblVehicleEF	MCY	0.91	0.09
tblVehicleEF	MCY	0.70	3.56
tblVehicleEF	MCY	0.50	0.00
tblVehicleEF	MCY	2.75	1.38
tblVehicleEF	MCY	0.56	3.73
tblVehicleEF	MCY	2.13	1.57
tblVehicleEF	MDV	4.4780e-003	4.8960e-003
tblVehicleEF	MDV	0.09	0.12
tblVehicleEF	MDV	0.95	1.15
tblVehicleEF	MDV	3.30	4.56
tblVehicleEF	MDV	392.54	428.50
tblVehicleEF	MDV	84.08	109.53
tblVehicleEF	MDV	9.1410e-003	0.01
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.36	0.51
tblVehicleEF	MDV	0.04	9.0680e-003
tblVehicleEF	MDV	1.5860e-003	1.5330e-003
tblVehicleEF	MDV	2.0110e-003	2.4040e-003
tblVehicleEF	MDV	0.02	3.1740e-003
tblVehicleEF	MDV	1.4630e-003	1.4130e-003
tblVehicleEF	MDV	1.8500e-003	2.2100e-003
tblVehicleEF	MDV	0.07	0.37
tblVehicleEF	MDV	0.14	0.10

123 Sherman Ave, Palo Alto - Existing - Santa Clara County, Annual

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

tblVehicleEF	MDV	0.07	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.07	0.29
tblVehicleEF	MDV	0.42	0.60
tblVehicleEF	MDV	3.8800e-003	4.2330e-003
tblVehicleEF	MDV	8.3200e-004	1.0830e-003
tblVehicleEF	MDV	0.07	0.37
tblVehicleEF	MDV	0.14	0.10
tblVehicleEF	MDV	0.07	0.00
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.07	0.29
tblVehicleEF	MDV	0.46	0.66
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	1.34	2.06
tblVehicleEF	MH	2.25	2.79
tblVehicleEF	MH	1,557.00	1,702.83
tblVehicleEF	MH	19.21	23.70
tblVehicleEF	MH	0.06	0.07
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.43	1.65
tblVehicleEF	MH	0.25	0.30
tblVehicleEF	MH	0.13	0.04
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	2.9100e-004	3.7000e-004
tblVehicleEF	MH	0.06	0.02
tblVehicleEF	MH	3.2700e-003	3.2840e-003
tblVehicleEF	MH	0.02	0.03

123 Sherman Ave, Palo Alto - Existing - Santa Clara County, Annual

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

tblVehicleEF	MH	2.6800e-004	3.4000e-004
tblVehicleEF	MH	0.79	36.75
tblVehicleEF	MH	0.07	10.29
tblVehicleEF	MH	0.27	0.00
tblVehicleEF	MH	0.08	0.11
tblVehicleEF	MH	0.02	0.24
tblVehicleEF	MH	0.10	0.12
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	1.9000e-004	2.3400e-004
tblVehicleEF	MH	0.79	36.75
tblVehicleEF	MH	0.07	10.29
tblVehicleEF	MH	0.27	0.00
tblVehicleEF	MH	0.10	0.15
tblVehicleEF	MH	0.02	0.24
tblVehicleEF	MH	0.11	0.14
tblVehicleEF	MHD	3.4370e-003	0.01
tblVehicleEF	MHD	5.6390e-003	0.01
tblVehicleEF	MHD	9.4480e-003	9.6820e-003
tblVehicleEF	MHD	0.37	0.65
tblVehicleEF	MHD	0.48	0.50
tblVehicleEF	MHD	1.16	1.24
tblVehicleEF	MHD	75.81	165.30
tblVehicleEF	MHD	1,131.31	1,248.40
tblVehicleEF	MHD	9.18	9.14
tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	0.15	0.16
tblVehicleEF	MHD	6.8530e-003	6.0820e-003
tblVehicleEF	MHD	0.56	1.04
tblVehicleEF	MHD	2.06	1.57

123 Sherman Ave, Palo Alto - Existing - Santa Clara County, Annual

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

tblVehicleEF	MHD	1.38	1.28
tblVehicleEF	MHD	1.2350e-003	3.0390e-003
tblVehicleEF	MHD	0.13	0.05
tblVehicleEF	MHD	0.04	0.02
tblVehicleEF	MHD	1.2000e-004	1.2200e-004
tblVehicleEF	MHD	1.1810e-003	2.9080e-003
tblVehicleEF	MHD	0.06	0.02
tblVehicleEF	MHD	0.04	0.02
tblVehicleEF	MHD	1.1000e-004	1.1200e-004
tblVehicleEF	MHD	4.4800e-004	0.03
tblVehicleEF	MHD	0.02	7.7870e-003
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	2.2200e-004	0.00
tblVehicleEF	MHD	0.09	0.06
tblVehicleEF	MHD	0.02	0.06
tblVehicleEF	MHD	0.05	0.06
tblVehicleEF	MHD	7.1900e-004	1.5400e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	9.1000e-005	9.0000e-005
tblVehicleEF	MHD	4.4800e-004	0.03
tblVehicleEF	MHD	0.02	7.7870e-003
tblVehicleEF	MHD	0.03	0.05
tblVehicleEF	MHD	2.2200e-004	0.00
tblVehicleEF	MHD	0.11	0.08
tblVehicleEF	MHD	0.02	0.06
tblVehicleEF	MHD	0.06	0.06
tblVehicleEF	OBUS	7.1700e-003	7.5570e-003
tblVehicleEF	OBUS	5.7850e-003	9.7900e-003
tblVehicleEF	OBUS	0.02	0.02

123 Sherman Ave, Palo Alto - Existing - Santa Clara County, Annual

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

tblVehicleEF	OBUS	0.56	0.49
tblVehicleEF	OBUS	0.59	0.64
tblVehicleEF	OBUS	1.92	2.13
tblVehicleEF	OBUS	95.82	85.25
tblVehicleEF	OBUS	1,365.97	1,420.91
tblVehicleEF	OBUS	15.56	16.62
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.14	0.16
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.47	0.39
tblVehicleEF	OBUS	1.73	1.21
tblVehicleEF	OBUS	1.02	0.91
tblVehicleEF	OBUS	7.1500e-004	4.5900e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	1.3700e-004	1.4800e-004
tblVehicleEF	OBUS	6.8400e-004	4.3900e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	1.2600e-004	1.3600e-004
tblVehicleEF	OBUS	1.0630e-003	0.07
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.05	0.04
tblVehicleEF	OBUS	4.6800e-004	0.00
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	0.04	0.07
tblVehicleEF	OBUS	0.09	0.10
tblVehicleEF	OBUS	9.1000e-004	8.0800e-004
tblVehicleEF	OBUS	0.01	0.01

123 Sherman Ave, Palo Alto - Existing - Santa Clara County, Annual

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

tblVehicleEF	OBUS	1.5400e-004	1.6400e-004
tblVehicleEF	OBUS	1.0630e-003	0.07
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.06	0.05
tblVehicleEF	OBUS	4.6800e-004	0.00
tblVehicleEF	OBUS	0.07	0.08
tblVehicleEF	OBUS	0.04	0.07
tblVehicleEF	OBUS	0.10	0.11
tblVehicleEF	SBUS	0.05	0.07
tblVehicleEF	SBUS	6.5710e-003	0.09
tblVehicleEF	SBUS	4.5790e-003	4.6880e-003
tblVehicleEF	SBUS	2.08	1.62
tblVehicleEF	SBUS	0.54	0.95
tblVehicleEF	SBUS	0.68	0.67
tblVehicleEF	SBUS	347.47	195.36
tblVehicleEF	SBUS	1,071.12	1,071.28
tblVehicleEF	SBUS	3.82	3.71
tblVehicleEF	SBUS	0.05	0.03
tblVehicleEF	SBUS	0.14	0.14
tblVehicleEF	SBUS	4.2030e-003	3.9880e-003
tblVehicleEF	SBUS	3.61	1.51
tblVehicleEF	SBUS	5.09	2.99
tblVehicleEF	SBUS	0.77	0.47
tblVehicleEF	SBUS	4.2010e-003	1.5740e-003
tblVehicleEF	SBUS	0.74	0.05
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.02
tblVehicleEF	SBUS	4.3000e-005	3.8000e-005
tblVehicleEF	SBUS	4.0190e-003	1.5050e-003

123 Sherman Ave, Palo Alto - Existing - Santa Clara County, Annual

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

tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7350e-003	2.7340e-003
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	3.9000e-005	3.5000e-005
tblVehicleEF	SBUS	4.9600e-004	0.02
tblVehicleEF	SBUS	4.8020e-003	6.8000e-003
tblVehicleEF	SBUS	0.23	0.18
tblVehicleEF	SBUS	2.0400e-004	0.00
tblVehicleEF	SBUS	0.09	0.06
tblVehicleEF	SBUS	9.5330e-003	0.02
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	3.3050e-003	1.7820e-003
tblVehicleEF	SBUS	0.01	9.9600e-003
tblVehicleEF	SBUS	3.8000e-005	3.7000e-005
tblVehicleEF	SBUS	4.9600e-004	0.02
tblVehicleEF	SBUS	4.8020e-003	6.8000e-003
tblVehicleEF	SBUS	0.33	0.29
tblVehicleEF	SBUS	2.0400e-004	0.00
tblVehicleEF	SBUS	0.11	0.17
tblVehicleEF	SBUS	9.5330e-003	0.02
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	UBUS	1.38	0.35
tblVehicleEF	UBUS	2.8070e-003	4.6630e-003
tblVehicleEF	UBUS	10.37	4.12
tblVehicleEF	UBUS	0.14	0.48
tblVehicleEF	UBUS	1,606.76	1,102.90
tblVehicleEF	UBUS	1.64	3.31
tblVehicleEF	UBUS	0.27	0.17
tblVehicleEF	UBUS	1.4400e-003	7.1480e-003

123 Sherman Ave, Palo Alto - Existing - Santa Clara County, Annual

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

tblVehicleEF	UBUS	0.73	0.33
tblVehicleEF	UBUS	0.02	0.05
tblVehicleEF	UBUS	0.07	0.11
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	5.2780e-003	6.2180e-003
tblVehicleEF	UBUS	2.0000e-006	8.0000e-006
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	8.3320e-003	8.1210e-003
tblVehicleEF	UBUS	5.0490e-003	5.9460e-003
tblVehicleEF	UBUS	2.0000e-006	8.0000e-006
tblVehicleEF	UBUS	1.9400e-004	0.02
tblVehicleEF	UBUS	2.9870e-003	5.6250e-003
tblVehicleEF	UBUS	1.2200e-004	0.00
tblVehicleEF	UBUS	0.02	0.06
tblVehicleEF	UBUS	7.6400e-004	0.01
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.01	9.4760e-003
tblVehicleEF	UBUS	1.6000e-005	3.3000e-005
tblVehicleEF	UBUS	1.9400e-004	0.02
tblVehicleEF	UBUS	2.9870e-003	5.6250e-003
tblVehicleEF	UBUS	1.2200e-004	0.00
tblVehicleEF	UBUS	1.41	0.42
tblVehicleEF	UBUS	7.6400e-004	0.01
tblVehicleEF	UBUS	0.01	0.02
tblVehicleTrips	ST_TR	2.21	2.31
tblVehicleTrips	SU_TR	0.70	0.73
tblVehicleTrips	WD_TR	9.74	10.18

2.0 Emissions Summary

Date: 5/9/2022 3:38 PM

123 Sherman Ave, Palo Alto - Existing - Santa Clara County, Annual

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0704	0.0000	1.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.9000e-004	2.9000e-004	0.0000	0.0000	3.00E-04
Energy	1.3600e-003	0.0123	0.0104	7.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	13.4195	13.4195	2.6000e-004	2.5000e-004	13.4993
Mobile	0.0828	0.0657	0.5571	1.1100e-003	0.0969	8.4000e-004	0.0977	0.0242	7.9000e-004	0.0249	0.0000	102.1020	102.1020	6.2000e-003	5.0600e-003	103.7643
Waste						0.0000	0.0000		0.0000	0.0000	2.9292	0.0000	2.9292	0.1731	0.0000	7.2569
Water						0.0000	0.0000		0.0000	0.0000	0.8751	0.0000	0.8751	0.0899	2.1200e-003	3.7547
Total	**0.1545**	**0.078**	**0.5676**	**1.1800e-003**	**0.0969**	**1.7800e-003**	**0.0986**	**0.0242**	**1.7300e-003**	**0.0259**	**3.8043**	**115.5218**	**119.3261**	**0.2695**	**7.4300e-003**	**128.2754**

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	0.0704	0.0000	1.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.9000e-004	2.9000e-004	0.0000	0.0000	3.0000e-004
Energy	1.3600e-003	0.0123	0.0104	7.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	13.4195	13.4195	2.6000e-004	2.5000e-004	13.4993

123 Sherman Ave, Palo Alto - Existing - Santa Clara County, Annual

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

Mobile	0.0828	0.0657	0.5571	1.1100e-003	0.0969	8.4000e-004	0.0977	0.0242	7.9000e-004	0.0249	0.0000	102.1020	102.1020	6.2000e-003	5.0600e-003	103.7643
Waste						0.0000	0.0000		0.0000	0.0000	2.9292	0.0000	2.9292	0.1731	0.0000	7.2569
Water						0.0000	0.0000		0.0000	0.0000	0.8751	0.0000	0.8751	0.0899	2.1200e-003	3.7547
Total	**0.1545**	**0.0780**	**0.5676**	**1.1800e-003**	**0.0969**	**1.7800e-003**	**0.0986**	**0.0242**	**1.7300e-003**	**0.0259**	**3.8043**	**115.5218**	**119.3261**	**0.2695**	**7.4300e-003**	**128.2754**

	ROG	NOx	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					
Mitigated	0.0828	0.0657	0.5571	1.1100e-003	0.0969	8.4000e-004	0.0977	0.0242	7.9000e-004	0.0249	0.0000	102.1020	102.1020	6.2000e-003	5.0600e-003	103.7643
Unmitigated	0.0828	0.0657	0.5571	1.1100e-003	0.0969	8.4000e-004	0.0977	0.0242	7.9000e-004	0.0249	0.0000	102.1020	102.1020	6.2000e-003	5.0600e-003	103.7643

4.2 Trip Summary Information

	Average Daily Trip Rate	Unmitigated	Mitigated

123 Sherman Ave, Palo Alto - Existing - Santa Clara County, Annual

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

Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	158.02	35.86	11.33	285,852	285,852
Parking Lot	0.00	0.00	0.00		
Total	158.02	35.86	11.33	285,852	285,852

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	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
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	0.537284	0.044282	0.222640	0.123915	0.022851	0.005418	0.009384	0.007051	0.001066	0.000424	0.022133	0.000678	0.002874
Parking Lot	0.537284	0.044282	0.222640	0.123915	0.022851	0.005418	0.009384	0.007051	0.001066	0.000424	0.022133	0.000678	0.002874

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

123 Sherman Ave, Palo Alto - Existing - Santa Clara County, Annual

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

NaturalGas Mitigated	1.3600e-003	0.0123	0.0104	7.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	13.4195	13.4195	2.6000e-004	2.5000e-004	13.4993
NaturalGas Unmitigated	1.3600e-003	0.0123	0.0104	7.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	13.4195	13.4195	2.6000e-004	2.5000e-004	13.4993

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	251473	1.3600e-003	0.0123	0.0104	7.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	13.4195	13.4195	2.6000e-004	2.5000e-004	13.4993
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		**1.3600e-003**	**0.0123**	**0.0104**	**7.0000e-005**		**9.4000e-004**	**9.4000e-004**		**9.4000e-004**	**9.4000e-004**	**0.0000**	**13.4195**	**13.4195**	**2.6000e-004**	**2.5000e-004**	**13.4993**

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	251473	1.3600e-003	0.0123	0.0104	7.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	13.4195	13.4195	2.6000e-004	2.5000e-004	13.4993
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

123 Sherman Ave, Palo Alto - Existing - Santa Clara County, Annual

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

Total		**1.3600e-003**	**0.0123**	**0.0104**	**7.0000e-005**		**9.4000e-004**	**9.4000e-004**		**9.4000e-004**	**9.4000e-004**	**0.0000**	**13.4195**	**13.4195**	**2.6000e-004**	**2.5000e-004**	**13.4993**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	266530	0.0000	0.0000	0.0000	0.0000
Parking Lot	6708.24	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	266530	0.0000	0.0000	0.0000	0.0000
Parking Lot	6708.24	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

123 Sherman Ave, Palo Alto - Existing - Santa Clara County, Annual

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

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	0.0704	0.0000	1.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.9000e-004	2.9000e-004	0.0000	0.0000	3.0000e-004
Unmitigated	0.0704	0.0000	1.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.9000e-004	2.9000e-004	0.0000	0.0000	3.0000e-004

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	8.4900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0619					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.9000e-004	2.9000e-004	0.0000	0.0000	3.0000e-004

123 Sherman Ave, Palo Alto - Existing - Santa Clara County, Annual

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

Total	**0.0704**	**0.0000**	**1.5000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.9000e-004**	**2.9000e-004**	**0.0000**	**0.0000**	**3.0000e-004**

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	8.4900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0619					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.9000e-004	2.9000e-004	0.0000	0.0000	3.0000e-004
Total	**0.0704**	**0.0000**	**1.5000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.9000e-004**	**2.9000e-004**	**0.0000**	**0.0000**	**3.0000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			

123 Sherman Ave, Palo Alto - Existing - Santa Clara County, Annual

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

Mitigated	0.8751	0.0899	2.1200e-003	3.7547
Unmitigated	0.8751	0.0899	2.1200e-003	3.7547

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	2.75843 / 1.69065	0.8751	0.0899	2.1200e-003	3.7547
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.8751**	**0.0899**	**2.1200e-003**	**3.7547**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	2.75843 / 1.69065	0.8751	0.0899	2.1200e-003	3.7547
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000

123 Sherman Ave, Palo Alto - Existing - Santa Clara County, Annual

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

Total	**0.8751**	**0.0899**	**2.1200e-003**	**3.7547**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	2.9292	0.1731	0.0000	7.2569
Unmitigated	2.9292	0.1731	0.0000	7.2569

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	14.43	2.9292	0.1731	0.0000	7.2569
Parking Lot	0	0.0000	0.0000	0.0000	0.0000

123 Sherman Ave, Palo Alto - Existing - Santa Clara County, Annual

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

Total		**2.9292**	**0.1731**	**0.0000**	**7.2569**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	14.43	2.9292	0.1731	0.0000	7.2569
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**2.9292**	**0.1731**	**0.0000**	**7.2569**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Date: 5/9/2022 3:38 PM

123 Sherman Ave, Palo Alto - Existing - Santa Clara County, Annual

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

Equipment Type	Number

11.0 Vegetation

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

123 Sherman Ave, Palo Alto - 2030

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	48.07	1000sqft	0.80	48,074.00	0
Enclosed Parking with Elevator	172.00	Space	0.00	76,899.00	0
Strip Mall	3.87	1000sqft	0.00	3,871.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2030
Utility Company	City of Palo Alto Utilities Department				
CO2 Intensity (lb/MWhr)	0	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Provided land uses - project plans, description, and construction worksheet

Construction Phase - Provided construction schedule

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Date: 5/16/2022 12:59 PM

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

Trips and VMT - EMFAC2021 0 trip adjustment, pavement demo = 750 tons, trenching = 147 cement truck round trips, paving = 40 asphalt truck round trips

Demolition - existing building demo = 15,523-sf

Grading - grading = 27,000-cy export

Vehicle Trips - Provided trip gen w/ reductions

Vehicle Emission Factors - EMFAC2021 vehicle emission factors 2030 Santa Clara County

Energy Use - City reach code - all electric no natural gas

Water And Wastewater - Wastewater treatment 100% aerobic, no septic tanks or lagoons

Construction Off-road Equipment Mitigation - BMPs, Tier 4 interim mitigation

Fleet Mix - EMFAC2021 fleet mix 2030 Santa Clara County

Stationary Sources - Emergency Generators and Fire Pumps - one 375-kw, 503-hp natural gas powered generator

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	5.00	125.00
tblConstructionPhase	NumDays	100.00	65.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	2.00	20.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	1.00	10.00
tblEnergyUse	NT24NG	0.06	0.00
tblEnergyUse	T24E	5.45	5.46
tblEnergyUse	T24NG	16.14	0.00
tblEnergyUse	T24NG	2.34	0.00
tblFleetMix	HHD	6.1320e-003	7.8440e-003
tblFleetMix	HHD	6.1320e-003	7.8440e-003
tblFleetMix	HHD	6.1320e-003	7.8440e-003
tblFleetMix	LDA	0.58	0.51
tblFleetMix	LDA	0.58	0.51
tblFleetMix	LDA	0.58	0.51
tblFleetMix	LDT1	0.06	0.04

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblFleetMix	LDT1	0.06	0.04
tblFleetMix	LDT1	0.06	0.04
tblFleetMix	LDT2	0.18	0.24
tblFleetMix	LDT2	0.18	0.24
tblFleetMix	LDT2	0.18	0.24
tblFleetMix	LHD1	0.02	0.02
tblFleetMix	LHD1	0.02	0.02
tblFleetMix	LHD1	0.02	0.02
tblFleetMix	LHD2	5.3980e-003	6.1700e-003
tblFleetMix	LHD2	5.3980e-003	6.1700e-003
tblFleetMix	LHD2	5.3980e-003	6.1700e-003
tblFleetMix	MCY	0.02	0.02
tblFleetMix	MCY	0.02	0.02
tblFleetMix	MCY	0.02	0.02
tblFleetMix	MDV	0.12	0.14
tblFleetMix	MDV	0.12	0.14
tblFleetMix	MDV	0.12	0.14
tblFleetMix	MH	2.5260e-003	2.2720e-003
tblFleetMix	MH	2.5260e-003	2.2720e-003
tblFleetMix	MH	2.5260e-003	2.2720e-003
tblFleetMix	MHD	8.2190e-003	9.6590e-003
tblFleetMix	MHD	8.2190e-003	9.6590e-003
tblFleetMix	MHD	8.2190e-003	9.6590e-003
tblFleetMix	OBUS	8.5200e-004	1.0640e-003
tblFleetMix	OBUS	8.5200e-004	1.0640e-003
tblFleetMix	OBUS	8.5200e-004	1.0640e-003
tblFleetMix	SBUS	8.3700e-004	6.8100e-004
tblFleetMix	SBUS	8.3700e-004	6.8100e-004
tblFleetMix	SBUS	8.3700e-004	6.8100e-004

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblFleetMix	UBUS	3.3500e-004	3.9600e-004
tblFleetMix	UBUS	3.3500e-004	3.9600e-004
tblFleetMix	UBUS	3.3500e-004	3.9600e-004
tblGrading	MaterialExported	0.00	27,000.00
tblLandUse	LandUseSquareFeet	48,070.00	48,074.00
tblLandUse	LandUseSquareFeet	68,800.00	76,899.00
tblLandUse	LandUseSquareFeet	3,870.00	3,871.00
tblLandUse	LotAcreage	1.10	0.80
tblLandUse	LotAcreage	1.55	0.00
tblLandUse	LotAcreage	0.09	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	1.60
tblOffRoadEquipment	UsageHours	1.00	6.00
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	4.00	0.90
tblOffRoadEquipment	UsageHours	6.00	2.70
tblOffRoadEquipment	UsageHours	8.00	0.70
tblOffRoadEquipment	UsageHours	6.00	1.00
tblOffRoadEquipment	UsageHours	6.00	3.20
tblOffRoadEquipment	UsageHours	7.00	1.60

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblOffRoadEquipment	UsageHours	7.00	1.60
tblOffRoadEquipment	UsageHours	7.00	4.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	503.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	HaulingTripNumber	71.00	0.00
tblTripsAndVMT	HaulingTripNumber	3,375.00	0.00
tblTripsAndVMT	VendorTripNumber	21.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	0.00
tblTripsAndVMT	WorkerTripNumber	8.00	0.00
tblTripsAndVMT	WorkerTripNumber	8.00	0.00
tblTripsAndVMT	WorkerTripNumber	49.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblVehicleEF	HHD	0.02	0.20
tblVehicleEF	HHD	0.05	0.09
tblVehicleEF	HHD	6.28	5.00
tblVehicleEF	HHD	0.41	0.63
tblVehicleEF	HHD	6.6850e-003	8.7300e-004
tblVehicleEF	HHD	930.05	719.71
tblVehicleEF	HHD	1,226.35	1,395.93
tblVehicleEF	HHD	0.05	9.4370e-003
tblVehicleEF	HHD	0.15	0.12
tblVehicleEF	HHD	0.19	0.22
tblVehicleEF	HHD	2.0000e-006	4.0000e-006
tblVehicleEF	HHD	5.20	3.42
tblVehicleEF	HHD	2.52	1.45
tblVehicleEF	HHD	2.31	2.60

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	HHD	2.1460e-003	1.7380e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	2.0530e-003	1.6560e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9050e-003	8.7860e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	1.0000e-006	4.0000e-005
tblVehicleEF	HHD	5.8000e-005	1.3000e-005
tblVehicleEF	HHD	0.42	0.31
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	2.5000e-005	1.1400e-004
tblVehicleEF	HHD	2.0000e-006	0.00
tblVehicleEF	HHD	8.6530e-003	6.2150e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	1.0000e-006	4.0000e-005
tblVehicleEF	HHD	5.8000e-005	1.3000e-005
tblVehicleEF	HHD	0.49	0.54
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.07	0.10
tblVehicleEF	HHD	2.5000e-005	1.1400e-004
tblVehicleEF	HHD	2.0000e-006	0.00
tblVehicleEF	LDA	9.5900e-004	1.2510e-003
tblVehicleEF	LDA	0.03	0.05

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	LDA	0.40	0.48
tblVehicleEF	LDA	1.69	2.09
tblVehicleEF	LDA	199.86	212.85
tblVehicleEF	LDA	42.17	54.77
tblVehicleEF	LDA	3.1760e-003	3.1650e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.12	0.18
tblVehicleEF	LDA	0.04	7.0780e-003
tblVehicleEF	LDA	9.1600e-004	8.3800e-004
tblVehicleEF	LDA	1.2750e-003	1.4820e-003
tblVehicleEF	LDA	0.02	2.4770e-003
tblVehicleEF	LDA	8.4300e-004	7.7100e-004
tblVehicleEF	LDA	1.1720e-003	1.3620e-003
tblVehicleEF	LDA	0.02	0.23
tblVehicleEF	LDA	0.06	0.06
tblVehicleEF	LDA	0.02	0.00
tblVehicleEF	LDA	3.2350e-003	4.3400e-003
tblVehicleEF	LDA	0.02	0.17
tblVehicleEF	LDA	0.12	0.20
tblVehicleEF	LDA	1.9770e-003	2.1040e-003
tblVehicleEF	LDA	4.1700e-004	5.4100e-004
tblVehicleEF	LDA	0.02	0.23
tblVehicleEF	LDA	0.06	0.06
tblVehicleEF	LDA	0.02	0.00
tblVehicleEF	LDA	4.6990e-003	6.3290e-003
tblVehicleEF	LDA	0.02	0.17
tblVehicleEF	LDA	0.13	0.22
tblVehicleEF	LDT1	1.6710e-003	3.2730e-003

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	LDT1	0.04	0.07
tblVehicleEF	LDT1	0.53	0.90
tblVehicleEF	LDT1	1.82	3.41
tblVehicleEF	LDT1	241.46	289.93
tblVehicleEF	LDT1	51.55	75.02
tblVehicleEF	LDT1	3.7700e-003	5.8700e-003
tblVehicleEF	LDT1	0.02	0.03
tblVehicleEF	LDT1	0.03	0.07
tblVehicleEF	LDT1	0.15	0.27
tblVehicleEF	LDT1	0.04	9.1380e-003
tblVehicleEF	LDT1	1.0550e-003	1.2600e-003
tblVehicleEF	LDT1	1.4610e-003	2.0740e-003
tblVehicleEF	LDT1	0.02	3.1980e-003
tblVehicleEF	LDT1	9.7000e-004	1.1590e-003
tblVehicleEF	LDT1	1.3440e-003	1.9070e-003
tblVehicleEF	LDT1	0.05	0.47
tblVehicleEF	LDT1	0.09	0.12
tblVehicleEF	LDT1	0.04	0.00
tblVehicleEF	LDT1	6.4760e-003	0.01
tblVehicleEF	LDT1	0.06	0.36
tblVehicleEF	LDT1	0.15	0.34
tblVehicleEF	LDT1	2.3890e-003	2.8660e-003
tblVehicleEF	LDT1	5.1000e-004	7.4200e-004
tblVehicleEF	LDT1	0.05	0.47
tblVehicleEF	LDT1	0.09	0.12
tblVehicleEF	LDT1	0.04	0.00
tblVehicleEF	LDT1	9.4480e-003	0.02
tblVehicleEF	LDT1	0.06	0.36
tblVehicleEF	LDT1	0.17	0.37

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	LDT2	1.7260e-003	1.8780e-003
tblVehicleEF	LDT2	0.04	0.06
tblVehicleEF	LDT2	0.55	0.64
tblVehicleEF	LDT2	2.25	2.73
tblVehicleEF	LDT2	249.80	293.05
tblVehicleEF	LDT2	53.79	74.63
tblVehicleEF	LDT2	4.0490e-003	4.4940e-003
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.17	0.25
tblVehicleEF	LDT2	0.04	8.8380e-003
tblVehicleEF	LDT2	1.0100e-003	9.8900e-004
tblVehicleEF	LDT2	1.3400e-003	1.6580e-003
tblVehicleEF	LDT2	0.02	3.0930e-003
tblVehicleEF	LDT2	9.3000e-004	9.1000e-004
tblVehicleEF	LDT2	1.2320e-003	1.5240e-003
tblVehicleEF	LDT2	0.05	0.25
tblVehicleEF	LDT2	0.09	0.06
tblVehicleEF	LDT2	0.05	0.00
tblVehicleEF	LDT2	6.5290e-003	6.8650e-003
tblVehicleEF	LDT2	0.05	0.19
tblVehicleEF	LDT2	0.18	0.27
tblVehicleEF	LDT2	2.4710e-003	2.8970e-003
tblVehicleEF	LDT2	5.3200e-004	7.3800e-004
tblVehicleEF	LDT2	0.05	0.25
tblVehicleEF	LDT2	0.09	0.06
tblVehicleEF	LDT2	0.05	0.00
tblVehicleEF	LDT2	9.4890e-003	0.01
tblVehicleEF	LDT2	0.05	0.19

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	LDT2	0.20	0.29
tblVehicleEF	LHD1	4.1480e-003	4.3350e-003
tblVehicleEF	LHD1	5.1950e-003	4.0280e-003
tblVehicleEF	LHD1	9.0230e-003	0.02
tblVehicleEF	LHD1	0.18	0.18
tblVehicleEF	LHD1	0.47	0.54
tblVehicleEF	LHD1	0.89	2.05
tblVehicleEF	LHD1	8.25	7.81
tblVehicleEF	LHD1	698.55	665.93
tblVehicleEF	LHD1	10.09	15.88
tblVehicleEF	LHD1	7.2900e-004	5.8900e-004
tblVehicleEF	LHD1	0.04	0.04
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.05	0.04
tblVehicleEF	LHD1	0.30	0.31
tblVehicleEF	LHD1	0.23	0.33
tblVehicleEF	LHD1	9.1500e-004	6.6600e-004
tblVehicleEF	LHD1	0.08	0.07
tblVehicleEF	LHD1	9.9010e-003	9.3430e-003
tblVehicleEF	LHD1	7.0190e-003	9.1890e-003
tblVehicleEF	LHD1	2.1000e-004	1.3400e-004
tblVehicleEF	LHD1	8.7500e-004	6.3700e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.4750e-003	2.3360e-003
tblVehicleEF	LHD1	6.6710e-003	8.7610e-003
tblVehicleEF	LHD1	1.9300e-004	1.2300e-004
tblVehicleEF	LHD1	1.4030e-003	0.09
tblVehicleEF	LHD1	0.05	0.02
tblVehicleEF	LHD1	0.02	0.02

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	LHD1	7.7200e-004	0.00
tblVehicleEF	LHD1	0.07	0.05
tblVehicleEF	LHD1	0.18	0.12
tblVehicleEF	LHD1	0.04	0.08
tblVehicleEF	LHD1	8.0000e-005	7.6000e-005
tblVehicleEF	LHD1	6.8120e-003	6.4980e-003
tblVehicleEF	LHD1	1.0000e-004	1.5700e-004
tblVehicleEF	LHD1	1.4030e-003	0.09
tblVehicleEF	LHD1	0.05	0.02
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	7.7200e-004	0.00
tblVehicleEF	LHD1	0.09	0.06
tblVehicleEF	LHD1	0.18	0.12
tblVehicleEF	LHD1	0.05	0.09
tblVehicleEF	LHD2	2.5050e-003	2.5080e-003
tblVehicleEF	LHD2	5.3390e-003	4.4570e-003
tblVehicleEF	LHD2	4.8110e-003	8.7200e-003
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.49	0.38
tblVehicleEF	LHD2	0.48	1.11
tblVehicleEF	LHD2	13.00	13.36
tblVehicleEF	LHD2	679.81	713.03
tblVehicleEF	LHD2	6.44	8.54
tblVehicleEF	LHD2	1.6660e-003	1.6800e-003
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.07	0.08
tblVehicleEF	LHD2	0.38	0.50
tblVehicleEF	LHD2	0.12	0.18

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	LHD2	1.5020e-003	1.4560e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.0600e-004	5.7000e-005
tblVehicleEF	LHD2	1.4370e-003	1.3930e-003
tblVehicleEF	LHD2	0.04	0.03
tblVehicleEF	LHD2	2.7110e-003	2.6340e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	9.8000e-005	5.2000e-005
tblVehicleEF	LHD2	6.4200e-004	0.05
tblVehicleEF	LHD2	0.02	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.7400e-004	0.00
tblVehicleEF	LHD2	0.10	0.08
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.02	0.04
tblVehicleEF	LHD2	1.2400e-004	1.2800e-004
tblVehicleEF	LHD2	6.5570e-003	6.8600e-003
tblVehicleEF	LHD2	6.4000e-005	8.4000e-005
tblVehicleEF	LHD2	6.4200e-004	0.05
tblVehicleEF	LHD2	0.02	0.01
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	3.7400e-004	0.00
tblVehicleEF	LHD2	0.11	0.10
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.02	0.05
tblVehicleEF	MCY	0.32	0.14
tblVehicleEF	MCY	0.25	0.16

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	MCY	17.61	11.05
tblVehicleEF	MCY	9.20	7.83
tblVehicleEF	MCY	209.76	185.58
tblVehicleEF	MCY	59.23	42.83
tblVehicleEF	MCY	0.07	0.04
tblVehicleEF	MCY	0.02	6.3410e-003
tblVehicleEF	MCY	1.14	0.51
tblVehicleEF	MCY	0.27	0.10
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	2.1380e-003	1.9970e-003
tblVehicleEF	MCY	2.8620e-003	3.4160e-003
tblVehicleEF	MCY	5.0400e-003	4.2000e-003
tblVehicleEF	MCY	1.9940e-003	1.8640e-003
tblVehicleEF	MCY	2.6760e-003	3.1970e-003
tblVehicleEF	MCY	0.89	3.68
tblVehicleEF	MCY	0.63	3.56
tblVehicleEF	MCY	0.47	0.00
tblVehicleEF	MCY	2.13	0.89
tblVehicleEF	MCY	0.46	3.78
tblVehicleEF	MCY	1.88	1.13
tblVehicleEF	MCY	2.0760e-003	1.8350e-003
tblVehicleEF	MCY	5.8600e-004	4.2300e-004
tblVehicleEF	MCY	0.89	0.08
tblVehicleEF	MCY	0.63	3.56
tblVehicleEF	MCY	0.47	0.00
tblVehicleEF	MCY	2.67	1.09
tblVehicleEF	MCY	0.46	3.78
tblVehicleEF	MCY	2.04	1.23
tblVehicleEF	MDV	1.7720e-003	2.0970e-003

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	MDV	0.04	0.07
tblVehicleEF	MDV	0.54	0.66
tblVehicleEF	MDV	2.29	2.78
tblVehicleEF	MDV	301.13	349.58
tblVehicleEF	MDV	63.46	88.38
tblVehicleEF	MDV	5.2660e-003	5.3820e-003
tblVehicleEF	MDV	0.02	0.03
tblVehicleEF	MDV	0.04	0.05
tblVehicleEF	MDV	0.18	0.27
tblVehicleEF	MDV	0.04	8.8920e-003
tblVehicleEF	MDV	1.0200e-003	9.7100e-004
tblVehicleEF	MDV	1.3440e-003	1.6080e-003
tblVehicleEF	MDV	0.02	3.1120e-003
tblVehicleEF	MDV	9.4000e-004	8.9400e-004
tblVehicleEF	MDV	1.2360e-003	1.4780e-003
tblVehicleEF	MDV	0.06	0.28
tblVehicleEF	MDV	0.10	0.07
tblVehicleEF	MDV	0.06	0.00
tblVehicleEF	MDV	6.8620e-003	8.0910e-003
tblVehicleEF	MDV	0.05	0.21
tblVehicleEF	MDV	0.20	0.30
tblVehicleEF	MDV	2.9760e-003	3.4540e-003
tblVehicleEF	MDV	6.2800e-004	8.7400e-004
tblVehicleEF	MDV	0.06	0.28
tblVehicleEF	MDV	0.10	0.07
tblVehicleEF	MDV	0.06	0.00
tblVehicleEF	MDV	9.9460e-003	0.01
tblVehicleEF	MDV	0.05	0.21
tblVehicleEF	MDV	0.22	0.33

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	MH	5.0270e-003	6.0740e-003
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.31	0.37
tblVehicleEF	MH	1.64	1.92
tblVehicleEF	MH	1,350.27	1,656.25
tblVehicleEF	MH	15.54	20.13
tblVehicleEF	MH	0.05	0.07
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.06	1.28
tblVehicleEF	MH	0.24	0.30
tblVehicleEF	MH	0.13	0.04
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	2.1200e-004	2.3300e-004
tblVehicleEF	MH	0.06	0.02
tblVehicleEF	MH	3.2970e-003	3.3360e-003
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	1.9500e-004	2.1400e-004
tblVehicleEF	MH	0.35	20.30
tblVehicleEF	MH	0.03	4.90
tblVehicleEF	MH	0.14	0.00
tblVehicleEF	MH	0.04	0.05
tblVehicleEF	MH	5.8500e-003	0.12
tblVehicleEF	MH	0.07	0.09
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	1.5400e-004	1.9900e-004
tblVehicleEF	MH	0.35	20.30
tblVehicleEF	MH	0.03	4.90
tblVehicleEF	MH	0.14	0.00

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	MH	0.05	0.06
tblVehicleEF	MH	5.8500e-003	0.12
tblVehicleEF	MH	0.08	0.10
tblVehicleEF	MHD	3.8320e-003	0.02
tblVehicleEF	MHD	1.0340e-003	9.4650e-003
tblVehicleEF	MHD	8.3830e-003	6.5780e-003
tblVehicleEF	MHD	0.41	0.63
tblVehicleEF	MHD	0.15	0.16
tblVehicleEF	MHD	0.87	0.72
tblVehicleEF	MHD	65.10	143.38
tblVehicleEF	MHD	993.45	1,074.54
tblVehicleEF	MHD	8.55	6.79
tblVehicleEF	MHD	9.3710e-003	0.02
tblVehicleEF	MHD	0.12	0.14
tblVehicleEF	MHD	7.7400e-003	4.7600e-003
tblVehicleEF	MHD	0.34	0.63
tblVehicleEF	MHD	1.43	0.58
tblVehicleEF	MHD	1.69	1.22
tblVehicleEF	MHD	1.6200e-004	6.5500e-004
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	7.0060e-003	5.4200e-003
tblVehicleEF	MHD	1.1200e-004	8.2000e-005
tblVehicleEF	MHD	1.5500e-004	6.2600e-004
tblVehicleEF	MHD	0.06	0.02
tblVehicleEF	MHD	6.6960e-003	5.1780e-003
tblVehicleEF	MHD	1.0300e-004	7.6000e-005
tblVehicleEF	MHD	2.8900e-004	0.01
tblVehicleEF	MHD	0.01	3.4200e-003
tblVehicleEF	MHD	0.02	0.02

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	MHD	1.6800e-004	0.00
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	6.1800e-004	1.3200e-003
tblVehicleEF	MHD	9.4800e-003	0.01
tblVehicleEF	MHD	8.5000e-005	6.7000e-005
tblVehicleEF	MHD	2.8900e-004	0.01
tblVehicleEF	MHD	0.01	3.4200e-003
tblVehicleEF	MHD	0.03	0.04
tblVehicleEF	MHD	1.6800e-004	0.00
tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	OBUS	7.0980e-003	7.5210e-003
tblVehicleEF	OBUS	2.1970e-003	0.01
tblVehicleEF	OBUS	0.02	0.01
tblVehicleEF	OBUS	0.64	0.55
tblVehicleEF	OBUS	0.26	0.29
tblVehicleEF	OBUS	1.58	1.46
tblVehicleEF	OBUS	97.36	89.81
tblVehicleEF	OBUS	1,210.85	1,245.37
tblVehicleEF	OBUS	13.46	12.02
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.12	0.15
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.43	0.33
tblVehicleEF	OBUS	1.45	0.83
tblVehicleEF	OBUS	1.13	0.93

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	OBUS	1.4200e-004	3.1100e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	7.8820e-003	0.01
tblVehicleEF	OBUS	1.5600e-004	1.1800e-004
tblVehicleEF	OBUS	1.3600e-004	2.9700e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	7.5260e-003	0.01
tblVehicleEF	OBUS	1.4400e-004	1.0900e-004
tblVehicleEF	OBUS	1.0620e-003	0.07
tblVehicleEF	OBUS	0.02	0.01
tblVehicleEF	OBUS	0.05	0.04
tblVehicleEF	OBUS	4.8700e-004	0.00
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	0.08	0.07
tblVehicleEF	OBUS	9.2400e-004	8.4600e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	1.3300e-004	1.1900e-004
tblVehicleEF	OBUS	1.0620e-003	0.07
tblVehicleEF	OBUS	0.02	0.01
tblVehicleEF	OBUS	0.06	0.05
tblVehicleEF	OBUS	4.8700e-004	0.00
tblVehicleEF	OBUS	0.02	0.05
tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	0.08	0.08
tblVehicleEF	SBUS	0.07	0.08
tblVehicleEF	SBUS	4.4040e-003	0.09
tblVehicleEF	SBUS	6.3380e-003	5.2160e-003
tblVehicleEF	SBUS	2.93	1.82

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	SBUS	0.37	0.72
tblVehicleEF	SBUS	0.86	0.67
tblVehicleEF	SBUS	337.48	181.81
tblVehicleEF	SBUS	970.50	941.81
tblVehicleEF	SBUS	5.06	3.93
tblVehicleEF	SBUS	0.04	0.02
tblVehicleEF	SBUS	0.12	0.11
tblVehicleEF	SBUS	6.4910e-003	4.8480e-003
tblVehicleEF	SBUS	2.71	1.05
tblVehicleEF	SBUS	3.09	1.57
tblVehicleEF	SBUS	1.18	0.52
tblVehicleEF	SBUS	2.0480e-003	7.4600e-004
tblVehicleEF	SBUS	0.74	0.04
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	8.5750e-003
tblVehicleEF	SBUS	6.8000e-005	4.6000e-005
tblVehicleEF	SBUS	1.9600e-003	7.1300e-004
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.6690e-003	2.6100e-003
tblVehicleEF	SBUS	0.02	8.1870e-003
tblVehicleEF	SBUS	6.2000e-005	4.2000e-005
tblVehicleEF	SBUS	8.7000e-004	0.04
tblVehicleEF	SBUS	8.3040e-003	9.3350e-003
tblVehicleEF	SBUS	0.32	0.20
tblVehicleEF	SBUS	4.1400e-004	0.00
tblVehicleEF	SBUS	0.06	0.04
tblVehicleEF	SBUS	0.01	0.03
tblVehicleEF	SBUS	0.04	0.03
tblVehicleEF	SBUS	3.2190e-003	1.6390e-003

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	SBUS	9.2880e-003	8.7390e-003
tblVehicleEF	SBUS	5.0000e-005	3.9000e-005
tblVehicleEF	SBUS	8.7000e-004	0.04
tblVehicleEF	SBUS	8.3040e-003	9.3350e-003
tblVehicleEF	SBUS	0.46	0.32
tblVehicleEF	SBUS	4.1400e-004	0.00
tblVehicleEF	SBUS	0.07	0.13
tblVehicleEF	SBUS	0.01	0.03
tblVehicleEF	SBUS	0.04	0.03
tblVehicleEF	UBUS	1.86	0.63
tblVehicleEF	UBUS	2.1860e-003	2.5020e-003
tblVehicleEF	UBUS	14.11	7.38
tblVehicleEF	UBUS	0.14	0.53
tblVehicleEF	UBUS	1,668.67	969.99
tblVehicleEF	UBUS	1.40	3.03
tblVehicleEF	UBUS	0.28	0.15
tblVehicleEF	UBUS	1.2560e-003	4.5820e-003
tblVehicleEF	UBUS	0.71	0.26
tblVehicleEF	UBUS	0.02	0.03
tblVehicleEF	UBUS	0.07	0.15
tblVehicleEF	UBUS	0.03	0.06
tblVehicleEF	UBUS	5.1160e-003	4.8220e-003
tblVehicleEF	UBUS	1.5000e-005	1.3000e-005
tblVehicleEF	UBUS	0.03	0.05
tblVehicleEF	UBUS	8.3320e-003	0.01
tblVehicleEF	UBUS	4.8930e-003	4.6090e-003
tblVehicleEF	UBUS	1.4000e-005	1.2000e-005
tblVehicleEF	UBUS	6.1000e-005	7.0380e-003
tblVehicleEF	UBUS	8.1400e-004	2.0980e-003

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

tblVehicleEF	UBUS	3.6000e-005	0.00
tblVehicleEF	UBUS	0.03	0.05
tblVehicleEF	UBUS	1.7600e-004	7.8780e-003
tblVehicleEF	UBUS	9.2610e-003	8.3780e-003
tblVehicleEF	UBUS	0.01	7.3890e-003
tblVehicleEF	UBUS	1.4000e-005	3.0000e-005
tblVehicleEF	UBUS	6.1000e-005	7.0380e-003
tblVehicleEF	UBUS	8.1400e-004	2.0980e-003
tblVehicleEF	UBUS	3.6000e-005	0.00
tblVehicleEF	UBUS	1.90	0.69
tblVehicleEF	UBUS	1.7600e-004	7.8780e-003
tblVehicleEF	UBUS	0.01	9.1730e-003
tblVehicleTrips	ST_TR	2.21	2.24
tblVehicleTrips	ST_TR	42.04	47.78
tblVehicleTrips	SU_TR	0.70	0.71
tblVehicleTrips	SU_TR	20.43	23.22
tblVehicleTrips	WD_TR	9.74	9.86
tblVehicleTrips	WD_TR	44.32	50.37
tblWater	AerobicPercent	87.46	100.00
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	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2367	2.0000e-005	2.0500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.0000e-003	4.0000e-003	1.0000e-005	0.0000	4.2600e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.2538	0.1529	1.5320	3.6900e-003	0.3837	2.2400e-003	0.3859	0.0957	2.0900e-003	0.0978	0.0000	341.1716	341.1716	0.0174	0.0161	346.3983
Stationary	0.1106	8.5200e-003	0.2882	4.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	6.4125	6.4125	0.0134	0.0000	6.7477
Waste						0.0000	0.0000		0.0000	0.0000	9.8999	0.0000	9.8999	0.5851	0.0000	24.5265
Water						0.0000	0.0000		0.0000	0.0000	3.1242	0.0000	3.1242	0.0108	6.7900e-003	5.4176
Total	**0.6011**	**0.1614**	**1.8222**	**3.7300e-003**	**0.3837**	**2.8600e-003**	**0.3865**	**0.0957**	**2.7100e-003**	**0.0984**	**13.0241**	**347.5881**	**360.6121**	**0.6267**	**0.0229**	**383.0943**

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	0.2367	2.0000e-005	2.0500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.0000e-003	4.0000e-003	1.0000e-005	0.0000	4.2600e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

Mobile	0.2538	0.1529	1.5320	3.6900e-003	0.3837	2.2400e-003	0.3859	0.0957	2.0900e-003	0.0978	0.0000	341.1716	341.1716	0.0174	0.0161	346.3983
Stationary	0.1106	8.5200e-003	0.2882	4.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	6.4125	6.4125	0.0134	0.0000	6.7477
Waste						0.0000	0.0000		0.0000	0.0000	9.8999	0.0000	9.8999	0.5851	0.0000	24.5265
Water						0.0000	0.0000		0.0000	0.0000	3.1242	0.0000	3.1242	0.0108	6.7900e-003	5.4176
Total	**0.6011**	**0.1614**	**1.8222**	**3.7300e-003**	**0.3837**	**2.8600e-003**	**0.3865**	**0.0957**	**2.7100e-003**	**0.0984**	**13.0241**	**347.5881**	**360.6121**	**0.6267**	**0.0229**	**383.0943**

	ROG	NOx	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					
Mitigated	0.2538	0.1529	1.5320	3.6900e-003	0.3837	2.2400e-003	0.3859	0.0957	2.0900e-003	0.0978	0.0000	341.1716	341.1716	0.0174	0.0161	346.3983
Unmitigated	0.2538	0.1529	1.5320	3.6900e-003	0.3837	2.2400e-003	0.3859	0.0957	2.0900e-003	0.0978	0.0000	341.1716	341.1716	0.0174	0.0161	346.3983

4.2 Trip Summary Information

Date: 5/16/2022 12:59 PM

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Enclosed Parking with Elevator	0.00	0.00	0.00		
General Office Building	473.97	107.68	34.13	857,463	857,463
Strip Mall	194.93	184.91	89.86	274,880	274,880
Total	668.90	292.59	123.99	1,132,343	1,132,343

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
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elevator	0.514977	0.035448	0.239576	0.135703	0.024260	0.006170	0.009659	0.007844	0.001064	0.000396	0.021950	0.000681	0.002272
General Office Building	0.514977	0.035448	0.239576	0.135703	0.024260	0.006170	0.009659	0.007844	0.001064	0.000396	0.021950	0.000681	0.002272
Strip Mall	0.514977	0.035448	0.239576	0.135703	0.024260	0.006170	0.009659	0.007844	0.001064	0.000396	0.021950	0.000681	0.002272

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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					
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	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
Strip Mall	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		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

	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					
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	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
Strip Mall	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		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	418331	0.0000	0.0000	0.0000	0.0000
General Office Building	825911	0.0000	0.0000	0.0000	0.0000
Strip Mall	40219.7	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	418331	0.0000	0.0000	0.0000	0.0000
General Office Building	825911	0.0000	0.0000	0.0000	0.0000
Strip Mall	40219.7	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0.2367	2.0000e-005	2.0500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.0000e-003	4.0000e-003	1.0000e-005	0.0000	4.2600e-003
Unmitigated	0.2367	2.0000e-005	2.0500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.0000e-003	4.0000e-003	1.0000e-005	0.0000	4.2600e-003

6.2 Area by SubCategory

Date: 5/16/2022 12:59 PM

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

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	0.0287					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2078					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.9000e-004	2.0000e-005	2.0500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.0000e-003	4.0000e-003	1.0000e-005	0.0000	4.2600e-003
Total	**0.2367**	**2.0000e-005**	**2.0500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**4.0000e-003**	**4.0000e-003**	**1.0000e-005**	**0.0000**	**4.2600e-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	0.0287					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2078					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.9000e-004	2.0000e-005	2.0500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.0000e-003	4.0000e-003	1.0000e-005	0.0000	4.2600e-003
Total	**0.2367**	**2.0000e-005**	**2.0500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**4.0000e-003**	**4.0000e-003**	**1.0000e-005**	**0.0000**	**4.2600e-003**

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	3.1242	0.0108	6.7900e-003	5.4176
Unmitigated	3.1242	0.0108	6.7900e-003	5.4176

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	8.54366 / 5.23644	3.0228	0.0104	6.5700e-003	5.2418
Strip Mall	0.286661 / 0.175695	0.1014	3.5000e-004	2.2000e-004	0.1759
Total		**3.1242**	**0.0108**	**6.7900e-003**	**5.4176**

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	8.54366 / 5.23644	3.0228	0.0104	6.5700e-003	5.2418
Strip Mall	0.286661 / 0.175695	0.1014	3.5000e-004	2.2000e-004	0.1759
Total		**3.1242**	**0.0108**	**6.7900e-003**	**5.4176**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	9.8999	0.5851	0.0000	24.5265
Unmitigated	9.8999	0.5851	0.0000	24.5265

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	44.71	9.0757	0.5364	0.0000	22.4847
Strip Mall	4.06	0.8241	0.0487	0.0000	2.0418
Total		**9.8999**	**0.5851**	**0.0000**	**24.5265**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	44.71	9.0757	0.5364	0.0000	22.4847
Strip Mall	4.06	0.8241	0.0487	0.0000	2.0418

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

Total		**9.8999**	**0.5851**	**0.0000**	**24.5265**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0	50	503	0.73	CNG

Boilers

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

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/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
Equipment Type	tons/yr										MT/yr					
Emergency Generator - CNG (500 - 9999 HP)	0.1106	8.5200e-003	0.2882	4.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	6.4125	6.4125	0.0134	0.0000	6.7477
Total	**0.1106**	**8.5200e-003**	**0.2882**	**4.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**6.4125**	**6.4125**	**0.0134**	**0.0000**	**6.7477**

123 Sherman Ave, Palo Alto - Santa Clara County, Annual

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

11.0 Vegetation

Attachment 3: EMFAC2021 Calculations

Summary of Construction Traffic Emissions (EMFAC2021)

Pollutants YEAR	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	NBio- CO2	CH4	N2O	CO2e
					Tons							*Metric Tons*		
Criteria Pollutants														
2023	0.0061	0.1111	0.0952	0.0008	0.0242	0.0071	0.0313	0.0036	0.0031	0.0067	80.4892	0.0060	0.0116	84.0860
2024	0.0057	0.1048	0.0891	0.0008	0.0237	0.0070	0.0307	0.0036	0.0030	0.0065	77.6561	0.0057	0.0112	81.1239
Toxic Air Contaminants (0.5 Mile Trip Length)														
2023	0.0047	0.0225	0.0291	0.0000	0.0009	0.0002	0.0012	0.0001	0.0001	0.0002	4.8362	0.0010	0.0008	5.0912
2024	0.0044	0.0217	0.0275	0.0000	0.0009	0.0002	0.0011	0.0001	0.0001	0.0002	4.6552	0.0009	0.0007	4.9002

CalEEMod Construction Inputs

Phase	CalEEMod WORKER TRIPS	CalEEMod VENDOR TRIPS	Total Worker Trips	Total Vendor Trips	CalEEMod HAULING TRIPS	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class	*Worker VMT*	*Vendor VMT*	*Hauling VMT*
Demolition	10	0	200	0	221	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	2160	0	4420
Site Preparation	5	0	50	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	540	0	0
Grading	8	0	160	0	3,375	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	1728	0	67500
Trenching	8	0	520	0	294	10.8	7.3	7.3	LD_Mix	HDT_Mix	HHDT	5616	0	2146.2
Building Construction	49	21	3185	1365	0	10.8	7.3	7.3	LD_Mix	HDT_Mix	HHDT	34398	9964.5	0
Architectural Coating	10	0	1250	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	13500	0	0
Paving	13	0	260	0	80	10.8	7.3	7.3	LD_Mix	HDT_Mix	HHDT	2808	0	584

Number of Days Per Year					
2023	3/6/23	8/11/23	159	114	
2024	1/8/24	6/11/24	156	112	
			315	**226**	***Total Workdays***

Phase	Start Date	End Date	Days/Week	Workdays
Demolition	3/6/2023	3/31/2023	5	20
Site Preparation	4/3/2023	4/14/2023	5	10
Grading	4/17/2023	5/12/2023	5	20
Trenching	5/15/2023	8/11/2023	5	65
Building Construction	1/8/2024	4/5/2024	5	65
Architectural Coating	2/5/2024	7/26/2024	5	125
Paving	5/15/2024	6/11/2024	5	20

Category		Mix %	Adj	ROG_DIURN	ROG_HTSK	ROG_IDLEX	ROG_RESTL	ROG_RUNEX	ROG_RUNLS	ROG_STREX	NOX_IDLEX	NOX_RUNEX	NOX_STREX	CO_IDLEX	CO_RUNEX	CO_STREX	SO2_IDLEX	SO2_RUNEX	SO2_STREX	Road Dust PM10	PM10_PM BW	PM10_PM TW	PM10_IDLEX	PM10_RUNEX	PM10_STREX	Road Dust PM25	PM25_PM BW	PM25_PM TW	PM25_IDLEX	PM25_RUNEX	PM25_STREX	CO2_NBIO_IDLEX	CO2_NBIO_RUNEX	CO2_NBIO_STREX	CH4_IDLEX	CH4_RUNEX	CH4_STREX	N2O_IDLEX	N2O_RUNEX	N2O_STREX
																														19	22	23	8	9	10						
Hauling	HHDT	100.0	1	0.000287604	8.55424E-05	0.332404817	0	0.01953334	0.00077057	5.28839E-07	4.1629787	1.930480649	2.692504026	5.211988	0.79481483	0.000555	0.00746083	0.01488345	2.65981E-07		0.081444	0.035123	0.002283	0.025833	9.98684E-07		0.028506	0.008781	0.002179	0.0247116	9.183E-07	850.51039	1643.0479	0.0269048	0.235881	0.125647179	9.74075E-08	0.136898	0.262148415	2.46823E-05
	MHD	0.0	0	0.028424515	0.006961572	0.027529656	0	0.04434978	0.05660825	0.052337336	0.9240436	1.219274528	1.396113281	0.673566	0.40377012	1.152494	0.00150213	0.011767743	8.73526E-05	0.299	0.045469	0.012	0.002542	0.014931	0.000112942	0.04499	0.015914	0.003	0.002431	0.0142769	0.0001038	161.33734	1239.5984	8.8359741	0.012943	0.009906777	0.009245497	0.024829	0.159885109	0.006096523
Vendor	HHDT	50.0	0.5	0.000143802	4.27712E-05	0.166202408	0	0.00976667	0.00038529	2.6442E-07	2.0814893	0.965240325	1.346252013	2.605994	0.39740742	0.000277	0.00373041	0.007441725	1.32991E-07		0.040722	0.017561	0.001142	0.012916	4.99342E-07		0.014253	0.00439	0.001089	0.0123558	4.591E-07	425.2552	821.52395	0.0134524	0.11794	0.06282359	4.87037E-08	0.068449	0.131074208	1.23411E-05
	MHD	50.0	0.5	0.014212257	0.003480786	0.013764828	0	0.02217489	0.02830413	0.026168668	0.4620218	0.609637264	0.698056641	0.336783	0.20188506	0.576247	0.00075106	0.005883871	4.36763E-05		0.022735	0.006	0.001271	0.007465	5.64711E-05		0.007957	0.0015	0.001216	0.0071384	5.192E-05	80.66867	619.79918	4.417987	0.006471	0.004953388	0.004622749	0.012414	0.079942554	0.003048262
		1		0.01435606	0.003523557	0.179967236	0	0.03194156	0.02868941	0.026168932	2.5435111	1.574877589	2.044308654	2.942777	0.59929248	0.576524	0.00448148	0.013325596	4.38093E-05	0.299	0.063457	0.023561	0.002413	0.020382	5.69705E-05	0.04499	0.02221	0.00589	0.002305	0.0194942	5.238E-05	505.92387	1441.3231	4.4314394	0.124412	0.067776978	0.004622797	0.080863	0.211016762	0.003060603
Worker	LDA	50.0	0.5	0.143306127	0.042683769	0	0	0.0045285	0.10768412	0.159592017	0	0.021192179	0.122461753	0	0.35031163	1.546631	0	0.001247244	0.00032278		0.0036	0.004	0	0.000614	0.000990927		0.00126	0.001	0	0.0005655	0.0009111	0	126.17319	32.650143	0	0.001154545	0.034539145	0	0.00224937	0.015441065
	LDT1	25.0	0.25	0.156677436	0.04332923	0	0	0.0077825	0.12516577	0.145126689	0	0.035722679	0.100614187	0	0.38639467	1.408382	0	0.000818289	0.000217331		0.002307	0.002	0	0.000514	0.000767762		0.000807	0.0005	0	0.0004735	0.000706	0	82.773349	21.983712	0	0.00173807	0.028010471	0	0.00255413	0.009913954
	LDT2	25.0	0.25	0.074138692	0.021036563	0	0	0.00307324	0.05534742	0.101569939	0	0.019062039	0.088569484	0	0.22117906	0.96209	0	0.000853405	0.000219425		0.002219	0.002	0	0.000345	0.000540097		0.000777	0.0005	0	0.0003173	0.0004966	0	86.33608	22.19552	0	0.000769908	0.021709383	0	0.001616766	0.009562758
			1	0.374122256	0.107049562	0	0	0.015382	0.28819731	0.406288645	0	0.075976897	0.311645425	0	0.95808537	3.917103	0	0.002918938	0.000759537	0.299	0.008126	0.008	0	0.001473	0.002298785	0.04499	0.002844	0.002	0	0.0013563	0.0021137	0	295.28262	76.829375	0	0.003662524	0.084258998	0	0.006420266	0.034917777

Category		Mix %	Adj	ROG_DIURN	ROG_HTSK	ROG_IDLEX	ROG_RESTL	ROG_RUNEX	ROG_RUNLS	ROG_STREX	NOX_IDLEX	NOX_RUNEX	NOX_STREX	CO_IDLEX	CO_RUNEX	CO_STREX	SO2_IDLEX	SO2_RUNEX	SO2_STREX	Road Dust PM10	PM10_PM BW	PM10_PM TW	PM10_IDLEX	PM10_RUNEX	PM10_STREX	Road Dust PM25	PM25_PM BW	PM25_PM TW	PM25_IDLEX	PM25_RUNEX	PM25_STREX	CO2_NBIO_IDLEX	CO2_NBIO_RUNEX	CO2_NBIO_STREX	CH4_IDLEX	CH4_RUNEX	CH4_STREX	N2O_IDLEX	N2O_RUNEX	N2O_STREX
																														19	22	23	8	9	10						
Hauling	HHDT	100.0	1	0.000195977	5.82846E-05	0.329789936	0	0.01860554	0.00052501	4.36152E-07	4.075118	1.850604526	2.731408381	5.19556	0.77488683	0.000626	0.00728035	0.014635772	1.93499E-07		0.081298	0.035125	0.002182	0.025474	6.09682E-07		0.028454	0.008781	0.002082	0.0243688	5.606E-07	832.31669	1617.1297	0.019573	0.232934	0.121678903	8.02769E-08	0.134072	0.258076714	1.94763E-05
	MHD	0.0	0	0.025794994	0.006259754	0.026359118	0	0.03811329	0.05096401	0.04894298	0.8928585	1.112921974	1.40789614	0.671381	0.34617278	1.07433	0.00148998	0.011664295	8.43209E-05	0.299	0.045399	0.012	0.002128	0.012985	0.000106814	0.04499	0.01589	0.003	0.002035	0.0124151	9.821E-05	160.25985	1229.1806	8.5293121	0.013383	0.009658327	0.008772715	0.024689	0.158249654	0.006031915
Vendor	HHDT	50.0	0.5	9.79886E-05	2.91423E-05	0.164894968	0	0.00930277	0.0002625	2.18076E-07	2.037559	0.925302263	1.36570419	2.59778	0.38744341	0.000313	0.00364017	0.007317886	9.67497E-08		0.040649	0.017563	0.001091	0.012737	3.04841E-07		0.014227	0.004391	0.001041	0.0121844	2.803E-07	416.15835	808.56485	0.0097865	0.116467	0.060839451	4.01385E-08	0.067036	0.129038357	9.73817E-06
	MHD	50.0	0.5	0.012897497	0.003129877	0.013179559	0	0.01905664	0.02548201	0.02447149	0.4464293	0.556460987	0.70394807	0.335691	0.17308639	0.537165	0.00074499	0.005832147	4.21605E-05		0.0227	0.006	0.001064	0.006492	5.3407E-05		0.007945	0.0015	0.001018	0.0062075	4.911E-05	80.129824	614.5903	4.2646561	0.006691	0.004829164	0.004386358	0.012344	0.079124827	0.003015958
			1	0.012995486	0.003159019	0.178074527	0	0.02835941	0.02574451	0.024471708	2.4839883	1.48176325	2.06965226	2.933471	0.56052298	0.537478	0.00438516	0.013150033	4.22572E-05	0.299	0.063348	0.023563	0.002155	0.01923	5.37119E-05	0.04499	0.022172	0.005891	0.002059	0.0183919	4.939E-05	496.28827	1423.1552	4.2744426	0.123158	0.065668615	0.004386398	0.07938	0.208163184	0.003025696
Worker	LDA	50.0	0.5	0.136796864	0.040510207	0	0	0.00394285	0.10236849	0.147535756	0	0.018684555	0.115476587	0	0.32486778	1.445873	0	0.001211349	0.000313927		0.003584	0.004	0	0.000585	0.000954881		0.001254	0.001	0	0.000539	0.000878	0	122.54122	31.754603	0	0.001026569	0.03235985	0	0.002080964	0.014940319
	LDT1	25.0	0.25	0.148814258	0.041105424	0	0	0.00690435	0.11745495	0.134116008	0	0.0319581	0.094816504	0	0.35468197	1.306204	0	0.000804162	0.00021249		0.002306	0.002	0	0.000482	0.00072446		0.000807	0.0005	0	0.0004435	0.0006661	0	81.34419	21.494004	0	0.001555571	0.026204278	0	0.002343639	0.009623613
	LDT2	25.0	0.25	0.072043204	0.020150051	0	0	0.00277508	0.05338915	0.094795741	0	0.017007912	0.082407943	0	0.2073341	0.905899	0	0.000831592	0.000213499		0.002217	0.002	0	0.000333	0.000526973		0.000776	0.0005	0	0.0003065	0.0004845	0	84.129497	21.596069	0	0.000704556	0.020482149	0	0.001504103	0.009197602
			1	0.357654326	0.101765681	0	0	0.01362228	0.2734126	0.376447505	0	0.067650567	0.292701033	0	0.88688386	3.657977	0	0.002847102	0.000739916	0.299	0.008107	0.008	0	0.001401	0.002206314	0.04499	0.002837	0.002	0	0.001289	0.0020286	0	288.01491	74.844675	0	0.003286696	0.079046277	0	0.005928705	0.033761535

CalEEMod EMFAC2021 Emission Factors Input — Year 2022

Season	EmissionType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
A	CH4_IDLEX	0	0	0	0	0.005715	0.003459	0.013325	0.206586857	0.007557	0	0	0.073426	0
A	CH4_RUNEX	0.00262	0.007767	0.003383	0.004896	0.010237	0.008314	0.010833	0.125617727	0.00979	0.350130168	0.173457	0.093942	0.017185
A	CH4_STREX	0.073882	0.119672	0.092036	0.116615	0.025471	0.014269	0.009682	9.9441E-08	0.019008	0.004663452	0.19335	0.004688	0.028369
A	CO_IDLEX	0	0	0	0	0.198658	0.145501	0.651982	4.97661886	0.488392	0	0	1.621037	0
A	CO_RUNEX	0.760971	1.692165	0.951378	1.147782	1.056725	0.677353	0.501333	0.800252118	0.642924	4.124448351	13.58248	0.9513	2.058413
A	CO_STREX	3.322299	6.090252	4.093035	4.559313	2.13502	1.264781	1.235154	0.000436679	2.130857	0.48496823	8.107621	0.67174	2.789542
A	CO2_NBIO_IDLEX	0	0	0	0	8.910742	13.95614	165.3045	879.5752488	85.25208	0	0	195.3581	0
A	CO2_NBIO_RUNEX	259.4628	336.3424	354.1685	428.4987	817.3397	858.1198	1248.398	1666.151858	1420.912	1102.901969	188.9834	1071.282	1702.83
A	CO2_NBIO_STREX	67.11243	89.8835	91.20332	109.5269	18.21997	10.55785	9.138443	0.030444739	16.62396	3.31327329	50.90901	3.708073	23.6993
A	NOX_IDLEX	0	0	0	0	0.052368	0.100699	1.038732	4.483888986	0.385202	0	0	1.506794	0
A	NOX_RUNEX	0.048635	0.159739	0.086392	0.134091	0.853668	1.119952	1.574899	2.394965381	1.208206	0.329132707	0.60517	2.986224	1.654513
A	NOX_STREX	0.261102	0.427174	0.383682	0.505292	0.479423	0.269607	1.281987	2.425661108	0.91248	0.048622235	0.149724	0.46558	0.298066
A	PM10_IDLEX	0	0	0	0	0.000668	0.001334	0.003039	0.002476095	0.000459	0	0	0.001574	0
A	PM10_PMBW	0.007233	0.009226	0.008886	0.009068	0.078	0.091	0.045475	0.082552815	0.049849	0.110359457	0.012	0.046029	0.044952
A	PM10_PMTW	0.008	0.008	0.008	0.008	0.00938	0.01061	0.012	0.035118082	0.012	0.032484506	0.004	0.010935	0.013135
A	PM10_RUNEX	0.001291	0.002197	0.00143	0.001533	0.016407	0.025675	0.018341	0.027281345	0.016941	0.006218357	0.001891	0.015648	0.032536
A	PM10_STREX	0.002063	0.003256	0.002221	0.002404	0.000272	0.000128	0.000122	1.13121E-06	0.000148	8.37433E-06	0.003773	3.75E-05	0.00037
A	PM25_IDLEX	0	0	0	0	0.000639	0.001276	0.002908	0.002364184	0.000439	0	0	0.001505	0
A	PM25_PMBW	0.002532	0.003229	0.00311	0.003174	0.0273	0.03185	0.015916	0.028893485	0.017447	0.03862581	0.0042	0.01611	0.015733
A	PM25_PMTW	0.002	0.002	0.002	0.002	0.002345	0.002652	0.003	0.008779521	0.003	0.008121126	0.001	0.002734	0.003284
A	PM25_RUNEX	0.001189	0.002023	0.001316	0.001413	0.015653	0.024543	0.017539	0.026097586	0.016199	0.005946371	0.001772	0.014956	0.031073
A	PM25_STREX	0.001897	0.002994	0.002042	0.00221	0.00025	0.000117	0.000112	1.04011E-06	0.000136	7.69989E-06	0.003556	3.45E-05	0.00034
A	ROG_DIURN	0.298356	0.654689	0.305234	0.371774	0.142048	0.075802	0.031516	0.000336069	0.066167	0.017061368	3.980024	0.023681	36.75334
A	ROG_HTSK	0.089123	0.181374	0.087307	0.103701	0.037388	0.020186	0.007787	9.99559E-05	0.017416	0.005624927	3.560376	0.0068	10.2939
A	ROG_IDLEX	0	0	0	0	0.023467	0.017109	0.029206	0.334782686	0.040359	0	0	0.178459	0
A	ROG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
A	ROG_RUNEX	0.010496	0.035089	0.013698	0.021403	0.104886	0.130534	0.060436	0.033100547	0.060818	0.063146087	1.156556	0.062084	0.108196
A	ROG_RUNLS	0.225275	0.530134	0.228911	0.286632	0.202385	0.107137	0.063713	0.000900445	0.073897	0.010905595	3.734124	0.015438	0.237872
A	ROG_STREX	0.34655	0.627914	0.435929	0.600223	0.128012	0.07114	0.05565	5.40242E-07	0.100833	0.017141714	1.442993	0.026744	0.124324
A	SO2_IDLEX	0	0	0	0	8.68E-05	0.000134	0.00154	0.007812146	0.000808	0	0	0.001782	0
A	SO2_RUNEX	0.002565	0.003325	0.003501	0.004233	0.00799	0.008276	0.011852	0.015152394	0.013604	0.009476431	0.001868	0.00996	0.016708
A	SO2_STREX	0.000663	0.000889	0.000902	0.001083	0.00018	0.000104	9.03E-05	3.00977E-07	0.000164	3.27551E-05	0.000503	3.67E-05	0.000234
A	TOG_DIURN	0.298356	0.654689	0.305234	0.371774	0.142048	0.075802	0.031516	0.000336069	0.066167	0.017061368	0.088089	0.023681	36.75334
A	TOG_HTSK	0.089123	0.181374	0.087307	0.103701	0.037388	0.020186	0.007787	9.99559E-05	0.017416	0.005624927	3.560376	0.0068	10.2939
A	TOG_IDLEX	0	0	0	0	0.033415	0.023307	0.0464	0.573123753	0.053678	0	0	0.2911	0
A	TOG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
A	TOG_RUNEX	0.015286	0.051142	0.019968	0.031121	0.130739	0.152989	0.079545	0.162488475	0.079853	0.420818384	1.378949	0.165501	0.146385
A	TOG_RUNLS	0.225275	0.530134	0.228911	0.286632	0.202385	0.107137	0.063713	0.000900445	0.073897	0.010905595	3.734124	0.015438	0.237872
A	TOG_STREX	0.379427	0.687484	0.477287	0.657163	0.140157	0.077889	0.060929	5.91497E-07	0.1104	0.018768019	1.568432	0.029282	0.136119
A	N2O_IDLEX	0	0	0	0	0.000643	0.001679	0.025434	0.141105148	0.01202	0	0	0.026084	0
A	N2O_RUNEX	0.00491	0.011145	0.007019	0.010292	0.043036	0.0838	0.161707	0.265545018	0.157529	0.166506076	0.041009	0.135782	0.070507
A	N2O_STREX	0.031951	0.040826	0.039881	0.044373	0.037118	0.02093	0.006082	2.37172E-05	0.015897	0.007148428	0.008761	0.003988	0.030278

CalEEMod EMFAC2021 Emission Factors Input — Year 2025

Season	EmissionType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
A	CH4_IDLEX	0	0	0	0	0.005194	0.003023	0.013842	0.229861003	0.007514	0	0	0.076044	0
A	CH4_RUNEX	0.001841	0.005577	0.002592	0.003307	0.007222	0.006455	0.009536	0.117132109	0.009593	0.497756349	0.158292	0.090769	0.011159
A	CH4_STREX	0.060617	0.097956	0.077312	0.090898	0.021636	0.011648	0.008314	7.74759E-08	0.016852	0.003733046	0.177199	0.004898	0.025922
A	CO_IDLEX	0	0	0	0	0.195049	0.141036	0.668176	5.176290252	0.524506	0	0	1.692209	0
A	CO_RUNEX	0.606604	1.307107	0.781421	0.865797	0.821777	0.532869	0.296939	0.756535609	0.44406	5.878094388	12.31202	0.85843	1.105311
A	CO_STREX	2.711494	4.855262	3.417927	3.621729	2.164208	1.195973	1.000247	0.000684691	1.872658	0.515229574	7.965438	0.66885	2.373596
A	CO2_NBIO_IDLEX	0	0	0	0	8.602925	13.6884	158.593	813.9732577	87.04447	0	0	189.0522	0
A	CO2_NBIO_RUNEX	237.6743	319.1813	327.6236	394.2305	764.972	810.9955	1213.655	1586.833625	1366.1	1082.148951	187.2679	1017.838	1680.132
A	CO2_NBIO_STREX	61.73081	84.00027	84.00689	100.2571	17.59535	9.640849	8.205073	0.017114195	14.85767	3.177121883	47.30784	3.779827	22.06858
A	NOX_IDLEX	0	0	0	0	0.046413	0.089605	0.847928	3.965211308	0.364367	0	0	1.342517	0
A	NOX_RUNEX	0.033383	0.114688	0.061427	0.085138	0.585978	0.806102	1.006394	1.774057666	0.968278	0.301158242	0.557882	2.407715	1.487818
A	NOX_STREX	0.218516	0.357478	0.309231	0.377914	0.420652	0.228874	1.403485	2.751173324	0.987981	0.039008099	0.129146	0.492123	0.298831
A	PM10_IDLEX	0	0	0	0	0.000685	0.001389	0.001762	0.002096665	0.000404	0	0	0.001209	0
A	PM10_PMBW	0.007137	0.009219	0.00886	0.008972	0.077556	0.090487	0.04526	0.081222471	0.04982	0.123663808	0.012	0.044786	0.044946
A	PM10_PMTW	0.008	0.008	0.008	0.008	0.00942	0.010665	0.012	0.035128275	0.012	0.042521858	0.004	0.010572	0.013235
A	PM10_RUNEX	0.00112	0.001813	0.001292	0.00131	0.01302	0.021567	0.011186	0.025031341	0.015263	0.005684616	0.001925	0.012423	0.028992
A	PM10_STREX	0.001849	0.00275	0.002061	0.002069	0.000206	9.12E-05	0.000101	5.20395E-07	0.000131	1.2108E-05	0.003464	4.08E-05	0.000296
A	PM25_IDLEX	0	0	0	0	0.000656	0.001329	0.001685	0.001999711	0.000387	0	0	0.001155	0
A	PM25_PMBW	0.002498	0.003227	0.003101	0.00314	0.027145	0.03167	0.015841	0.028427865	0.017437	0.043282333	0.0042	0.015675	0.015731
A	PM25_PMTW	0.002	0.002	0.002	0.002	0.002355	0.002666	0.003	0.008782069	0.003	0.010630465	0.001	0.002643	0.003309
A	PM25_RUNEX	0.001031	0.001669	0.001189	0.001207	0.012419	0.020616	0.010694	0.023944936	0.014593	0.005434911	0.001799	0.01187	0.027693
A	PM25_STREX	0.0017	0.002528	0.001895	0.001902	0.000189	8.39E-05	9.28E-05	4.78484E-07	0.000121	1.11329E-05	0.003253	3.76E-05	0.000272
A	ROG_DIURN	0.264632	0.562584	0.283569	0.336782	0.120201	0.063181	0.023118	0.000161301	0.068202	0.010220489	3.860886	0.029457	30.55965
A	ROG_HTSK	0.077597	0.155938	0.078131	0.089235	0.030304	0.015991	0.005603	4.7964E-05	0.016021	0.003785535	3.558651	0.007775	7.988502
A	ROG_IDLEX	0	0	0	0	0.021187	0.015503	0.025251	0.32711902	0.04025	0	0	0.185349	0
A	ROG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
A	ROG_RUNEX	0.006942	0.024558	0.010089	0.013778	0.079612	0.109106	0.032483	0.017799596	0.044456	0.059943987	1.024683	0.053481	0.077128
A	ROG_RUNLS	0.197921	0.439329	0.211003	0.255197	0.16959	0.087065	0.045291	0.000432041	0.075038	0.007986552	3.760078	0.019152	0.188623
A	ROG_STREX	0.273326	0.495732	0.354505	0.447416	0.106693	0.056928	0.045776	4.20633E-07	0.089311	0.013239776	1.305157	0.027862	0.108247
A	SO2_IDLEX	0	0	0	0	8.37E-05	0.000131	0.001472	0.007098942	0.000823	0	0	0.001718	0
A	SO2_RUNEX	0.002349	0.003155	0.003238	0.003895	0.007471	0.007812	0.011512	0.014348163	0.013043	0.00885381	0.001851	0.009458	0.016473
A	SO2_STREX	0.00061	0.00083	0.00083	0.000991	0.000174	9.53E-05	8.11E-05	1.69191E-07	0.000147	3.14091E-05	0.000468	3.74E-05	0.000218
A	TOG_DIURN	0.264632	0.562584	0.283569	0.336782	0.120201	0.063181	0.023118	0.000161301	0.068202	0.010220489	0.08531	0.029457	30.55965
A	TOG_HTSK	0.077597	0.155938	0.078131	0.089235	0.030304	0.015991	0.005603	4.7964E-05	0.016021	0.003785535	3.558651	0.007775	7.988502
A	TOG_IDLEX	0	0	0	0	0.03005	0.020889	0.042478	0.588143126	0.05333	0	0	0.302207	0
A	TOG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
A	TOG_RUNEX	0.010114	0.035818	0.014707	0.020053	0.097862	0.126808	0.046457	0.137213337	0.060464	0.565677917	1.236542	0.152507	0.100988
A	TOG_RUNLS	0.197921	0.439329	0.211003	0.255197	0.16959	0.087065	0.045291	0.000432041	0.075038	0.007986552	3.760078	0.019152	0.188623
A	TOG_STREX	0.299257	0.542764	0.388138	0.489864	0.116815	0.062329	0.050119	4.6054E-07	0.097784	0.014495888	1.419098	0.030505	0.118517
A	N2O_IDLEX	0	0	0	0	0.000637	0.00168	0.024457	0.131219379	0.012456	0	0	0.024955	0
A	N2O_RUNEX	0.003885	0.008627	0.005647	0.007583	0.040583	0.081593	0.156018	0.253304032	0.157183	0.165902975	0.038984	0.126174	0.069141
A	N2O_STREX	0.028873	0.037292	0.035503	0.037751	0.034174	0.018376	0.005858	1.42154E-05	0.01459	0.006142466	0.007691	0.004354	0.031786

CalEEMod EMFAC2021 Emission Factors Input — Year 2030

Season	EmissionType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
A	CH4_IDLEX	0	0	0	0	0.004335	0.002508	0.015544	0.200689575	0.007521	0	0	0.081907	0
A	CH4_RUNEX	0.001251	0.003273	0.001878	0.002097	0.004028	0.004457	0.009465	0.087739612	0.010745	0.633168094	0.142987	0.08726	0.006074
A	CH4_STREX	0.045719	0.070684	0.060357	0.065129	0.016442	0.00872	0.006578	4.40093E-08	0.013432	0.002502449	0.157242	0.005216	0.022777
A	CO_IDLEX	0	0	0	0	0.182077	0.135546	0.628457	4.997868655	0.549826	0	0	1.823721	0
A	CO_RUNEX	0.484467	0.895508	0.639484	0.660796	0.544761	0.383737	0.155266	0.628349624	0.288528	7.378159276	11.04655	0.716417	0.371762
A	CO_STREX	2.08878	3.413929	2.729559	2.781248	2.051418	1.109837	0.71851	0.00087263	1.464305	0.531636543	7.830862	0.671301	1.918466
A	CO2_NBIO_IDLEX	0	0	0	0	7.808851	13.36322	143.3801	719.710734	89.80588	0	0	181.8136	0
A	CO2_NBIO_RUNEX	212.8469	289.9302	293.0501	349.5802	665.9344	713.025	1074.538	1395.928332	1245.372	969.9926525	185.5769	941.807	1656.25
A	CO2_NBIO_STREX	54.76765	75.02353	74.63055	88.38252	15.88489	8.544837	6.787068	0.009437452	12.01881	3.025945099	42.83228	3.929487	20.12804
A	NOX_IDLEX	0	0	0	0	0.036306	0.076255	0.630169	3.42443431	0.333548	0	0	1.045112	0
A	NOX_RUNEX	0.023158	0.066035	0.041164	0.048222	0.312391	0.495733	0.584719	1.446947564	0.825827	0.255958394	0.509869	1.567888	1.278466
A	NOX_STREX	0.178975	0.272625	0.247045	0.271696	0.32724	0.178285	1.220957	2.603954429	0.931305	0.025581732	0.103081	0.520702	0.298107
A	PM10_IDLEX	0	0	0	0	0.000666	0.001456	0.000655	0.001737607	0.000311	0	0	0.000746	0
A	PM10_PMBW	0.007078	0.009138	0.008838	0.008892	0.0744	0.086908	0.04333	0.082108579	0.049981	0.147119217	0.012	0.043749	0.04494
A	PM10_PMTW	0.008	0.008	0.008	0.008	0.009343	0.010534	0.012	0.035145225	0.012	0.05700071	0.004	0.010442	0.013343
A	PM10_RUNEX	0.000838	0.00126	0.000989	0.000971	0.009189	0.01687	0.00542	0.023402177	0.012621	0.004822062	0.001997	0.008575	0.022807
A	PM10_STREX	0.001482	0.002074	0.001658	0.001608	0.000134	5.67E-05	8.23E-05	1.43954E-07	0.000118	1.26121E-05	0.003416	4.58E-05	0.000233
A	PM25_IDLEX	0	0	0	0	0.000637	0.001393	0.000626	0.001655588	0.000297	0	0	0.000713	0
A	PM25_PMBW	0.002477	0.003198	0.003093	0.003112	0.02604	0.030418	0.015165	0.028738003	0.017493	0.051491726	0.0042	0.015312	0.015729
A	PM25_PMTW	0.002	0.002	0.002	0.002	0.002336	0.002634	0.003	0.008786306	0.003	0.014250178	0.001	0.00261	0.003336
A	PM25_RUNEX	0.000771	0.001159	0.00091	0.000894	0.008761	0.016127	0.005178	0.022386582	0.012067	0.00460949	0.001864	0.008187	0.021783
A	PM25_STREX	0.001362	0.001907	0.001524	0.001478	0.000123	5.22E-05	7.56E-05	1.3236E-07	0.000109	1.15963E-05	0.003197	4.21E-05	0.000214
A	ROG_DIURN	0.227323	0.469769	0.248439	0.276762	0.087274	0.048494	0.014918	4.02275E-05	0.069383	0.007038146	3.680755	0.041692	20.29626
A	ROG_HTSK	0.060745	0.120653	0.063468	0.068938	0.020831	0.011136	0.00342	1.26947E-05	0.014014	0.002098044	3.555147	0.009335	4.900484
A	ROG_IDLEX	0	0	0	0	0.01758	0.01365	0.020875	0.311156106	0.039789	0	0	0.197824	0
A	ROG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
A	ROG_RUNEX	0.00434	0.013675	0.006865	0.008091	0.050519	0.082873	0.014952	0.014289903	0.031966	0.05310504	0.890508	0.040189	0.050568
A	ROG_RUNLS	0.170881	0.355945	0.18526	0.207423	0.123377	0.065349	0.028627	0.000113992	0.077263	0.007877766	3.783469	0.027699	0.119258
A	ROG_STREX	0.197184	0.337555	0.26551	0.301161	0.07823	0.041209	0.034167	2.38553E-07	0.071386	0.008378471	1.134366	0.029472	0.088942
A	SO2_IDLEX	0	0	0	0	7.6E-05	0.000128	0.00132	0.006214699	0.000846	0	0	0.001639	0
A	SO2_RUNEX	0.002104	0.002866	0.002897	0.003454	0.006498	0.00686	0.010167	0.012580529	0.011835	0.007389377	0.001835	0.008739	0.016224
A	SO2_STREX	0.000541	0.000742	0.000738	0.000874	0.000157	8.45E-05	6.71E-05	9.32988E-08	0.000119	2.99145E-05	0.000423	3.88E-05	0.000199
A	TOG_DIURN	0.227323	0.469769	0.248439	0.276762	0.087274	0.048494	0.014918	4.02275E-05	0.069383	0.007038146	0.080793	0.041692	20.29626
A	TOG_HTSK	0.060745	0.120653	0.063468	0.068938	0.020831	0.011136	0.00342	1.26947E-05	0.014014	0.002098044	3.555147	0.009335	4.900484
A	TOG_IDLEX	0	0	0	0	0.0248	0.018097	0.03926	0.541395418	0.052568	0	0	0.32342	0
A	TOG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
A	TOG_RUNEX	0.006329	0.019954	0.010004	0.011775	0.060583	0.095343	0.026358	0.103810529	0.046832	0.694289379	1.091848	0.133799	0.062589
A	TOG_RUNLS	0.170881	0.355945	0.18526	0.207423	0.123377	0.065349	0.028627	0.000113992	0.077263	0.007877766	3.783469	0.027699	0.119258
A	TOG_STREX	0.215892	0.36958	0.2907	0.329734	0.085652	0.045119	0.037409	2.61185E-07	0.078158	0.009173371	1.234067	0.032269	0.097381
A	N2O_IDLEX	0	0	0	0	0.000589	0.00168	0.022195	0.116327365	0.013129	0	0	0.023481	0
A	N2O_RUNEX	0.003165	0.00587	0.004494	0.005382	0.035467	0.074134	0.137514	0.223022009	0.151496	0.151061958	0.036967	0.112558	0.068485
A	N2O_STREX	0.025397	0.032408	0.031653	0.032172	0.028461	0.015119	0.00476	3.77164E-06	0.011347	0.00458201	0.006341	0.004848	0.033159

CalEEMod EMFAC2021 Fleet Mix Input — Year 2022

FleetMixLandUseSubType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.537284	0.044282	0.22264	0.123915	0.022851	0.005418	0.009384	0.007051	0.001066	0.000424	0.022133	0.000678	0.002874
Parking Lot	0.537284	0.044282	0.22264	0.123915	0.022851	0.005418	0.009384	0.007051	0.001066	0.000424	0.022133	0.000678	0.002874

CalEEMod EMFAC2021 Fleet Mix Input

Year 2025

FleetMixLandUseSubType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Elev	0.528224	0.040364	0.230108	0.128589	0.023276	0.00574	0.009425	0.00744	0.001057	0.000413	0.022096	0.000684	0.002585
General Office Building	0.528224	0.040364	0.230108	0.128589	0.023276	0.00574	0.009425	0.00744	0.001057	0.000413	0.022096	0.000684	0.002585
Strip Mall	0.528224	0.040364	0.230108	0.128589	0.023276	0.00574	0.009425	0.00744	0.001057	0.000413	0.022096	0.000684	0.002585

CalEEMod EMFAC2021 Fleet Mix Input

Year 2030

FleetMixLandUseSubType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Enclosed Parking with Ele	0.514977	0.035448	0.239576	0.135703	0.02426	0.00617	0.009659	0.007844	0.001064	0.000396	0.02195	0.000681	0.002272
General Office Building	0.514977	0.035448	0.239576	0.135703	0.02426	0.00617	0.009659	0.007844	0.001064	0.000396	0.02195	0.000681	0.002272
Strip Mall	0.514977	0.035448	0.239576	0.135703	0.02426	0.00617	0.009659	0.007844	0.001064	0.000396	0.02195	0.000681	0.002272

Adjustment Factors

Vehicle Category	Fuel	Population	Pop Fract	VMT (miles/day)	VMT Fract	Trips/day	Trip Fract
HHDT	GAS	3.82736662	3.06472E-05	105.1913484	0.0001019	76.57795135	0.000613
HHDT	DSL	8126.63008	0.065073107	984491.3077	0.9537077	118998.6435	0.952869
HHDT	NG	660.775639	0.005291089	47681.35825	0.0461904	5809.396593	0.046518
		8791.23308		1032277.857		124884.618	
LDA	GAS	604047.779	0.193629661	22374249.93	0.890678	2805661.292	0.899365
LDA	DSL	1988.84691	0.000637532	60930.0916	0.0024255	8564.495491	0.002745
LDA	ELEC	49768.5612	0.015953489	2058455.934	0.0819434	247155.5919	0.079227
LDA	PIH	14080.3346	0.004513501	626833.5276	0.0249531	58222.18377	0.018663
		669885.522		25120469.48		3119603.563	
LDT1	GAS	54974.0845	0.223264467	1779154.38	0.99554	245182.1054	0.99575
LDT1	DSL	28.8860153	0.000117314	444.5777523	0.0002488	84.95747345	0.000345
LDT1	ELEC	182.992792	0.000743183	6367.047111	0.0035627	860.9347277	0.003496
LDT1	PIH	24.3157739	9.87529E-05	1158.952646	0.0006485	100.5457251	0.000408
		55210.2791		1787124.958		246228.5433	
LDT2	GAS	274728.482	0.211367862	9911729.948	0.9883247	1286654.306	0.989913
LDT2	DSL	933.788033	0.000718429	35569.22943	0.0035467	4479.453168	0.003446
LDT2	ELEC	669.358508	0.000514984	23693.948	0.0023626	3436.204483	0.002644
LDT2	PIH	1256.28016	0.000966544	57825.98507	0.005766	5194.718469	0.003997
		277587.908		10028819.11		1299764.682	
LHDT1	GAS	19023.5394	0.047262976	692949.1823	0.6550292	283422.3924	0.704148
LHDT1	DSL	9466.89746	0.023520005	364941.2883	0.3449708	119081.6607	0.295852
		28490.4369	0.070782981	1057890.471		402504.0531	
LHDT2	GAS	2479.11932	0.027325923	89333.80071	0.3475945	36935.18397	0.407116
LHDT2	DSL	4276.17469	0.047133844	167672.0053	0.6524055	53788.89816	0.592884
		6755.29401	0.074459767	257005.806		90724.08214	
MCY	GAS	27595.0892	0.022132728	162923.9676	1	55190.17831	1
MDV	GAS	150747.251	0.210750361	5216511.844	0.9733898	697659.3115	0.975354
MDV	DSL	2337.32844	0.003267674	86668.8473	0.0161722	11158.45778	0.0156
MDV	ELEC	623.697512	0.000871953	22215.79757	0.0041454	3205.616376	0.004482
MDV	PIH	789.561205	0.001103836	33722.80892	0.0062926	3264.835584	0.004564
		154497.838		5359119.297		715288.2212	
MH	GAS	2642.08408	7.37200628	23105.28291	0.7162099	264.3140911	0.737496
MH	DSL	940.800797	2.625044918	9155.209641	0.2837901	94.08007967	0.262504
		3582.88487		32260.49255		358.3941708	
MHDT	GAS	1426.53505	0.009471981	69284.18236	0.1382254	28542.11337	0.189515
MHDT	DSL	10189.5513	0.067657111	428042.2812	0.8539656	121266.7671	0.805193
MHDT	NG	84.4805227	0.000560938	3914.204711	0.007809	796.8889021	0.005291
		11700.5669		501240.6682		150605.7694	
OBUS	GAS	470.923365	0.025852134	21653.29515	0.2596868	9422.234682	0.517249
OBUS	DSL	852.167884	0.046781196	61336.68113	0.7356076	8739.294756	0.479758
OBUS	NG	6.12418985	0.000336198	392.3599028	0.0047056	54.50528967	0.002992
		1329.21544		83382.33618		18216.03473	
SBUS	GAS	160.413892	0.015673239	7959.430234	0.3405375	641.6555689	0.062693
SBUS	DSL	662.516235	0.064731149	15413.71135	0.6594625	9593.235079	0.937307
SBUS	NG	22.5967669	0.002207817	578.3531561	0.0247443	327.2011847	0.031969
		845.526894		23373.14159		10234.89065	
UBUS	GAS	45.8110441	0.021676301	4784.036586	0.0818022	183.2441763	0.086705
UBUS	DSL	435.647489	0.206134265	48716.13451	0.8329971	1742.589957	0.824537
UBUS	ELEC	5.04675694	0.03014879	199.0027319	0.0415995	20.18702775	0.120595
UBUS	NG	41.8487514	0.019801472	4783.780965	0.0817979	167.3950058	0.079206
		528.354042		58482.9548		2113.416166	

Adjustment Factors

Vehicle Category	Fuel	Population	Pop Fract	VMT (miles/day)	VMT Fract	Trips/day	Trip Fract
HHDT	GAS	2.33035896	1.70966E-05	124.9448223	0.0001166	46.62582199	0.000342
HHDT	DSL	8692.57496	0.06377287	1008963.948	0.9416827	127877.0897	0.938167
HHDT	ELEC	63.3712014	0.000464921	6579.674935	0.0061409	825.9971986	0.00606
HHDT	NG	832.40502	0.00610692	55779.3819	0.0520598	7555.504424	0.055431
		9590.68154		1071447.949		136305.2172	
LDA	GAS	598860.284	0.189163833	22133914.69	0.8620184	2780384.029	0.878248
LDA	DSL	1620.03991	0.000511727	46912.85411	0.001827	6871.193241	0.00217
LDA	ELEC	61443.1924	0.019408249	2670451.983	0.1040023	299852.6978	0.094715
LDA	PIH	19037.6636	0.006013485	825567.7143	0.0321522	78720.73884	0.024866
		680961.18		25676847.24		3165828.659	
LDT1	GAS	51680.8552	0.222992328	1664705.874	0.9915742	230185.983	0.993205
LDT1	DSL	21.282725	9.18306E-05	302.825779	0.0001804	59.13231308	0.000255
LDT1	ELEC	234.457824	0.001011638	9323.703781	0.0055536	1109.79593	0.004789
LDT1	PIH	98.1319848	0.000423419	4519.182281	0.0026918	405.7757571	0.001751
		52034.7277		1678851.586		231760.687	
LDT2	GAS	290874.748	0.209748755	10447705.78	0.9789509	1360240.873	0.980865
LDT2	DSL	1049.95238	0.000757117	38652.33695	0.0036217	4980.340082	0.003591
LDT2	ELEC	2157.05904	0.001555448	73663.77305	0.0069023	10962.38395	0.007905
LDT2	PIH	2561.88514	0.001847366	112327.2154	0.0105251	10593.39505	0.007639
		296643.645		10672349.11		1386776.992	
LHDT1	GAS	19422.4639	0.045941069	728336.977	0.6336476	289365.7727	0.684453
LHDT1	DSL	10387.1028	0.024569211	408019.3319	0.3549737	130656.6864	0.30905
LHDT1	ELEC	196.401964	0.000464561	13079.06139	0.0113787	2746.629156	0.006497
		30005.9687	0.070974841	1149435.37		422769.0882	
LHDT2	GAS	2512.65228	0.025565973	91345.05406	0.3225651	37434.7751	0.380895
LHDT2	DSL	4837.2356	0.049218364	188645.0475	0.6661587	60846.33861	0.619105
LHDT2	ELEC	50.4620201	0.000513446	3193.250687	0.0112763	669.1749743	0.006809
		7400.3499	0.075297782	283183.3523		98281.11371	
MCY	GAS	28484.893	0.022095845	166414.5147	1	56969.78604	1
MDV	GAS	159532.218	0.207432201	5551044.411	0.9605893	739781.3765	0.961903
MDV	DSL	2421.36412	0.003148385	85326.79887	0.0147655	11351.14178	0.014759
MDV	ELEC	2274.54722	0.002957486	77934.95958	0.0134864	11571.05737	0.015045
MDV	PIH	1542.36579	0.002005465	64484.39206	0.0111588	6377.682532	0.008293
		165770.495		5778790.561		769081.2582	
MH	GAS	2337.87649	7.013583236	21506.19156	0.6912933	233.8811638	0.701639
MH	DSL	994.543666	2.983611331	9603.892712	0.3087067	99.45436656	0.298361
		3332.42015		31110.08427		333.3355304	
MHDT	GAS	1412.26257	0.009037553	72039.87357	0.1394582	28256.54946	0.180823
MHDT	DSL	10548.0591	0.067500648	435100.6189	0.8422883	125915.2277	0.805775
MHDT	ELEC	90.8085123	0.000581115	4838.905804	0.0093674	1182.343378	0.007566
MHDT	NG	98.9062774	0.000632935	4590.306874	0.0088861	911.9208312	0.005836
		12150.0365		516569.7051		156266.0414	
OBUS	GAS	430.702276	0.023671729	18962.49127	0.2311741	8617.491144	0.473624
OBUS	DSL	921.411582	0.050641491	62304.88754	0.7595666	9451.527202	0.519463
OBUS	ELEC	2.67203053	0.000146857	221.7710452	0.0027036	53.46198693	0.002938
OBUS	NG	8.1253065	0.000446573	537.746753	0.0065557	72.31522781	0.003975
		1362.9112		82026.89662		18194.79556	
SBUS	GAS	178.243554	0.016385172	8812.851183	0.3543672	712.9742161	0.065541
SBUS	DSL	673.204793	0.061884852	15283.75186	0.6145639	9748.005403	0.896093
SBUS	ELEC	4.48116849	0.000411935	145.0761128	0.0058336	51.24766317	0.004711
SBUS	NG	25.2843935	0.002324287	627.585971	0.0252354	366.1180183	0.033656
		881.213909		24869.26513		10878.3453	
UBUS	GAS	46.2191762	0.021676301	4826.657731	0.0818022	184.8767049	0.086705
UBUS	DSL	405.367492	0.190113029	44987.36567	0.7624463	1621.46997	0.760452
UBUS	ELEC	23.3120232	0.100202165	2427.539875	0.3589751	93.248093	0.400809
UBUS	NG	58.1624738	0.02727758	6762.418158	0.1146095	232.6498951	0.10911
		533.061166		59003.98143		2132.244663	

Adjustment Factors

Vehicle Category	Fuel	Population	Pop Fract	VMT (miles/day)	VMT Fract	Trips/day	Trip Fract
HHDT	GAS	1.48761568	9.81801E-06	172.849851	0.000152	29.76421444	0.000196
HHDT	DSL	9231.23405	0.060924558	1024356.864	0.9007481	136537.8407	0.901126
HHDT	ELEC	530.250085	0.003499559	54761.34921	0.0481533	6663.696554	0.043979
HHDT	NG	938.272575	0.006192438	57937.9272	0.0509466	8287.794951	0.054698
		10701.2443		1137228.99		151519.0964	
LDA	GAS	602124.626	0.184735004	21985012.74	0.8461961	2796633.75	0.858022
LDA	DSL	966.571543	0.000296549	27899.12475	0.0010738	4169.431018	0.001279
LDA	ELEC	74807.2796	0.022951267	2981995.184	0.114776	356617.9586	0.109412
LDA	PIH	24661.5156	0.007566283	986083.3495	0.037954	101975.3669	0.031287
		702559.993		25980990.4		3259396.506	
LDT1	GAS	47587.4471	0.220781409	1511766.355	0.9787303	212019.26	0.983661
LDT1	DSL	0.76846667	3.56529E-06	17.05570223	1.104E-05	2.625517308	1.22E-05
LDT1	ELEC	459.59884	0.002132303	19527.56637	0.0126423	2229.167753	0.010342
LDT1	PIH	311.959599	0.001447333	13308.95728	0.0086163	1289.952942	0.005985
		48359.774		1544619.935		215541.0062	
LDT2	GAS	315384.001	0.207524795	11011602.46	0.9644118	1467132.745	0.965383
LDT2	DSL	1158.98987	0.000762623	40906.34603	0.0035826	5439.347127	0.003579
LDT2	ELEC	5453.19362	0.003588238	171698.9957	0.0150376	27128.05332	0.01785
LDT2	PIH	4846.71192	0.003189169	193738.4599	0.0169679	20041.15378	0.013187
		326842.897		11417946.26		1519741.3	
LHDT1	GAS	19753.0188	0.042469943	727605.5091	0.5718283	294290.548	0.632739
LHDT1	DSL	11269.2779	0.024229491	427352.764	0.3358584	141753.3387	0.304777
LHDT1	ELEC	2074.53776	0.004460356	117461.3639	0.0923134	29061.9606	0.062485
		33096.8344	0.07115979	1272419.637		465105.8473	
LHDT2	GAS	2461.018	0.023436275	87198.39839	0.2764804	36665.50124	0.349166
LHDT2	DSL	5433.24767	0.051740819	199824.8391	0.6335857	68343.42067	0.650834
LHDT2	ELEC	523.424852	0.004984575	28364.00967	0.0899339	6941.368001	0.066103
		8417.69052	0.08016167	315387.2472		105008.9219	
MCY	GAS	29945.6713	0.021950206	170059.0451	1	59891.3425	1
MDV	GAS	174344.044	0.2032491	5962226.801	0.9422971	807535.9337	0.94142
MDV	DSL	2406.78655	0.002805815	79682.09193	0.0125933	11072.81735	0.012909
MDV	ELEC	5418.75334	0.006317146	169876.9029	0.0268481	26922.57502	0.031386
MDV	PIH	2963.42173	0.003454737	115546.1715	0.0182614	12253.74886	0.014285
		185133.006		6327331.967		857785.0749	
MH	GAS	2034.68785	6.562577556	19970.25646	0.6642899	203.5501727	0.65652
MH	DSL	1064.93836	3.434797413	10092.30624	0.3357101	106.4938359	0.34348
		3099.62621		30062.5627		310.0440086	
MHDT	GAS	1369.78361	0.008097456	69786.55357	0.1286334	27406.63039	0.162014
MHDT	DSL	10679.1279	0.063129513	415833.3823	0.766481	127641.7789	0.754553
MHDT	ELEC	991.138618	0.005859102	51102.91436	0.094195	12793.3276	0.075628
MHDT	NG	136.843702	0.00080895	5799.937145	0.0106907	1320.473703	0.007806
		13176.8939		542522.7874		169162.2106	
OBUS	GAS	373.850854	0.019905227	15017.95753	0.1835305	7480.007877	0.398264
OBUS	DSL	1041.41451	0.05544883	64198.49481	0.784553	10721.4028	0.570848
OBUS	ELEC	23.470396	0.001249652	1822.61906	0.0222738	469.5956826	0.025003
OBUS	NG	12.4197043	0.000661272	789.0471667	0.0096427	110.535368	0.005885
		1451.15547		81828.11857		18781.54172	
SBUS	GAS	198.199726	0.017610498	9649.073176	0.3683175	792.7989059	0.070442
SBUS	DSL	659.302865	0.058580564	14502.39326	0.5535749	9546.70548	0.848247
SBUS	ELEC	42.2755564	0.00375628	1362.719324	0.0520167	492.3385095	0.043745
SBUS	NG	29.1983511	0.00259434	683.5221158	0.0260909	422.7921234	0.037566
		928.976499		26197.70788		11254.63502	
UBUS	GAS	46.8993965	0.021676301	4897.692973	0.0818022	187.5975859	0.086705
UBUS	DSL	338.509163	0.156454601	37119.08129	0.6199702	1354.036652	0.625818
UBUS	ELEC	78.6722459	0.256009323	8935.028159	1.0016223	314.6889835	1.024037
UBUS	NG	76.8255673	0.035507794	8920.556737	0.1489929	307.3022692	0.142031
		540.906373		59872.35916		2163.625491	

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: Santa Clara
Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	NOx_RUNEX	NOx_IDLEX	NOx_STREX	PM2.5_RU	PM2.5_IDL	PM2.5_STR	PM2.5_PM	PM2.5_PM	PM10_RUI	PM10_IDL	PM10_STR	PM10_PM	PM10_PM	CO2_RUNE	CO2_IDLEX	CO2_STRE	CH4_RUNE	CH4_IDLEX	CH4_STRE	N2O_RUNEX	N2O_IDLEX	N2O_STRE	ROG_RUNE	ROG_IDLE	ROG_STRE	ROG_HOTS	ROG_RUNL	ROG_DIUR	TOG_RUNE	TOG_IDLEX	TOG_STRE	TOG_HOTS	TOG_RUNL	TOG_DIUR	NH3_RUNEX	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNE	SOx_IDLEX	SOx_STREX
Santa Clara	2022	HHDT	Aggregate	Aggregate	Gasoline	3.827367	105.1913	105.1913	0	76.57795	9.246272	0	1.235102	0.00578	0	0.001696	0.005	0.036521	0.006286	0	0.001845	0.02	0.104346	2407.176	0	49.64979	0.419155	0	0.000162	0.231899	0	0.038678	2.628217	0	0.000881	0.16301	1.46846	10.96573	3.835087	0	0.000965	0.16301	1.46846	10.96573	0.039703	94.77398	0	0.712144	0.023797	0	0.000491
Santa Clara	2022	HHDT	Aggregate	Aggregate	Diesel	8126.63	984491.3	984491.3	0	118998.6	2.444518	67.79787	2.544846	0.027272	0.034513	0	0.008769	0.027987	0.028505	0.036074	0	0.035077	0.079962	1677.544	1267.87	0	0.001458	0.236832	0	0.264298	1.997403	0	0.031398	5.098937	0	0	0	0	0.035744	5.804752	0	0	0	0	0	0.202666	0.125232	70.47019	0	0.015885	0.120052	0
Santa Clara	2022	HHDT	Aggregate	Aggregate	Natural Ga	660.7756	47681.36	47681.36	0	5809.397	1.356717	13.62116	0	0.001899	0.022358	0	0	0.009	0.047596	0.002065	0.024316	0	0.036	0.135989	1429.3	10316.77	0	2.688526	36.13158	0	0.291372	2.10314	0	0.062535	0.56302	0	0	0	0	2.77132	36.92822	0	0	0	0	0	0.851705	14.53027	73.87982	0	0	0	0
Santa Clara	2022	LDA	Aggregate	Aggregate	Gasoline	604047.8	22374250	22374250	0	2805661	0.053791	0	0.287921	0.00126	0	0.002062	0.002	0.002656	0.00137	0	0.002242	0.008	0.007588	286.5922	0	73.23161	0.002925	0	0.081262	0.005394	0	0.035089	0.011654	0	0.381731	0.098272	0.249754	1.530333	0.017001	0	0.417946	0.098272	0.249754	1.530333	0.032827	0.847106	0	3.666246	0.002833	0	0.000724
Santa Clara	2022	LDA	Aggregate	Aggregate	Diesel	1988.847	60930.09	60930.09	0	8564.495	0.263546	0	0	0.019976	0	0	0.002	0.00269	0.020879	0	0	0.008	0.007686	236.1825	0	0	0.00151	0	0	0.037211	0	0	0.032513	0	0	0	0	0	0.037014	0	0	0	0	0	0	0.0031	0.352928	0	0	0.002238	0	0
Santa Clara	2022	LDA	Aggregate	Aggregate	Electricity	49768.56	2058456	0	2058456	247155.6	0	0	0	0	0	0	0.002	0.001531	0	0	0	0.008	0.004374	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2022	LDA	Aggregate	Aggregate	Plug-in Hyb	14080.33	626833.5	326494.8	300338.7	58222.18	0.003418	0	0.11551	0.000718	0	0.002292	0.002	0.001368	0.000781	0	0.002492	0.008	0.003908	145.4156	0	67.00344	0.000469	0	0.042745	0.000623	0	0.021047	0.001478	0	0.173285	0.039673	0.035067	0.451466	0.002157	0	0.189725	0.039673	0.035067	0.451466	0.019838	0.225059	0	1.339893	0.001438	0	0.000662
Santa Clara	2022	LDT1	Aggregate	Aggregate	Gasoline	54974.08	1779154	1779154	0	245182.1	0.160037	0	0.42895	0.001971	0	0.003006	0.002	0.003236	0.002144	0	0.003269	0.008	0.009246	337.6582	0	90.2374	0.007798	0	0.120165	0.011179	0	0.040992	0.03517	0	0.630523	0.182138	0.532387	2.932213	0.051284	0	0.69034	0.182138	0.532387	2.932213	0.035502	1.699209	0	6.115696	0.003338	0	0.000892
Santa Clara	2022	LDT1	Aggregate	Aggregate	Diesel	28.88602	444.5778	444.5778	0	84.95747	1.664076	0	0	0.241157	0	0	0.002	0.003731	0.252061	0	0	0.008	0.01066	415.6333	0	0	0.013984	0	0	0.065483	0	0	0.301058	0	0	0	0	0	0.342735	0	0	0	0	0	0	0.0031	1.609282	0	0	0.003938	0	0
Santa Clara	2022	LDT1	Aggregate	Aggregate	Electricity	182.9928	6367.047	0	6367.047	860.9347	0	0	0	0	0	0	0.002	0.001541	0	0	0	0.008	0.004403	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2022	LDT1	Aggregate	Aggregate	Plug-in Hyb	24.31577	1158.953	555.2268	603.7259	100.5457	0.003144	0	0.11551	0.00042	0	0.001472	0.002	0.001376	0.000457	0	0.001601	0.008	0.003931	133.8425	0	72.47977	0.00043	0	0.042675	0.000571	0	0.020981	0.001359	0	0.173285	0.025111	0.023155	0.300675	0.001984	0	0.189725	0.025111	0.023155	0.300675	0.020121	0.207476	0	1.339893	0.001323	0	0.000717
Santa Clara	2022	LDT2	Aggregate	Aggregate	Gasoline	274728.5	9911730	9911730	0	1286654	0.087216	0	0.387125	0.001308	0	0.002055	0.002	0.003124	0.001422	0	0.002235	0.008	0.008926	356.4003	0	91.81508	0.003418	0	0.092802	0.006919	0	0.040202	0.013801	0	0.439671	0.088088	0.231141	1.442564	0.020134	0	0.481384	0.088088	0.231141	1.442564	0.034673	0.960886	0	4.129331	0.003523	0	0.000908
Santa Clara	2022	LDT2	Aggregate	Aggregate	Diesel	933.788	35569.23	35569.23	0	4479.453	0.049482	0	0	0.005617	0	0	0.002	0.003089	0.005871	0	0	0.008	0.008825	318.4071	0	0	0.000662	0	0	0.050165	0	0	0.01425	0	0	0	0	0	0.016223	0	0	0	0	0	0	0.0031	0.132603	0	0	0.003017	0	0
Santa Clara	2022	LDT2	Aggregate	Aggregate	Electricity	669.3585	23693.95	0	23693.95	3436.204	0	0	0	0	0	0	0.002	0.001524	0	0	0	0.008	0.004354	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2022	LDT2	Aggregate	Aggregate	Plug-in Hyb	1256.28	57825.99	28723.51	29102.47	5194.718	0.003259	0	0.11551	0.000565	0	0.001911	0.002	0.001372	0.000614	0	0.002078	0.008	0.00392	138.7462	0	78.65334	0.000446	0	0.042681	0.000592	0	0.020988	0.00141	0	0.173285	0.026873	0.02547	0.333582	0.002057	0	0.189725	0.026873	0.02547	0.333582	0.020799	0.214984	0	1.339893	0.001372	0	0.000778
Santa Clara	2022	LHDT1	Aggregate	Aggregate	Gasoline	19023.54	692949.2	692949.2	0	283422.4	0.22563	0.03858	0.680855	0.001666	0	0.000355	0.002	0.0273	0.001812	0	0.000386	0.008	0.078	910.666	121.4496	25.8752	0.010696	0.11838	0.036173	0.012587	0.003045	0.052713	0.053941	0.441903	0.181796	0.053097	0.287419	3.005479	0.078711	0.644824	0.199044	0.053097	0.287419	3.005479	0.044851	1.310703	3.750518	3.032062	0.009003	0.001201	0.000256
Santa Clara	2022	LHDT1	Aggregate	Aggregate	Diesel	9466.897	364941.3	364941.3	0	119081.7	2.046185	2.148991	0	0.042212	0.027161	0	0.003	0.0273	0.044121	0.028389	0	0.012	0.078	640.1321	134.8074	0	0.009365	0.005098	0	0.100853	0.021239	0	0.201618	0.10976	0	0	0	0	0.229529	0.124954	0	0	0	0	0	0.156672	0.574472	0.909745	0	0.006066	0.001277	0
Santa Clara	2022	LHDT2	Aggregate	Aggregate	Gasoline	2479.119	89333.8	89333.8	0	36935.18	0.214022	0.038116	0.662237	0.001522	0	0.000288	0.002	0.03185	0.001655	0	0.000313	0.008	0.091	1017.016	140.0339	25.93331	0.008303	0.117781	0.035049	0.012366	0.003023	0.05141	0.03933	0.436803	0.174741	0.049582	0.263161	2.773988	0.057391	0.637382	0.19132	0.049582	0.263161	2.773988	0.044954	1.055116	3.755463	3.106689	0.010054	0.001384	0.000256
Santa Clara	2022	LHDT2	Aggregate	Aggregate	Diesel	4276.175	167672	167672	0	53788.9	1.602621	2.114348	0	0.036809	0.027077	0	0.003	0.03185	0.038473	0.028302	0	0.012	0.091	773.4619	214.911	0	0.00832	0.005098	0	0.121859	0.033859	0	0.179126	0.10976	0	0	0	0	0.203923	0.124954	0	0	0	0	0	0.1727	0.476085	0.909745	0	0.007329	0.002036	0
Santa Clara	2022	MCY	Aggregate	Aggregate	Gasoline	27595.09	162924	162924	0	55190.18	0.60517	0	0.149724	0.001772	0	0.003556	0.001	0.0042	0.001891	0	0.003773	0.004	0.012	188.9834	0	50.90901	0.173457	0	0.19335	0.041009	0	0.008761	1.156556	0	1.442993	3.560376	3.734124	3.980024	1.378949	0	1.568432	3.560376	3.734124	3.980024	0.008705	13.58248	0	8.107621	0.001868	0	0.000503
Santa Clara	2022	MDV	Aggregate	Aggregate	Gasoline	150747.3	5216512	5216512	0	697659.3	0.136769	0	0.517519	0.001357	0	0.002255	0.002	0.003193	0.001475	0	0.002452	0.008	0.009123	432.3749	0	111.8318	0.005018	0	0.119363	0.009481	0	0.045397	0.021781	0	0.614579	0.106179	0.293735	1.762049	0.031733	0	0.672881	0.106179	0.293735	1.762049	0.034617	1.174347	0	4.66825	0.004274	0	0.001106
Santa Clara	2022	MDV	Aggregate	Aggregate	Diesel	2337.328	86668.85	86668.85	0	11158.46	0.05815	0	0	0.005454	0	0	0.002	0.003153	0.0057	0	0	0.008	0.009009	416.0626	0	0	0.000553	0	0	0.065551	0	0	0.011906	0	0	0	0	0	0.013554	0	0	0	0	0	0	0.0031	0.20344	0	0	0.003942	0	0
Santa Clara	2022	MDV	Aggregate	Aggregate	Electricity	623.6975	22215.8	0	22215.8	3205.616	0	0	0	0	0	0	0.002	0.001523	0	0	0	0.008	0.004351	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2022	MDV	Aggregate	Aggregate	Plug-in Hyb	789.5612	33722.81	17285.18	16437.63	3264.836	0.003363	0	0.11551	0.000723	0	0.002366	0.002	0.001369	0.000786	0	0.002574	0.008	0.003913	143.13	0	98.87937	0.000458	0	0.042456	0.000605	0	0.020778	0.001454	0	0.173285	0.030414	0.029758	0.381921	0.002122	0	0.189725	0.030414	0.029758	0.381921	0.021528	0.22163	0	1.339893	0.001415	0	0.000978
Santa Clara	2022	MH	Aggregate	Aggregate	Gasoline	2642.084	23105.28	23105.28	0	264.3141	0.551445	0	0.40416	0.001917	0	0.000461	0.003	0.015756	0.002085	0	0.000502	0.012	0.045017	1949.266	0	32.13484	0.02167	0	0.038467	0.030967	0	0.041056	0.101032	0	0.168576	13.95792	0.32254	4.985527	0.147425	0	0.184569	13.95792	0.32254	4.985527	0.044583	2.705832	0	3.782453	0.01927	0	0.000318
Santa Clara	2022	MH	Aggregate	Aggregate	Diesel	940.8008	9155.21	9155.21	0	94.08008	4.438358	0	0	0.104654	0	0	0.004	0.015675	0.109386	0	0	0.016	0.044785	1080.89	0	0	0.005865	0	0	0.170295	0	0	0.126278	0	0	0	0	0	0.143759	0	0	0	0	0	0	0.143863	0.424501	0	0	0.010242	0	0
Santa Clara	2022	MHDT	Aggregate	Aggregate	Gasoline	1426.535	69284.18	69284.18	0	28542.11	0.686176	0.088062	0.462297	0.001432	0	0.000593	0.003	0.015756	0.001558	0	0.000645	0.012	0.045017	1819.358	542.4673	48.22005	0.022377	0.249961	0.051086	0.030967	0.006806	0.032093	0.113907	1.006391	0.293642	0.041091	0.336192	3.327263	0.166213	1.468523	0.321501	0.041091	0.336192	3.327263	0.044929	2.41434	15.04306	6.517433	0.017986	0.005363	0.000477
Santa Clara	2022	MHDT	Aggregate	Aggregate	Diesel	10189.55	428042.3	428042.3	0	121266.8	1.73167	15.28688	1.483339	0.020297	0.042841	0	0.003	0.015941	0.021215	0.044778	0	0.012	0.045546	1158.231	2324.123	0	0.002426	0.013407	0	0.18248	0.366167	0	0.052238	0.288656	0	0	0	0	0.05947	0.328613	0	0	0	0	0	0.196531	0.168917	7.277505	0	0.010968	0.022008	0
Santa Clara	2022	MHDT	Aggregate	Aggregate	Natural Ga	84.48052	3914.205	3914.205	0	796.8889	0.162027	6.474875	0	0.001029	0.016219	0	0.003	0.016011	0.001119	0.01764	0	0.012	0.045746	1002.329	5210.514	0	0.725882	17.91735	0	0.204331	1.062197	0	0.010371	0.256004	0	0	0	0	0.740815	18.28597	0	0	0	0	0	1.06	2.991509	30.51881	0	0	0	0
Santa Clara	2022	OBUS	Aggregate	Aggregate	Gasoline	470.9234	21653.3	21653.3	0	9422.235	0.596343	0.064966	0.407047	0.000863	0	0.000262	0.003	0.01568	0.000939	0	0.000285	0.012	0.044799	1804.41	384.2235	32.13915	0.017165	0.194553	0.036748	0.027969	0.005221	0.030733	0.084851	0.744858	0.194941	0.033671	0.142865	2.559429	0.123815	1.086895	0.213436	0.033671	0.142865	2.559429	0.044907	1.918016	5.766114	4.119591	0.017838	0.003798	0.000318
Santa Clara	2022	OBUS	Aggregate	Aggregate	Diesel	852.1679	61336.68	61336.68	0	8739.295	1.430263	8.186956	1.463102	0.021712	0.009363	0	0.003	0.01808	0.022694	0.009786	0	0.012	0.051656	1287.997	1601.524	0	0.002446	0.020931	0	0.202924	0.252321	0	0.052654	0.450629	0	0	0	0	0.059942	0.513007	0	0	0	0	0	0.209454	0.176751	7.212161	0	0.012197	0.015165	0
Santa Clara	2022	OBUS	Aggregate	Aggregate	Natural Ga	6.12419	392.3999	392.3999	0	54.50529	0.261572	1.567279	0	0.000722	0.003187	0	0.003	0.016148	0.000785	0.003466	0	0.012	0.046137	1035.05	1183.472	0	0.750937	4.605624	0	0.211002	0.241259	0	0.010729	0.065805	0	0	0	0	0.766387	4.700378	0	0	0	0	0	1.06	3.149633	5.746939	0	0	0	0
Santa Clara	2022	SBUS	Aggregate	Aggregate	Gasoline	160.4139	7959.43	7959.43	0	641.6556	0.522721	0.925562	0.689048	0.000853	0	0.00055	0.002	0.015721	0.000928	0	0.000599	0.008	0.044917	820.0467	2616.389	59.14656	0.01243	2.458676	0.074784	0.027982	0.086242	0.063619	0.606464	10.62737	0.42659	0.108472	0.246255	1.510943	0.088229	15.50744	0.467063	0.108472	0.246255	1.510943	0.045	1.548936	82.15497	10.71476	0.008107	0.025866	0.000585
Santa Clara	2022	SBUS	Aggregate	Aggregate	Diesel	662.5162	15413.71	15413.71	0	9593.235	4.235498	22.873	0.450634	0.022112	0.02288	0	0.003	0.015721	0.023112	0.023915	0	0.012	0.044917	1152.917	2246.353	0	0.002834	0.008182	0	0.181642	0.353914	0	0.061017	0.17615	0	0	0	0	0.069464	0.200533	0	0	0	0	0	0.140239	0.185604	4.488491	0	0.010917	0.021272	0
Santa Clara	2022	SBUS	Aggregate	Aggregate	Natural Ga	22.59677	578.3532	578.3532	0	327.2012	0.608852	5.295722	0	0.003378	0.010765	0	0.003	0.015721	0.003674	0.011708	0	0.012	0.044917	1281.922	4050.07	0	3.549889	15.56318	0	0.261328	0.825633	0	0.050721	0.222367	0	0	0	0	3.622922	15.88337	0	0	0	0	0	1.06	12.18179	19.41173	0	0	0	0
Santa Clara	2022	UBUS	Aggregate	Aggregate	Gasoline	45.81104	4784.037	4784.037	0	183.2442	0.03147	0	0.560776	0.000899	0	8.88E-05	0.002	0.03185	0.000978	0	9.66E-05	0.008	0.091	974.6428	0	38.21309	0.002303	0	0.053785	0.004696	0	0.082445	0.006534	0	0.197701	0.064874	0.125778	0.787098	0.009534	0	0.216458	0.064874	0.125778	0.787098	0.045	0.577943	0	5.5933	0.009635	0	0.000378
Santa Clara	2022	UBUS	Aggregate	Aggregate	Diesel	435.6475	48716.13	48716.13	0	1742.59	0.386257	0	0	0.007023	0	0	0.0083	0.0385	0.00734	0	0	0.0332	0.11	1100.743	0	0	0.003215	0	0	0.173422	0	0	0.069208	0	0	0	0	0	0.078788	0	0	0	0	0	0	0.187775	0.079368	0	0	0.01043	0	0
Santa Clara	2022	UBUS	Aggregate	Aggregate	Electricity	5.046757	199.0027	0	199.0027	20.18703	0	0	0	0	0	0	0.009	0.01925	0	0	0	0.036	0.055	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2022	UBUS	Aggregate	Aggregate	Natural Ga	41.84875	4783.781	4783.781	0	167.395	0.058772	0	0	0.000282	0	0	0.008181	0.0385	0.000295	0	0	0.032723	0.11	1299.039	0	0	4.245393	0	0	0.264818	0	0	0.060658	0	0	0	0	0	4.332735	0	0	0	0	0	0	0.97	49.03622	0	0	0	0	0

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: Santa Clara
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	NOx_RUNEX	NOx_IDLEX	NOx_STREX	PM2.5_RU	PM2.5_IDL	PM2.5_STR	PM2.5_PM	PM2.5_PM	PM10_RUI	PM10_IDL	PM10_STR	PM10_PM	PM10_PM	CO2_RUNEX	CO2_IDLEX	CO2_STREX	CH4_RUNEX	CH4_IDLEX	CH4_STREX	N2O_RUNEX	N2O_IDLEX	N2O_STREX	ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTS	ROG_RUNL	ROG_DIUR	TOG_RUNEX	TOG_IDLEX	TOG_STREX	TOG_HOTS	TOG_RUNL	TOG_DIUR	NH3_RUNEX	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNE	SOx_IDLEX	SOx_STREX
Santa Clara	2023	HHDT	Aggregate	Aggregate	Gasoline	3.454009	114.3093	114.3093	0	69.10781	8.107874	0	1.602501	0.00493	0	0.0017	0.005	0.035266	0.005362	0	0.001849	0.02	0.100759	2306.817	0	49.81185	0.340225	0	0.00018	0.208909	0	0.045697	2.104867	0	0.000979	0.158374	1.426645	10.65375	3.071416	0	0.001072	0.158374	1.426645	10.65375	0.040468	83.0074	0	1.02738	0.022805	0	0.000492
Santa Clara	2023	HHDT	Aggregate	Aggregate	Diesel	8235.059	991289	991289	0	120860.8	1.969368	63.40488	2.849455	0.025957	0.031631	0	0.008769	0.027531	0.027131	0.033061	0	0.035077	0.078661	1656.801	12241.32	0	0.000809	0.237446	0	0.26103	1.928625	0	0.017417	5.112156	0	0	0	0	0.019828	5.819801	0	0	0	0	0.214624	0.087393	74.20136	0	0.015689	0.115918	0
Santa Clara	2023	HHDT	Aggregate	Aggregate	Electricity	6.70171	411.5054	0	411.5054	103.2044	0	0	0	0	0	0	0	0	0	0	0	0.03496	0.038238	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2023	HHDT	Aggregate	Aggregate	Natural Ga	753.7366	53295.97	53295.97	0	6914.034	1.208444	13.92832	0	0.001774	0.024237	0	0.009	0.046729	0.001929	0.02636	0	0.036	0.133512	1398.51	10630.2	0	2.44811	37.44665	0	0.285095	2.167036	0	0.054572	0.572265	0	0	0	0	2.520799	38.25947	0	0	0	0	0.860105	13.78246	74.03965	0	0	0	0
Santa Clara	2023	LDA	Aggregate	Aggregate	Gasoline	601938.3	22370251	22370251	0	2795479	0.047412	0	0.27189	0.001217	0	0.001992	0.002	0.002656	0.001323	0	0.002167	0.008	0.007588	281.43	0	71.66478	0.002603	0	0.076449	0.004995	0	0.034134	0.01016	0	0.353794	0.094758	0.240611	1.480552	0.014823	0	0.387359	0.094758	0.240611	1.480552	0.033781	0.787617	0	3.436611	0.002782	0	0.000708
Santa Clara	2023	LDA	Aggregate	Aggregate	Diesel	1871.125	56220.8	56220.8	0	8000.531	0.238318	0	0	0.018559	0	0	0.002	0.002698	0.019399	0	0	0.008	0.007709	234.426	0	0	0.001413	0	0	0.036934	0	0	0.030417	0	0	0	0	0	0.034627	0	0	0	0	0	0.0031	0.342459	0	0	0.002221	0	0
Santa Clara	2023	LDA	Aggregate	Aggregate	Electricity	53751.15	2268185	0	2268185	265250.1	0	0	0	0	0	0	0.002	0.001532	0	0	0	0.008	0.004377	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2023	LDA	Aggregate	Aggregate	Plug-in Hyb	15805.32	700610.9	356649.7	343961.3	65355	0.00334	0	0.11551	0.000664	0	0.002171	0.002	0.001373	0.000722	0	0.002361	0.008	0.003922	142.1102	0	66.08871	0.000457	0	0.042604	0.000605	0	0.020916	0.001444	0	0.173285	0.040642	0.036088	0.447056	0.002108	0	0.189725	0.040642	0.036088	0.447056	0.019705	0.219913	0	1.339893	0.001405	0	0.000653
Santa Clara	2023	LDT1	Aggregate	Aggregate	Gasoline	53782.25	1744480	1744480	0	239737.9	0.143293	0	0.404336	0.00185	0	0.002837	0.002	0.003239	0.002012	0	0.003085	0.008	0.009253	332.6535	0	88.31133	0.006987	0	0.112557	0.010257	0	0.039834	0.031222	0	0.583212	0.174145	0.503091	2.807011	0.045546	0	0.638542	0.174145	0.503091	2.807011	0.035775	1.553409	0	5.660037	0.003289	0	0.000873
Santa Clara	2023	LDT1	Aggregate	Aggregate	Diesel	26.04714	391.8698	391.8698	0	75.17737	1.659056	0	0	0.24041	0	0	0.002	0.003728	0.25128	0	0	0.008	0.010651	415.548	0	0	0.013928	0	0	0.06547	0	0	0.299852	0	0	0	0	0	0.341362	0	0	0	0	0	0.0031	1.601395	0	0	0.003938	0	0
Santa Clara	2023	LDT1	Aggregate	Aggregate	Electricity	194.8941	7068.184	0	7068.184	916.4832	0	0	0	0	0	0	0.002	0.00154	0	0	0	0.008	0.0044	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2023	LDT1	Aggregate	Aggregate	Plug-in Hyb	43.27677	2048.369	944.1579	1104.211	178.9495	0.003025	0	0.11551	0.000387	0	0.00141	0.002	0.001383	0.000421	0	0.001534	0.008	0.003951	128.7649	0	70.86641	0.000412	0	0.042439	0.000544	0	0.020762	0.001308	0	0.173285	0.024584	0.021781	0.285922	0.001909	0	0.189725	0.024584	0.021781	0.285922	0.019359	0.199575	0	1.339893	0.001273	0	0.000701
Santa Clara	2023	LDT2	Aggregate	Aggregate	Gasoline	280180.4	10140967	10140967	0	1311796	0.077207	0	0.358346	0.001265	0	0.002003	0.002	0.003125	0.001375	0	0.002179	0.008	0.008929	348.3961	0	89.54446	0.003121	0	0.087759	0.006381	0	0.038646	0.012417	0	0.410727	0.085119	0.224187	1.404898	0.018118	0	0.449694	0.085119	0.224187	1.404898	0.035545	0.896823	0	3.892097	0.003444	0	0.000885
Santa Clara	2023	LDT2	Aggregate	Aggregate	Diesel	978.4967	36936.87	36936.87	0	4673.401	0.046157	0	0	0.005431	0	0	0.002	0.003102	0.005677	0	0	0.008	0.008863	313.0666	0	0	0.00065	0	0	0.049324	0	0	0.013984	0	0	0	0	0	0.015919	0	0	0	0	0	0.0031	0.132099	0	0	0.002966	0	0
Santa Clara	2023	LDT2	Aggregate	Aggregate	Electricity	1105.879	38931.7	0	38931.7	5663.051	0	0	0	0	0	0	0.002	0.001525	0	0	0	0.008	0.004357	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2023	LDT2	Aggregate	Aggregate	Plug-in Hyb	1696.55	77270.66	37142.68	40127.98	7015.234	0.003154	0	0.11551	0.000504	0	0.001759	0.002	0.001378	0.000548	0	0.001913	0.008	0.003938	134.2545	0	77.03601	0.000429	0	0.042457	0.000568	0	0.020778	0.001364	0	0.173285	0.02624	0.024448	0.318232	0.00199	0	0.189725	0.02624	0.024448	0.318232	0.020144	0.207985	0	1.339893	0.001327	0	0.000762
Santa Clara	2023	LHDT1	Aggregate	Aggregate	Gasoline	19180.96	711085.5	711085.5	0	285767.8	0.197814	0.037373	0.6588	0.001595	0	0.000328	0.002	0.0273	0.001734	0	0.000356	0.008	0.078	889.7424	120.2664	25.83956	0.009485	0.115635	0.034516	0.011082	0.003012	0.051891	0.047656	0.428153	0.172233	0.050564	0.277601	2.913784	0.069539	0.62476	0.188574	0.050564	0.277601	2.913784	0.044872	1.225109	3.753425	3.080251	0.008796	0.001189	0.000255
Santa Clara	2023	LHDT1	Aggregate	Aggregate	Diesel	9807.465	384084.8	384084.8	0	123365.6	1.780633	2.029274	0	0.038253	0.026974	0	0.003	0.0273	0.039983	0.028193	0	0.012	0.078	635.427	132.908	0	0.008623	0.005098	0	0.100112	0.02094	0	0.185652	0.10976	0	0	0	0	0.211352	0.124954	0	0	0	0	0.16551	0.518876	0.909745	0	0.006021	0.001259	0
Santa Clara	2023	LHDT2	Aggregate	Aggregate	Gasoline	2494.382	90793.04	90793.04	0	37162.58	0.187016	0.036817	0.642061	0.001446	0	0.00026	0.002	0.03185	0.001572	0	0.000283	0.008	0.091	997.3845	138.7974	25.72325	0.007074	0.114568	0.033461	0.01097	0.002967	0.050452	0.033047	0.42203	0.165607	0.046993	0.25097	2.676301	0.048222	0.613826	0.181319	0.046993	0.25097	2.676301	0.044967	0.961891	3.759407	3.119312	0.00986	0.001372	0.000254
Santa Clara	2023	LHDT2	Aggregate	Aggregate	Diesel	4479.532	176769.2	176769.2	0	56346.87	1.416942	1.998258	0	0.034177	0.027026	0	0.003	0.03185	0.035723	0.028248	0	0.012	0.091	764.5039	212.1206	0	0.007824	0.005098	0	0.120448	0.03342	0	0.168448	0.10976	0	0	0	0	0.191767	0.124954	0	0	0	0	0.178982	0.44054	0.909745	0	0.007244	0.00201	0
Santa Clara	2023	MCY	Aggregate	Aggregate	Gasoline	27894.5	164894.5	164894.5	0	55788.99	0.586927	0	0.142374	0.001778	0	0.003413	0.001	0.0042	0.001899	0	0.003626	0.004	0.012	188.3093	0	49.59811	0.167622	0	0.187482	0.040223	0	0.008379	1.105923	0	1.392636	3.5601	3.745685	3.947874	1.324135	0	1.513873	3.5601	3.745685	3.947874	0.00876	13.08956	0	8.051197	0.001862	0	0.00049
Santa Clara	2023	MDV	Aggregate	Aggregate	Gasoline	153799.1	5358084	5358084	0	712433.9	0.11759	0	0.470106	0.001289	0	0.002144	0.002	0.003187	0.001402	0	0.002331	0.008	0.009106	422.6791	0	109.0331	0.004406	0	0.110292	0.008479	0	0.043081	0.018826	0	0.559259	0.101975	0.285798	1.72733	0.02744	0	0.612315	0.101975	0.285798	1.72733	0.035428	1.067328	0	4.333252	0.004179	0	0.001078
Santa Clara	2023	MDV	Aggregate	Aggregate	Diesel	2374.918	86834.44	86834.44	0	11267.05	0.053096	0	0	0.00515	0	0	0.002	0.003181	0.005383	0	0	0.008	0.00909	411.1632	0	0	0.000529	0	0	0.064779	0	0	0.011397	0	0	0	0	0	0.012975	0	0	0	0	0	0.0031	0.202592	0	0	0.003896	0	0
Santa Clara	2023	MDV	Aggregate	Aggregate	Electricity	1130.115	40073.7	0	40073.7	5799.833	0	0	0	0	0	0	0.002	0.001524	0	0	0	0.008	0.004354	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2023	MDV	Aggregate	Aggregate	Plug-in Hyb	986.0895	41899.14	20787.35	21111.79	4077.48	0.003256	0	0.11551	0.000638	0	0.002151	0.002	0.001376	0.000693	0	0.002339	0.008	0.00393	138.532	0	96.68489	0.000441	0	0.042261	0.000581	0	0.020595	0.001408	0	0.173285	0.02985	0.028058	0.359617	0.002054	0	0.189725	0.02985	0.028058	0.359617	0.020837	0.214483	0	1.339893	0.00137	0	0.000956
Santa Clara	2023	MH	Aggregate	Aggregate	Gasoline	2522.745	22546.87	22546.87	0	252.3754	0.479133	0	0.412521	0.001781	0	0.000428	0.003	0.015756	0.001937	0	0.000466	0.012	0.045017	1948.243	0	31.87585	0.018146	0	0.038028	0.02809	0	0.042647	0.082252	0	0.163779	13.03985	0.30297	4.773625	0.120022	0	0.179318	13.03985	0.30297	4.773625	0.044742	2.111943	0	3.629376	0.01926	0	0.000315
Santa Clara	2023	MH	Aggregate	Aggregate	Diesel	959.1578	9344.849	9344.849	0	95.91578	4.269554	0	0	0.097907	0	0	0.004	0.015675	0.102334	0	0	0.016	0.044785	1081.435	0	0	0.005704	0	0	0.17038	0	0	0.122812	0	0	0	0	0	0.139813	0	0	0	0	0	0.150005	0.410284	0	0	0.010247	0	0
Santa Clara	2023	MHDT	Aggregate	Aggregate	Gasoline	1418.703	70785.86	70785.86	0	28385.41	0.562864	0.088304	0.453053	0.001386	0	0.000555	0.003	0.015756	0.001507	0	0.000603	0.012	0.045017	1792.411	536.9661	47.19918	0.018074	0.254589	0.049387	0.026381	0.007064	0.032566	0.09086	1.010025	0.279571	0.037187	0.302385	3.037923	0.132583	1.473826	0.306095	0.037187	0.302385	3.037923	0.04497	1.909686	15.08517	6.156285	0.01772	0.005308	0.000467
Santa Clara	2023	MHDT	Aggregate	Aggregate	Diesel	10273.55	431550.4	431550.4	0	122418.2	1.337342	13.57242	1.624162	0.016518	0.035742	0	0.003	0.015941	0.017265	0.037358	0	0.012	0.045546	1151.562	2263.789	0	0.001721	0.012298	0	0.181429	0.356661	0	0.037048	0.26478	0	0	0	0	0.042176	0.301431	0	0	0	0	0.209014	0.132571	7.583386	0	0.010905	0.021437	0
Santa Clara	2023	MHDT	Aggregate	Aggregate	Electricity	4.749835	101.8022	0	101.8022	59.6458	0	0	0	0	0	0	0.003	0.00799	0	0	0	0.012	0.022828	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2023	MHDT	Aggregate	Aggregate	Natural Ga	83.841	4047.874	4047.874	0	762.81	0.141319	6.52743	0	0.001137	0.017647	0	0.003	0.016002	0.001236	0.019193	0	0.012	0.045721	989.385	5296.533	0	0.740055	17.59163	0	0.201693	1.079733	0	0.010574	0.25135	0	0	0	0	0.755281	17.95355	0	0	0	0	1.06	2.992708	33.64344	0	0	0	0
Santa Clara	2023	OBUS	Aggregate	Aggregate	Gasoline	458.8974	20830.08	20830.08	0	9181.619	0.553081	0.064991	0.405616	0.000893	0	0.000264	0.003	0.01568	0.000972	0	0.000287	0.012	0.044799	1784.092	381.8461	31.89445	0.015808	0.194938	0.036281	0.026177	0.005253	0.030766	0.078109	0.745234	0.192301	0.034706	0.154035	2.766253	0.113977	1.087444	0.210546	0.034706	0.154035	2.766253	0.044918	1.743956	5.768375	4.071703	0.017638	0.003775	0.000315
Santa Clara	2023	OBUS	Aggregate	Aggregate	Diesel	870.4209	61645.66	61645.66	0	8910.755	1.203188	7.410097	1.541404	0.020323	0.008632	0	0.003	0.018018	0.021242	0.009022	0	0.012	0.05148	1282.538	1552.949	0	0.001991	0.020568	0	0.202064	0.244668	0	0.04286	0.442828	0	0	0	0	0.048793	0.504126	0	0	0	0	0.215865	0.153454	7.510858	0	0.012145	0.014706	0
Santa Clara	2023	OBUS	Aggregate	Aggregate	Natural Ga	6.1456	409.5466	409.5466	0	54.69584	0.219315	1.549107	0	0.000923	0.00362	0	0.003	0.016148	0.001004	0.003937	0	0.012	0.046137	1017.405	1188.285	0	0.774069	4.381267	0	0.207405	0.24224	0	0.01106	0.0626	0	0	0	0	0.789994	4.471404	0	0	0	0	1.06	3.211954	6.724204	0	0	0	0
Santa Clara	2023	SBUS	Aggregate	Aggregate	Gasoline	166.9867	8309.308	8309.308	0	667.9468	0.519317	0.925703	0.7051	0.000862	0	0.00056	0.002	0.015721	0.000937	0	0.000609	0.008	0.044917	815.0909	2602.033	58.66947	0.011871	2.46208	0.074918	0.027733	0.086224	0.064904	0.057744	10.62943	0.427061	0.112221	0.259299	1.591441	0.084259	15.51043	0.467578	0.112221	0.259299	1.591441	0.045	1.469507	82.16746	10.56434	0.008058	0.025724	0.00058
Santa Clara	2023	SBUS	Aggregate	Aggregate	Diesel	667.1185	15392.68	15392.68	0	9659.876	4.028015	22.39863	0.467155	0.020908	0.02125	0	0.003	0.015721	0.021853	0.022211	0	0.012	0.044917	1148.524	2237.814	0	0.002748	0.008083	0	0.18095	0.352568	0	0.059161	0.174017	0	0	0	0	0.06735	0.198106	0	0	0	0	0.144154	0.181489	4.581854	0	0.010876	0.021191	0
Santa Clara	2023	SBUS	Aggregate	Aggregate	Electricity	0.302373	3.510494	0	3.510494	4.378365	0	0	0	0	0	0	0.003	0.00786	0	0	0	0.012	0.022459	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2023	SBUS	Aggregate	Aggregate	Natural Ga	23.50762	595.8705	595.8705	0	340.3903	0.587321	5.282702	0	0.003378	0.011076	0	0.003	0.015721	0.003674	0.012046	0	0.012	0.044917	1271.127	4058.811	0	3.490611	15.40242	0	0.259128	0.827415	0	0.049874	0.22007	0	0	0	0	0.362424	15.7193	0	0	0	0	1.06	11.90284	20.11199	0	0	0	0
Santa Clara	2023	UBUS	Aggregate	Aggregate	Gasoline	45.94709	4798.244	4798.244	0	183.7884	0.026807	0	0.443444	0.001143	0	0.000128	0.002	0.03185	0.001243	0	0.00014	0.008	0.091	926.2924	0	36.84613	0.002031	0	0.041715	0.004215	0	0.070149	0.005614	0	0.147842	0.038144	0.09212	0.456803	0.008192	0	0.161868	0.038144	0.09212	0.456803	0.045	0.571128	0	6.073786	0.009157	0	0.000364
Santa Clara	2023	UBUS	Aggregate	Aggregate	Diesel	436.6681	48829.71	48829.71	0	1746.672	0.386256	0	0	0.007022	0	0	0.0083	0.0385	0.00734	0	0	0.0332	0.11	1100.965	0	0	0.003215	0	0	0.173457	0	0	0.065028	0	0	0	0	0	0.078788	0	0	0	0	0	0.18785	0.079368	0	0	0.010432	0	0
Santa Clara	2023	UBUS	Aggregate	Aggregate	Electricity	5.046757	199.0027	0	199.0027	20.18703	0	0	0	0	0	0	0.009	0.01925	0	0	0	0.036	0.055	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2023	UBUS	Aggregate	Aggregate	Natural Ga	42.26114	4829.673	4829.673	0	169.0446	0.05878	0	0	0.000282	0	0	0.008182	0.0385	0.000295	0	0	0.032727	0.11	1299.127	0	0	4.245742	0	0	0.264835	0	0	0.060663	0	0	0	0	0	4.333091	0	0	0	0	0	0.97	49.04231	0	0	0	0	0

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: Santa Clara
Calendar Year: 2024
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	NOx_RUNEX	NOx_IDLEX	NOx_STREX	PM2.5_RU	PM2.5_IDL	PM2.5_STR	PM2.5_DIU	PM2.5_TIR	PM10_RUI	PM10_IDL	PM10_STR	PM10_DIU	PM10_TIR	CO2_RUNEX	CO2_IDLEX	CO2_STREX	CH4_RUNEX	CH4_IDLEX	CH4_STREX	N2O_RUNEX	N2O_IDLEX	N2O_STREX	ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTS	ROG_RUNL	ROG_DIUR	TOG_RUNEX	TOG_IDLEX	TOG_STREX	TOG_HOTS	TOG_RUNL	TOG_DIUR	NH3_RUNEX	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNE	SOx_IDLEX	SOx_STREX
Santa Clara	2024	HHDT	Aggregate	Aggregate	Gasoline	2.588708	115.1526	115.1526	0	51.79487	7.013725	0	1.695629	0.003612	0	0.001433	0.005	0.03384	0.003929	0	0.001559	0.02	0.096686	2166.164	0	50.04419	0.246012	0	0.000205	0.192927	0	0.049797	1.47824	0	0.001115	0.149022	1.34233	10.02547	2.157045	0	0.001221	0.149022	1.34233	10.02547	0.04274	52.51903	0	1.60109	0.021415	0	0.000495
Santa Clara	2024	HHDT	Aggregate	Aggregate	Diesel	8486.693	1001095	1001095	0	124748.4	1.894567	62.32042	2.898867	0.025674	0.03017	0	0.008877	0.027454	0.026835	0.031534	0	0.035082	0.07844	1634.1	11997.01	0	0.000777	0.23663	0	0.257453	1.890134	0	0.016732	5.094584	0	0	0	0	0.019048	5.799796	0	0	0	0	0	0.215084	0.082524	74.10576	0	0.015474	0.113605	0
Santa Clara	2024	HHDT	Aggregate	Aggregate	Electricity	28.33039	2794.261	0	2794.261	378.7946	0	0	0	0	0	0	0.008585	0.014055	0	0	0	0.034341	0.040158	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2024	HHDT	Aggregate	Aggregate	Natural Ga	794.401	54591.27	54591.27	0	7249.717	1.128254	13.55515	0	0.001724	0.024776	0	0.009	0.047521	0.001875	0.026946	0	0.036	0.135775	1387.534	10583.64	0	2.344742	36.30276	0	0.282858	2.157544	0	0.050833	0.550696	0	0	0	0	0.41272	37.08609	0	0	0	0	0	0.85184	13.40196	74.43135	0	0	0	0
Santa Clara	2024	LDA	Aggregate	Aggregate	Gasoline	600108.2	22290344	22290344	0	2786617	0.042281	0	0.257993	0.001177	0	0.001931	0.002	0.002656	0.00128	0	0.0021	0.008	0.007587	275.9552	0	70.08069	0.002338	0	0.072036	0.004672	0	0.033228	0.008937	0	0.328953	0.090491	0.230394	1.422636	0.013041	0	0.360162	0.090491	0.230394	1.422636	0.034712	0.737516	0	3.233068	0.002728	0	0.000693
Santa Clara	2024	LDA	Aggregate	Aggregate	Diesel	1750.024	51573.48	51573.48	0	7442.61	0.213181	0	0	0.016747	0	0	0.002	0.002706	0.017504	0	0	0.008	0.00773	232.3976	0	0	0.001289	0	0	0.036614	0	0	0.027749	0	0	0	0	0	0.03159	0	0	0	0	0	0.0031	0.331109	0	0	0.002202	0	0
Santa Clara	2024	LDA	Aggregate	Aggregate	Electricity	57627.4	2472767	0	2472767	282733	0	0	0	0	0	0	0.002	0.001533	0	0	0	0.008	0.00438	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2024	LDA	Aggregate	Aggregate	Plug-in Hyb	17457.1	767059.2	381568.7	385490.5	72185.1	0.003264	0	0.11551	0.000618	0	0.00207	0.002	0.001377	0.000672	0	0.002252	0.008	0.003935	138.86	0	65.1247	0.000444	0	0.04244	0.000587	0	0.020762	0.001412	0	0.173285	0.041111	0.037292	0.447104	0.00206	0	0.189725	0.041111	0.037292	0.447104	0.019502	0.214853	0	1.339893	0.001373	0	0.000644
Santa Clara	2024	LDT1	Aggregate	Aggregate	Gasoline	52693.37	1706864	1706864	0	234793.4	0.128357	0	0.381294	0.001737	0	0.002678	0.002	0.00324	0.001889	0	0.002913	0.008	0.009258	327.2571	0	86.38434	0.006261	0	0.105365	0.009424	0	0.03869	0.027741	0	0.539321	0.165332	0.472477	2.667158	0.040475	0	0.590488	0.165332	0.472477	2.667158	0.036079	1.427621	0	5.253053	0.003235	0	0.000854
Santa Clara	2024	LDT1	Aggregate	Aggregate	Diesel	23.46233	343.9308	343.9308	0	66.44459	1.651932	0	0	0.239373	0	0	0.002	0.003724	0.250196	0	0	0.008	0.01064	415.3002	0	0	0.013862	0	0	0.065431	0	0	0.298448	0	0	0	0	0	0.339763	0	0	0	0	0	0.0031	1.593665	0	0	0.003935	0	0
Santa Clara	2024	LDT1	Aggregate	Aggregate	Electricity	211.0028	8008.646	0	8008.646	994.4346	0	0	0	0	0	0	0.002	0.001539	0	0	0	0.008	0.004397	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2024	LDT1	Aggregate	Aggregate	Plug-in Hyb	67.64578	3164.46	1414.302	1750.158	279.7153	0.002933	0	0.11551	0.000367	0	0.001381	0.002	0.001389	0.0004	0	0.001502	0.008	0.003967	124.8456	0	69.31208	0.000397	0	0.042219	0.000522	0	0.020556	0.001268	0	0.173285	0.024153	0.020965	0.279628	0.001851	0	0.189725	0.024153	0.020965	0.279628	0.018771	0.19347	0	1.339893	0.001234	0	0.000685
Santa Clara	2024	LDT2	Aggregate	Aggregate	Gasoline	285585.4	10322758	10322758	0	1336438	0.069091	0	0.334237	0.001227	0	0.001959	0.002	0.003127	0.001334	0	0.00213	0.008	0.008936	340.3247	0	87.29427	0.002864	0	0.082985	0.005943	0	0.037254	0.011242	0	0.384216	0.081741	0.217688	1.368189	0.016404	0	0.420668	0.081741	0.217688	1.368189	0.036359	0.842122	0	3.673764	0.003364	0	0.000863
Santa Clara	2024	LDT2	Aggregate	Aggregate	Diesel	1015.453	37944.26	37944.26	0	4835.434	0.041515	0	0	0.004813	0	0	0.002	0.003113	0.005031	0	0	0.008	0.008895	307.1615	0	0	0.000609	0	0	0.048393	0	0	0.013105	0	0	0	0	0	0.014919	0	0	0	0	0	0.0031	0.129976	0	0	0.002911	0	0
Santa Clara	2024	LDT2	Aggregate	Aggregate	Electricity	1597.567	55532.59	0	55532.59	8150.927	0	0	0	0	0	0	0.002	0.001526	0	0	0	0.008	0.004359	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2024	LDT2	Aggregate	Aggregate	Plug-in Hyb	2116.58	94757.71	44376.61	50381.09	8752.056	0.003073	0	0.11551	0.000467	0	0.001672	0.002	0.001383	0.000508	0	0.001819	0.008	0.003953	130.7877	0	75.60584	0.000416	0	0.042233	0.000547	0	0.020569	0.001329	0	0.173285	0.025949	0.023686	0.309385	0.001939	0	0.189725	0.025949	0.023686	0.309385	0.019635	0.202568	0	1.339893	0.001293	0	0.000747
Santa Clara	2024	LHDT1	Aggregate	Aggregate	Gasoline	19314.14	722529.3	722529.3	0	287751.9	0.17374	0.036221	0.636996	0.001534	0	0.000302	0.002	0.0273	0.001668	0	0.000328	0.008	0.078	871.4559	119.0993	25.78022	0.008358	0.112945	0.032997	0.009778	0.002977	0.050968	0.041718	0.415023	0.163611	0.047402	0.263136	2.768514	0.060875	0.605601	0.179134	0.047402	0.263136	2.768514	0.044898	1.142278	3.756209	3.123927	0.008615	0.001177	0.000255
Santa Clara	2024	LHDT1	Aggregate	Aggregate	Diesel	10107.74	398004.1	398004.1	0	127142.6	1.563015	1.92168	0	0.035058	0.026804	0	0.003	0.0273	0.036643	0.028016	0	0.012	0.078	631.4008	131.1503	0	0.008006	0.005098	0	0.099477	0.020663	0	0.172364	0.10976	0	0	0	0	0.196225	0.124954	0	0	0	0	0	0.172781	0.473594	0.909745	0	0.005983	0.001243	0
Santa Clara	2024	LHDT1	Aggregate	Aggregate	Electricity	70.82836	5110.544	0	5110.544	989.4273	0	0	0	0	0	0	0.002	0.01365	0	0	0	0.008	0.039	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2024	LHDT2	Aggregate	Aggregate	Gasoline	2506.906	91452.57	91452.57	0	37349.16	0.16518	0.035604	0.621534	0.00139	0	0.000239	0.002	0.03185	0.001512	0	0.000259	0.008	0.091	980.0361	137.5922	25.51292	0.006183	0.111453	0.031983	0.009819	0.00291	0.049384	0.028613	0.40822	0.157242	0.04419	0.238167	2.558385	0.041752	0.595674	0.17216	0.04419	0.238167	2.558385	0.044971	0.899209	3.762546	3.129931	0.009689	0.00136	0.000252
Santa Clara	2024	LHDT2	Aggregate	Aggregate	Diesel	4663.455	183558.4	183558.4	0	58660.4	1.266102	1.895403	0	0.032055	0.027	0	0.003	0.03185	0.033504	0.028221	0	0.012	0.091	756.8682	209.5618	0	0.007406	0.005098	0	0.119245	0.033017	0	0.159439	0.10976	0	0	0	0	0.18151	0.124954	0	0	0	0	0	0.184132	0.411861	0.909745	0	0.007172	0.001986	0
Santa Clara	2024	LHDT2	Aggregate	Aggregate	Electricity	18.33259	1253.286	0	1253.286	242.668	0	0	0	0	0	0	0.002	0.015925	0	0	0	0.008	0.0455	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2024	MCY	Aggregate	Aggregate	Gasoline	28171.51	1660222.3	1660222.3	0	56343.02	0.571344	0	0.135477	0.001779	0	0.003248	0.001	0.0042	0.001902	0	0.003456	0.004	0.012	187.743	0	48.37697	0.162609	0	0.181972	0.039558	0	0.00802	1.062175	0	1.345317	3.559276	3.75283	3.900294	1.276951	0	1.462608	3.559276	3.75283	3.900294	0.008808	12.6697	0	8.002987	0.001856	0	0.000478
Santa Clara	2024	MDV	Aggregate	Aggregate	Gasoline	156642.4	5468054	5468054	0	726101.1	0.101279	0	0.42828	0.001229	0	0.002042	0.002	0.003184	0.001336	0	0.002221	0.008	0.009096	412.8049	0	106.2216	0.003873	0	0.10186	0.007628	0	0.040967	0.01626	0	0.508806	0.097051	0.275722	1.677059	0.023715	0	0.557077	0.097051	0.275722	1.677059	0.036179	0.972241	0	4.022964	0.004081	0	0.00105
Santa Clara	2024	MDV	Aggregate	Aggregate	Diesel	2400.615	86292.69	86292.69	0	11318.82	0.048844	0	0	0.004909	0	0	0.002	0.003206	0.005131	0	0	0.008	0.009159	405.6621	0	0	0.00051	0	0	0.063912	0	0	0.010978	0	0	0	0	0	0.012498	0	0	0	0	0	0.0031	0.201538	0	0	0.003844	0	0
Santa Clara	2024	MDV	Aggregate	Aggregate	Electricity	1678.684	58660.63	0	58660.63	8578.496	0	0	0	0	0	0	0.002	0.001525	0	0	0	0.008	0.004358	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2024	MDV	Aggregate	Aggregate	Plug-in Hyb	1250.857	52904.03	25301.52	27602.51	5172.294	0.003138	0	0.11551	0.000561	0	0.001962	0.002	0.001382	0.00061	0	0.002134	0.008	0.003948	133.5372	0	94.06379	0.000423	0	0.042047	0.000554	0	0.020395	0.001357	0	0.173285	0.030318	0.026684	0.341695	0.00198	0	0.189725	0.030318	0.026684	0.341695	0.020087	0.206737	0	1.339893	0.00132	0	0.00093
Santa Clara	2024	MH	Aggregate	Aggregate	Gasoline	2420.57	22012.3	22012.3	0	242.1538	0.420938	0	0.419963	0.001679	0	0.000404	0.003	0.015756	0.001826	0	0.000439	0.012	0.045017	1947.501	0	31.65056	0.015478	0	0.037539	0.025731	0	0.04407	0.06827	0	0.159123	12.21143	0.286769	4.596479	0.09962	0	0.174219	12.21143	0.286769	4.596479	0.044846	1.682224	0	3.497247	0.019253	0	0.000313
Santa Clara	2024	MH	Aggregate	Aggregate	Diesel	977.3606	9498.302	9498.302	0	977.3606	4.117169	0	0	0.091772	0	0	0.004	0.015675	0.095921	0	0	0.016	0.044785	1081.931	0	0	0.005558	0	0	0.170459	0	0	0.11965	0	0	0	0	0	0.136214	0	0	0	0	0	0.155539	0.397281	0	0	0.010252	0	0
Santa Clara	2024	MHDT	Aggregate	Aggregate	Gasoline	1414.552	71600.35	71600.35	0	28302.35	0.470752	0.088485	0.440963	0.001362	0	0.000533	0.003	0.015756	0.001482	0	0.000579	0.012	0.045017	1768.687	531.8002	46.25227	0.015051	0.25808	0.047572	0.022913	0.00727	0.03271	0.074951	1.01271	0.265405	0.033945	0.276365	2.798712	0.109368	1.477744	0.290585	0.033945	0.276365	2.798712	0.04498	1.56073	15.11634	5.825814	0.017485	0.005257	0.000457
Santa Clara	2024	MHDT	Aggregate	Aggregate	Diesel	10390.53	434043.6	434043.6	0	123939	1.232824	13.11952	1.642732	0.014397	0.029902	0	0.003	0.015941	0.015048	0.031254	0	0.012	0.045546	1147.309	2248.547	0	0.001507	0.01158	0	0.180759	0.35426	0	0.032455	0.249319	0	0	0	0	0.036947	0.283831	0	0	0	0	0	0.210532	0.120871	7.556027	0	0.010864	0.021292	0
Santa Clara	2024	MHDT	Aggregate	Aggregate	Electricity	30.91601	1660.353	0	1660.353	407.4536	0	0	0	0	0	0	0.003	0.007956	0	0	0	0.012	0.022732	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2024	MHDT	Aggregate	Aggregate	Natural Ga	90.59449	4303.581	4303.581	0	827.6228	0.133415	6.499719	0	0.001179	0.018131	0	0.003	0.016007	0.001282	0.019719	0	0.012	0.045734	984.6917	5301.101	0	0.74573	17.31409	0	0.200736	1.080664	0	0.010655	0.247384	0	0	0	0	0.761072	17.6703	0	0	0	0	0	1.06	2.995842	34.7393	0	0	0	0
Santa Clara	2024	OBUS	Aggregate	Aggregate	Gasoline	443.1467	19894.31	19894.31	0	8866.48	0.49672	0.06506	0.408547	0.000907	0	0.000252	0.003	0.01568	0.000987	0	0.000274	0.012	0.044799	1764.001	379.4143	31.61308	0.013757	0.195733	0.03606	0.024018	0.005304	0.031028	0.067076	0.746281	0.190964	0.033873	0.154922	2.818385	0.097877	1.088971	0.209081	0.033873	0.154922	2.818385	0.044969	1.491576	5.774637	4.000641	0.017439	0.003751	0.000313
Santa Clara	2024	OBUS	Aggregate	Aggregate	Diesel	893.1376	61949.05	61949.05	0	9141.625	1.178643	7.363387	1.543157	0.019849	0.008167	0	0.003	0.018015	0.020746	0.008536	0	0.012	0.051472	1273.38	1538.564	0	0.001935	0.020479	0	0.200622	0.242401	0	0.04166	0.440905	0	0	0	0	0.047427	0.501937	0	0	0	0	0	0.216021	0.150181	7.500483	0	0.012058	0.014569	0
Santa Clara	2024	OBUS	Aggregate	Aggregate	Electricity	1.087481	92.50105	0	92.50105	21.75833	0	0	0	0	0	0	0.003	0.00784	0	0	0	0.012	0.022399	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2024	OBUS	Aggregate	Aggregate	Natural Ga	7.05737	469.3876	469.3876	0	62.81059	0.190585	1.537414	0	0.00106	0.003899	0	0.003	0.016148	0.001153	0.004241	0	0.012	0.046137	1004.237	1191.581	0	0.789796	4.236895	0	0.20472	0.242912	0	0.011285	0.060537	0	0	0	0	0.806045	4.324062	0	0	0	0	0	1.06	3.254325	7.353064	0	0	0	0
Santa Clara	2024	SBUS	Aggregate	Aggregate	Gasoline	172.6948	8584.866	8584.866	0	690.7791	0.50288	0.925939	0.716801	0.000864	0	0.000567	0.002	0.015721	0.000939	0	0.000616	0.008	0.044917	810.6064	2589.131	58.1367	0.011135	2.464862	0.074893	0.027101	0.086311	0.065929	0.054059	10.63288	0.426367	0.113914	0.274691	1.686167	0.078883	15.51547	0.466819	0.113914	0.274691	1.686167	0.045	1.38705	82.18841	10.36621	0.008014	0.025596	0.000575
Santa Clara	2024	SBUS	Aggregate	Aggregate	Diesel	670.5958	15345.26	15345.26	0	9710.228	3.821388	21.87689	0.482851	0.019766	0.019703	0	0.003	0.015721	0.02066	0.020594	0	0.012	0.044917	1144.18	2229	0	0.002665	0.008001	0	0.180266	0.35118	0	0.057376	0.172257	0	0	0	0	0.065318	0.196101	0	0	0	0	0	0.148025	0.1775	4.677792	0	0.010835	0.021107	0
Santa Clara	2024	SBUS	Aggregate	Aggregate	Electricity	2.064666	64.35501	0	64.35501	23.64639	0	0	0	0	0	0	0.002539	0.00786	0	0	0	0.010157	0.022459	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2024	SBUS	Aggregate	Aggregate	Natural Ga	24.3995	612.0941	612.0941	0	353.3048	0.567729	5.270895	0	0.003378	0.011357	0	0.003	0.015721	0.003674	0.012352	0	0.012	0.044917	1261.305	4066.736	0	3.436672	15.25665	0	0.257125	0.829031	0	0.049103	0.217987	0	0	0	0	3.507376	15.57053	0	0	0	0	0	1.06	11.64901	20.74693	0	0	0	0
Santa Clara	2024	UBUS	Aggregate	Aggregate	Gasoline	46.08313	4812.451	4812.451	0	184.3325	0.027483	0	0.457232	0.001143	0	0.000128	0.002	0.03185	0.001243	0	0.00014	0.008	0.091	926.0836	0	36.94783	0.002034	0	0.043067	0.004288	0	0.071717	0.005634	0	0.152979	0.038099	0.092116	0.456438	0.008221	0	0.167492	0.038099	0.092116	0.456438	0.045	0.581148	0	6.130495	0.009155	0	0.000365
Santa Clara	2024	UBUS	Aggregate	Aggregate	Diesel	437.4745	48917.61	48917.61	0	1749.898	0.386257	0	0	0.007023	0	0	0.0083	0.0385	0.00734	0	0	0.0332	0.11	1101.14	0	0	0.003215	0	0	0.173485	0	0	0.069208	0	0	0	0	0	0.078788	0	0	0	0	0	0.187908	0.079368	0	0	0.010434	0	0
Santa Clara	2024	UBUS	Aggregate	Aggregate	Electricity	5.347565	235.0626	0	235.0626	21.39026	0	0	0	0	0	0	0.008888	0.01925	0	0	0	0.03552	0.055	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2024	UBUS	Aggregate	Aggregate	Natural Ga	42.58696	4865.187	4865.187	0	170.3478	0.058788	0	0	0.000282	0	0	0.008183	0.0385	0.000295	0	0	0.032731	0.11	1299.206	0	0	4.246059	0	0	0.264852	0	0	0.060668	0	0	0	0	0	4.333415	0	0	0	0	0	0.97	49.04786	0	0	0	0	0

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: Santa Clara
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	NOx_RUNEX	NOx_IDLEX	NOx_STREX	PM2.5_RU	PM2.5_IDL	PM2.5_STR	PM2.5_DIU	PM2.5_TIR	PM2.5_BW	PM10_RUN	PM10_IDL	PM10_STR	PM10_DIU	PM10_TIR	PM10_BW	CO2_RUNEX	CO2_IDLEX	CO2_STREX	CH4_RUNEX	CH4_IDLEX	CH4_STREX	N2O_RUNEX	N2O_IDLEX	N2O_STREX	ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTS	ROG_RUNL	ROG_DIUR	TOG_RUNEX	TOG_IDLEX	TOG_STREX	TOG_HOTS	TOG_RUNL	TOG_DIUR	NH3_RUNEX	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNEX	SOx_IDLEX	SOx_STREX
Santa Clara	2025	HHDT	Aggregate	Aggregate	Gasoline	2.330359	124.9448	124.9448	0	0	46.62582	5.556909	0	1.379041	0.003103	0	0.001399	0.005	0.033068	0.003375	0	0.001521	0.02	0.09448	2106.229	0	50.03138	0.207413	0	0.000226	0.167059	0	0.041557	1.222197	0	0.00123	0.140217	1.263022	9.434649	1.783427	0	0.001346	0.140217	1.263022	9.434649	0.043157	47.7242	0	2.001616	0.020822	0	0.000495
Santa Clara	2025	HHDT	Aggregate	Aggregate	Diesel	8692.575	1008964	1008964	0	127877.1	1.825194	60.91449	2.931995	0.025335	0.028938	0	0.008772	0.027421	0.02648	0.030247	0	0.035088	0.078345	1608.776	11755.34	0	0.00075	0.235891	0	0.253463	1.852058	0	0.016139	5.078674	0	0	0	0	0	0.018373	5.781684	0	0	0	0	0	0.215507	0.078083	74.00904	0	0.015234	0.111316	0
Santa Clara	2025	HHDT	Aggregate	Aggregate	Electricity	63.3712	6579.675	0	6579.675	825.9972	0	0	0	0	0	0	0.008551	0.014281	0	0	0	0	0.034206	0.040802	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2025	HHDT	Aggregate	Aggregate	Natural Ga	832.405	55779.38	55779.38	0	7555.504	1.049864	13.18492	0	0.00168	0.025258	0	0.009	0.048303	0.001827	0.02747	0	0.036	0.138007	1375.94	10529.31	0	2.235928	35.17609	0	0.280494	2.146469	0	0.047235	0.530122	0	0	0	0	0	0.299347	35.93114	0	0	0	0	0	0.843784	13.01274	74.75478	0	0	0	0
Santa Clara	2025	LDA	Aggregate	Aggregate	Gasoline	598860.3	22133915	22133915	0	2780384	0.038209	0	0.245539	0.001142	0	0.00188	0.002	0.002655	0.001242	0	0.002044	0.008	0.007587	270.1738	0	68.47346	0.002117	0	0.067825	0.004408	0	0.032293	0.007947	0	0.306311	0.087189	0.224301	1.384954	0.011596	0	0.335372	0.087189	0.224301	1.384954	0.035611	0.6952	0	3.049452	0.002671	0	0.000677
Santa Clara	2025	LDA	Aggregate	Aggregate	Diesel	1620.04	46912.85	46912.85	0	6871.193	0.18842	0	0	0.015236	0	0	0.002	0.002712	0.015925	0	0	0.008	0.007748	229.9477	0	0	0.001193	0	0	0.036228	0	0	0.025693	0	0	0	0	0	0	0.02925	0	0	0	0	0	0.0031	0.319914	0	0	0.002179	0	0
Santa Clara	2025	LDA	Aggregate	Aggregate	Electricity	61443.19	2670452	0	2670452	299852.7	0	0	0	0	0	0	0.002	0.001534	0	0	0	0.008	0.004382	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2025	LDA	Aggregate	Aggregate	Plug-in Hyb	19037.66	825567.7	401013	424554.8	78720.74	0.003187	0	0.11551	0.000578	0	0.001985	0.002	0.001382	0.000629	0	0.002159	0.008	0.003948	135.5854	0	64.10836	0.000432	0	0.042249	0.000569	0	0.020584	0.001378	0	0.173285	0.041164	0.03735	0.440525	0.002011	0	0.189725	0.041164	0.03735	0.440525	0.019241	0.209757	0	1.339893	0.00134	0	0.000634
Santa Clara	2025	LDT1	Aggregate	Aggregate	Gasoline	51680.86	1664706	1664706	0	230186	0.115355	0	0.35972	0.001639	0	0.002543	0.002	0.003241	0.001782	0	0.002766	0.008	0.00926	321.489	0	84.45547	0.005621	0	0.098552	0.008687	0	0.037511	0.02471	0	0.498818	0.156963	0.442299	2.52236	0.038056	0	0.546143	0.156963	0.442299	2.52236	0.036453	1.317416	0	4.886115	0.003178	0	0.000835
Santa Clara	2025	LDT1	Aggregate	Aggregate	Diesel	21.28272	302.8258	302.8258	0	59.13231	1.64381	0	0	0.238169	0	0	0.002	0.00372	0.248938	0	0	0.008	0.010628	414.9442	0	0	0.013797	0	0	0.065375	0	0	0.297038	0	0	0	0	0	0	0.338158	0	0	0	0	0	0.0031	1.585068	0	0	0.003932	0	0
Santa Clara	2025	LDT1	Aggregate	Aggregate	Electricity	234.4578	9323.704	0	9323.704	1109.796	0	0	0	0	0	0	0.002	0.001537	0	0	0	0.008	0.004392	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2025	LDT1	Aggregate	Aggregate	Plug-in Hyb	98.13198	4519.182	1961.286	2557.896	405.7758	0.002848	0	0.11551	0.000353	0	0.001365	0.002	0.001394	0.000383	0	0.001485	0.008	0.003982	121.222	0	67.75681	0.000383	0	0.041987	0.000501	0	0.020339	0.001231	0	0.173285	0.023895	0.020384	0.276746	0.001797	0	0.189725	0.023895	0.020384	0.276746	0.018228	0.187824	0	1.339893	0.001198	0	0.00067
Santa Clara	2025	LDT2	Aggregate	Aggregate	Gasoline	290874.7	10447706	10447706	0	1360241	0.06257	0	0.314364	0.001192	0	0.001919	0.002	0.00313	0.001296	0	0.002087	0.008	0.008944	332.1841	0	85.06833	0.002642	0	0.078494	0.005588	0	0.036037	0.010244	0	0.360071	0.079452	0.214938	1.349256	0.014949	0	0.394233	0.079452	0.214938	1.349256	0.03712	0.795621	0	3.47417	0.003284	0	0.000841
Santa Clara	2025	LDT2	Aggregate	Aggregate	Diesel	1049.952	38652.34	38652.34	0	4980.34	0.039332	0	0	0.004727	0	0	0.002	0.003123	0.004941	0	0	0.008	0.008921	301.0055	0	0	0.000603	0	0	0.047424	0	0	0.01298	0	0	0	0	0	0	0.014777	0	0	0	0	0	0.0031	0.129797	0	0	0.002852	0	0
Santa Clara	2025	LDT2	Aggregate	Aggregate	Electricity	2157.059	73663.77	0	73663.77	10962.38	0	0	0	0	0	0	0.002	0.001527	0	0	0	0.008	0.004362	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2025	LDT2	Aggregate	Aggregate	Plug-in Hyb	2561.885	112327.2	51267.44	61059.78	10593.4	0.002995	0	0.11551	0.000438	0	0.00161	0.002	0.001388	0.000477	0	0.001751	0.008	0.003967	127.4509	0	74.14084	0.000403	0	0.041992	0.000528	0	0.020344	0.001295	0	0.173285	0.026071	0.023359	0.305362	0.001893	0	0.189725	0.026071	0.023359	0.305362	0.019143	0.197358	0	1.339893	0.00126	0	0.000733
Santa Clara	2025	LHDT1	Aggregate	Aggregate	Gasoline	19422.46	728337	728337	0	289365.8	0.152112	0.035118	0.61458	0.001478	0	0.000276	0.002	0.0273	0.001607	0	0.0003	0.008	0.078	855.4024	117.9783	25.70715	0.007214	0.110329	0.031611	0.008613	0.002941	0.049929	0.03557	0.40247	0.15588	0.044275	0.247775	2.616411	0.051904	0.587284	0.170669	0.044275	0.247775	2.616411	0.044934	1.05316	3.759094	3.16195	0.008457	0.001166	0.000254
Santa Clara	2025	LHDT1	Aggregate	Aggregate	Diesel	10387.1	408019.3	408019.3	0	130656.7	1.379237	1.823414	0	0.032347	0.026692	0	0.003	0.0273	0.03381	0.027899	0	0.012	0.078	628.07	129.5472	0	0.007468	0.005098	0	0.098953	0.02041	0	0.160779	0.10976	0	0	0	0	0	0.183036	0.124954	0	0	0	0	0	0.17898	0.435087	0.909745	0	0.005951	0.001228	0
Santa Clara	2025	LHDT1	Aggregate	Aggregate	Electricity	196.402	13079.06	0	13079.06	2746.629	0	0	0	0	0	0	0.002	0.01365	0	0	0	0.008	0.039	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2025	LHDT2	Aggregate	Aggregate	Gasoline	2512.652	91345.05	91345.05	0	37434.78	0.146187	0.034452	0.600885	0.001346	0	0.00022	0.002	0.03185	0.001464	0	0.000239	0.008	0.091	964.5764	136.4471	25.31105	0.005467	0.108422	0.030581	0.008804	0.002854	0.048245	0.025115	0.395081	0.149459	0.041982	0.228581	2.471298	0.036648	0.576501	0.163639	0.041982	0.228581	2.471298	0.044974	0.850878	3.765161	3.139903	0.009536	0.001349	0.00025
Santa Clara	2025	LHDT2	Aggregate	Aggregate	Diesel	4837.236	188645	188645	0	60846.34	1.139289	1.802658	0	0.030296	0.027005	0	0.003	0.03185	0.031666	0.028226	0	0.012	0.091	750.3571	207.2396	0	0.007043	0.005098	0	0.118219	0.032651	0	0.151622	0.10976	0	0	0	0	0	0.172612	0.124954	0	0	0	0	0	0.188496	0.387904	0.909745	0	0.00711	0.001964	0
Santa Clara	2025	LHDT2	Aggregate	Aggregate	Electricity	50.46202	3193.251	0	3193.251	669.175	0	0	0	0	0	0	0.002	0.015925	0	0	0	0.008	0.0455	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2025	MCY	Aggregate	Aggregate	Gasoline	28484.89	166414.5	166414.5	0	56969.79	0.557882	0	0.129146	0.001799	0	0.003253	0.001	0.0042	0.001925	0	0.003464	0.004	0.012	187.2679	0	47.30784	0.158292	0	0.177199	0.038984	0	0.007691	1.024683	0	1.305157	3.558651	3.760078	3.860886	1.236542	0	1.419098	3.558651	3.760078	3.860886	0.008851	12.31202	0	7.965438	0.001851	0	0.000468
Santa Clara	2025	MDV	Aggregate	Aggregate	Gasoline	159532.2	5551044	5551044	0	739781.4	0.087905	0	0.391886	0.001179	0	0.001962	0.002	0.003182	0.001282	0	0.002134	0.008	0.009091	402.7635	0	103.4378	0.003431	0	0.094137	0.006921	0	0.039073	0.014165	0	0.463643	0.092515	0.265086	1.620407	0.020668	0	0.50763	0.092515	0.265086	1.620407	0.036883	0.895922	0	3.753621	0.003982	0	0.001023
Santa Clara	2025	MDV	Aggregate	Aggregate	Diesel	2421.364	85326.8	85326.8	0	11351.14	0.044948	0	0	0.004686	0	0	0.002	0.003225	0.004898	0	0	0.008	0.009216	399.4952	0	0	0.000492	0	0	0.062941	0	0	0.010592	0	0	0	0	0	0	0.012058	0	0	0	0	0	0.0031	0.199936	0	0	0.003785	0	0
Santa Clara	2025	MDV	Aggregate	Aggregate	Electricity	2274.547	77934.96	0	77934.96	11571.06	0	0	0	0	0	0	0.002	0.001526	0	0	0	0.008	0.004361	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2025	MDV	Aggregate	Aggregate	Plug-in Hyb	1542.366	64484.39	29833.21	34651.18	6377.683	0.003036	0	0.11551	0.000507	0	0.00183	0.002	0.001388	0.000551	0	0.00199	0.008	0.003965	129.1743	0	91.64114	0.000407	0	0.041816	0.00053	0	0.02018	0.001313	0	0.173285	0.02949	0.025333	0.327899	0.001916	0	0.189725	0.02949	0.025333	0.327899	0.019431	0.199968	0	1.339893	0.001277	0	0.000906
Santa Clara	2025	MH	Aggregate	Aggregate	Gasoline	2337.876	21506.19	21506.19	0	233.8812	0.37652	0	0.425905	0.001612	0	0.000388	0.003	0.015756	0.001753	0	0.000422	0.012	0.045017	1947.057	0	31.4529	0.013722	0	0.036945	0.023864	0	0.045303	0.059455	0	0.154277	11.38549	0.268831	4.357209	0.086757	0	0.168914	11.38549	0.268831	4.357209	0.044879	1.426924	0	3.382931	0.019249	0	0.000311
Santa Clara	2025	MH	Aggregate	Aggregate	Diesel	994.5437	9603.893	9603.893	0	99.45437	3.976372	0	0	0.086098	0	0	0.004	0.015675	0.08999	0	0	0.016	0.044785	1082.401	0	0	0.005421	0	0	0.170533	0	0	0.116701	0	0	0	0	0	0	0.132856	0	0	0	0	0	0.160635	0.385118	0	0	0.010256	0	0
Santa Clara	2025	MHDT	Aggregate	Aggregate	Gasoline	1412.263	72039.87	72039.87	0	28256.55	0.394798	0.086175	0.424333	0.001347	0	0.000513	0.003	0.015756	0.001465	0	0.000558	0.012	0.045017	1746.959	526.7233	45.37618	0.012585	0.261076	0.04598	0.019987	0.007219	0.032398	0.061949	1.015127	0.253154	0.030988	0.250472	2.558011	0.090397	1.481271	0.277172	0.030988	0.250472	2.558011	0.044991	1.276089	15.1444	5.531626	0.01727	0.005207	0.000449
Santa Clara	2025	MHDT	Aggregate	Aggregate	Diesel	10548.06	435100.6	435100.6	0	125915.2	1.128155	12.48973	1.646559	0.012461	0.024792	0	0.003	0.015941	0.013024	0.025912	0	0.012	0.045545	1141.328	2229.374	0	0.00131	0.010957	0	0.179817	0.351239	0	0.028195	0.235896	0	0	0	0	0	0.032098	0.268549	0	0	0	0	0	0.211891	0.109646	7.535393	0	0.010808	0.021111	0
Santa Clara	2025	MHDT	Aggregate	Aggregate	Electricity	90.80851	4838.906	0	4838.906	1182.343	0	0	0	0	0	0	0.003	0.007951	0	0	0	0.012	0.022718	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2025	MHDT	Aggregate	Aggregate	Natural Ga	98.90628	4590.307	4590.307	0	911.9208	0.12435	6.45266	0	0.002126	0.018594	0	0.003	0.016009	0.001333	0.020223	0	0.012	0.045741	979.0142	5290.545	0	0.751438	16.97256	0	0.199578	1.078512	0	0.010737	0.242504	0	0	0	0	0	0.766898	17.32175	0	0	0	0	0	1.06	2.996166	35.80775	0	0	0	0
Santa Clara	2025	OBUS	Aggregate	Aggregate	Gasoline	430.7023	18962.49	18962.49	0	8617.491	0.460353	0.06398	0.405045	0.000939	0	0.000255	0.003	0.01568	0.001022	0	0.000278	0.012	0.044799	1744.286	377.0226	31.37018	0.012641	0.195762	0.035581	0.02242	0.005219	0.030806	0.061504	0.74652	0.188569	0.033827	0.158433	2.881145	0.089747	1.089321	0.206459	0.033827	0.158433	2.881145	0.04498	1.352776	5.776073	3.953891	0.017244	0.003727	0.00031
Santa Clara	2025	OBUS	Aggregate	Aggregate	Diesel	921.4116	62304.89	62304.89	0	9451.527	1.133246	7.151668	1.532624	0.018916	0.007596	0	0.003	0.018017	0.019772	0.007939	0	0.012	0.051478	1259.126	1532.11	0	0.001844	0.020685	0	0.198376	0.241385	0	0.039711	0.445333	0	0	0	0	0	0.045208	0.506978	0	0	0	0	0	0.216212	0.14449	7.587325	0	0.011923	0.014508	0
Santa Clara	2025	OBUS	Aggregate	Aggregate	Electricity	2.672031	221.771	0	221.771	53.46199	0	0	0	0	0	0	0.003	0.00784	0	0	0	0.012	0.022399	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2025	OBUS	Aggregate	Aggregate	Natural Ga	8.125306	537.7468	537.7468	0	72.31523	0.164816	1.526623	0	0.001183	0.004157	0	0.003	0.016148	0.001287	0.004521	0	0.012	0.046137	987.912	1189.826	0	0.803903	4.103659	0	0.201392	0.242554	0	0.011486	0.058633	0	0	0	0	0	0.820442	4.188085	0	0	0	0	0	1.06	3.29233	7.933419	0	0	0	0
Santa Clara	2025	SBUS	Aggregate	Aggregate	Gasoline	178.2436	8812.851	8812.851	0	712.9742	0.487257	0.905562	0.722985	0.000866	0	0.000573	0.002	0.015721	0.000942	0	0.000623	0.008	0.044917	806.3455	2576.863	57.67146	0.010523	2.465929	0.074733	0.026439	0.084425	0.066434	0.051046	10.63602	0.42511	0.118631	0.292211	1.797789	0.074486	15.52005	0.465442	0.118631	0.292211	1.797789	0.045	1.308927	82.20747	10.20511	0.007972	0.025475	0.00057
Santa Clara	2025	SBUS	Aggregate	Aggregate	Diesel	673.2048	15283.75	15283.75	0	9748.005	3.614242	21.25646	0.496308	0.018677	0.018235	0	0.003	0.015721	0.019521	0.019059	0	0.012	0.044917	1139.829	2219.616	0	0.002583	0.007936	0	0.179581	0.349701	0	0.055601	0.170862	0	0	0	0	0	0.063298	0.194514	0	0	0	0	0	0.151888	0.17348	4.777291	0	0.010794	0.021018	0
Santa Clara	2025	SBUS	Aggregate	Aggregate	Electricity	4.481168	145.0761	0	145.0761	51.24766	0	0	0	0	0	0	0.002	0.002556	0.00786	0	0	0	0.010226	0.022459	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2025	SBUS	Aggregate	Aggregate	Natural Ga	25.28439	627.586	627.586	0	366.118	0.5494	5.260001	0	0.003378	0.011617	0	0.003	0.015721	0.003674	0.012635	0	0.012	0.044917	1252.115	4074.049	0	3.386209	15.12215	0	0.255252	0.830522	0	0.048382	0.216066	0	0	0	0	0	3.455875	15.43326	0	0	0	0	0	1.06	11.41153	21.33281	0	0	0	0
Santa Clara	2025	UBUS	Aggregate	Aggregate	Gasoline	46.21918	4826.658	4826.658	0	184.8767	0.027276	0	0.449893	0.001143	0	0.000128	0.002	0.03185	0.001243	0	0.00014	0.008	0.091	925.8676	0	36.64281	0.001993	0	0.043054	0.004259	0	0.070843	0.005515	0	0.152699	0.04366	0.092112	0.471505	0.008047	0	0.167186	0.04366	0.092112	0.471505	0.045	0.586139	0	5.942314	0.009153	0	0.000362
Santa Clara	2025	UBUS	Aggregate	Aggregate	Diesel	405.3675	44987.37	44987.37	0	1621.47	0.382968	0	0	0.006962	0	0	0.008	0.03238	0.0385	0.007277	0	0	0.032951	0.11	1121.875	0	0	0.003193	0	0	0.176752	0	0	0.06875	0	0	0	0	0	0.078266	0	0	0	0	0	0.22	0.0787	0	0	0.01063	0	0
Santa Clara	2025	UBUS	Aggregate	Aggregate	Electricity	23.31202	2427.54	0	2427.54	93.24809	0	0	0	0	0	0	0.008977	0.01925	0	0	0	0	0.035907	0.055	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2025	UBUS	Aggregate	Aggregate	Natural Ga	58.16247	6762.418	6762.418	0	232.6499	0.060506	0	0	0.000287	0	0	0.008408	0.0385	0.0003	0	0	0	0.033634	0.11	1317.877	0	0	4.320397	0	0	0.268658	0	0	0.06173	0	0	0	0	0	4.409282	0	0	0	0	0	0.97	50.3461	0	0	0	0	0

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: Santa Clara
Calendar Year: 2030
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	NOx_RUNEX	NOx_IDLEX	NOx_STREX	PM2.5_RU	PM2.5_IDL	PM2.5_STR	PM2.5_PM	PM2.5_PM	PM10_RUI	PM10_IDL	PM10_STR	PM10_PM	PM10_PMI	CO2_RUNE	CO2_IDLEX	CO2_STREX	CH4_RUNE	CH4_IDLEX	CH4_STREX	N2O_RUNEX	N2O_IDLEX	N2O_STREX	ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTS	ROG_RUNL	ROG_DIUR	TOG_RUNEX	TOG_IDLEX	TOG_STREX	TOG_HOTS	TOG_RUNL	TOG_DIUR	NH3_RUNEX	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNE	SOx_IDLEX	SOx_STREX
Santa Clara	2030	HHDT	Aggregate	Aggregate	Gasoline	1.487616	172.8499	172.8499	0	29.76421	2.911619	0	0.534862	0.001674	0	0.000674	0.005	0.032468	0.00182	0	0.000733	0.02	0.092765	1924.768	0	48.04273	0.102337	0	0.000224	0.119593	0	0.0192	0.501241	0	0.001214	0.064624	0.580293	4.097317	0.731409	0	0.00133	0.064624	0.580293	4.097317	0.045	26.13927	0	4.442251	0.019028	0	0.000475
Santa Clara	2030	HHDT	Aggregate	Aggregate	Diesel	9231.234	1024357	1024357	0	136537.8	1.56454	55.03419	2.88955	0.024765	0.0244	0	0.008788	0.028144	0.025885	0.025504	0	0.035154	0.080413	1474.596	10772.22	0	0.000646	0.235119	0	0.232323	1.697167	0	0.013904	5.062058	0	0	0	0	0.015828	5.762768	0	0	0	0	0	0.217216	0.061916	74.26736	0	0.013964	0.102006	0
Santa Clara	2030	HHDT	Aggregate	Aggregate	Electricity	530.2501	54761.35	0	54761.35	6663.697	0	0	0	0	0	0	0.008533	0.015514	0	0	0	0.03413	0.044327	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2030	HHDT	Aggregate	Aggregate	Natural Ga	938.2726	57937.93	57937.93	0	8287.795	0.731127	11.54643	0	0.001557	0.027291	0	0.009	0.05172	0.001694	0.029682	0	0.036	0.147772	1322.875	10241.21	0	1.710465	30.09558	0	0.269677	2.087739	0	0.033169	0.444488	0	0	0	0	0.755601	30.73125	0	0	0	0	0	0.811239	11.16082	76.40969	0	0	0	0
Santa Clara	2030	LDA	Aggregate	Aggregate	Gasoline	602124.6	21985013	21985013	0	2796634	0.027128	0	0.204379	0.000885	0	0.001532	0.002	0.002653	0.000962	0	0.001666	0.008	0.00758	245.6607	0	61.62664	0.00146	0	0.051774	0.003674	0	0.028877	0.005055	0	0.223494	0.069299	0.197319	1.209286	0.007376	0	0.244698	0.069299	0.197319	1.209286	0.039301	0.56355	0	2.385556	0.002429	0	0.000609
Santa Clara	2030	LDA	Aggregate	Aggregate	Diesel	966.5715	27899.12	27899.12	0	4169.431	0.084622	0	0	0.00656	0	0	0.002	0.002722	0.006857	0	0	0.008	0.007776	213.8116	0	0	0.000652	0	0	0.033686	0	0	0.014035	0	0	0	0	0	0.015978	0	0	0	0	0	0.0031	0.244061	0	0	0.002026	0	0
Santa Clara	2030	LDA	Aggregate	Aggregate	Electricity	74807.28	2981995	0	2981995	356618	0	0	0	0	0	0	0.002	0.001537	0	0	0	0.008	0.004391	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2030	LDA	Aggregate	Aggregate	Plug-in Hyb	2466.152	986083.3	441285.3	544798	101975.4	0.002937	0	0.11551	0.000402	0	0.001538	0.002	0.001398	0.000437	0	0.001673	0.008	0.003994	124.8945	0	60.42967	0.00039	0	0.041401	0.000504	0	0.019792	0.00127	0	0.173285	0.041078	0.050398	0.518869	0.001853	0	0.189725	0.041078	0.050398	0.518869	0.018326	0.193147	0	1.339893	0.001235	0	0.000597
Santa Clara	2030	LDT1	Aggregate	Aggregate	Gasoline	47587.45	1511766	1511766	0	212019.3	0.06744	0	0.276451	0.001181	0	0.001933	0.002	0.003236	0.001284	0	0.002102	0.008	0.009245	295.2104	0	75.87579	0.003341	0	0.071607	0.005993	0	0.032827	0.01396	0	0.342108	0.122517	0.361736	2.125938	0.020371	0	0.374565	0.122517	0.361736	2.125938	0.038435	0.913385	0	3.462484	0.002918	0	0.00075
Santa Clara	2030	LDT1	Aggregate	Aggregate	Diesel	0.768467	17.0557	17.0557	0	2.625517	0.541325	0	0	0.080932	0	0	0.002	0.003285	0.084591	0	0	0.008	0.009386	358.2932	0	0	0.006227	0	0	0.056449	0	0	0.134063	0	0	0	0	0	0.152622	0	0	0	0	0	0.0031	0.953187	0	0	0.003395	0	0
Santa Clara	2030	LDT1	Aggregate	Aggregate	Electricity	459.5988	19527.57	0	19527.57	2229.168	0	0	0	0	0	0	0.002	0.001532	0	0	0	0.008	0.004379	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2030	LDT1	Aggregate	Aggregate	Plug-in Hyb	311.9596	13308.96	5503.171	7805.787	1289.953	0.002713	0	0.11551	0.000237	0	0.000982	0.002	0.001404	0.000258	0	0.001068	0.008	0.004012	115.4596	0	64.74449	0.00036	0	0.041331	0.000464	0	0.019726	0.001173	0	0.173285	0.023088	0.020052	0.277122	0.001712	0	0.189725	0.023088	0.020052	0.277122	0.017767	0.178766	0	1.339893	0.001141	0	0.00064
Santa Clara	2030	LDT2	Aggregate	Aggregate	Gasoline	315384	11011602	11011602	0	1467133	0.042522	0	0.254325	0.000923	0	0.001563	0.002	0.003147	0.001004	0	0.001699	0.008	0.008992	300.7445	0	76.34787	0.001939	0	0.061959	0.004491	0	0.03252	0.007052	0	0.272663	0.065379	0.191547	1.192189	0.010291	0	0.298532	0.065379	0.191547	1.192189	0.039832	0.659365	0	2.809133	0.002973	0	0.000755
Santa Clara	2030	LDT2	Aggregate	Aggregate	Diesel	1158.99	40906.35	40906.35	0	5439.347	0.030058	0	0	0.003988	0	0	0.002	0.003143	0.004169	0	0	0.008	0.008981	274.3642	0	0	0.000559	0	0	0.043226	0	0	0.012039	0	0	0	0	0	0.013706	0	0	0	0	0	0.0031	0.125642	0	0	0.0026	0	0
Santa Clara	2030	LDT2	Aggregate	Aggregate	Electricity	5453.194	171699	0	171699	27128.05	0	0	0	0	0	0	0.002	0.001531	0	0	0	0.008	0.004374	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2030	LDT2	Aggregate	Aggregate	Plug-in Hyb	4846.712	193738.5	82854.31	110884.1	20041.15	0.002806	0	0.11551	0.000301	0	0.001204	0.002	0.001402	0.000327	0	0.00131	0.008	0.004007	119.381	0	70.18863	0.000371	0	0.041171	0.000476	0	0.019577	0.001214	0	0.173285	0.026751	0.026025	0.323076	0.001771	0	0.189725	0.026751	0.026025	0.323076	0.017953	0.184716	0	1.339893	0.00118	0	0.000694
Santa Clara	2030	LHDT1	Aggregate	Aggregate	Gasoline	19753.02	727605.5	727605.5	0	294290.5	0.082552	0.030634	0.51718	0.001329	0	0.000195	0.002	0.0273	0.001446	0	0.000212	0.008	0.078	802.0575	113.4696	25.10498	0.003719	0.099174	0.025985	0.00491	0.002766	0.044981	0.016744	0.351327	0.123637	0.032922	0.194989	2.054962	0.024432	0.512656	0.135367	0.032922	0.194989	2.054962	0.045	0.768194	3.76818	3.242124	0.007929	0.001122	0.000248
Santa Clara	2030	LHDT1	Aggregate	Aggregate	Diesel	11269.28	427352.8	427352.8	0	141753.3	0.789576	1.444738	0	0.023821	0.026284	0	0.003	0.0273	0.024898	0.027472	0	0.012	0.078	617.2105	123.3953	0	0.005662	0.005098	0	0.097242	0.019441	0	0.121909	0.10976	0	0	0	0	0.138785	0.124954	0	0	0	0	0	0.199336	0.314077	0.909745	0	0.005848	0.001169	0
Santa Clara	2030	LHDT1	Aggregate	Aggregate	Electricity	2074.538	117461.4	0	117461.4	29061.96	0	0	0	0	0	0	0.002	0.01365	0	0	0	0.008	0.039	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2030	LHDT2	Aggregate	Aggregate	Gasoline	2461.018	87198.4	87198.4	0	36665.5	0.076883	0.029634	0.510604	0.001202	0	0.000149	0.002	0.03185	0.001308	0	0.000162	0.008	0.091	909.7177	131.684	24.47216	0.00272	0.095769	0.024975	0.005151	0.002617	0.043301	0.011255	0.340122	0.118021	0.031894	0.187158	2.069204	0.016423	0.496305	0.129219	0.031894	0.187158	2.069204	0.045	0.659048	3.775132	3.178541	0.008993	0.001302	0.000242
Santa Clara	2030	LHDT2	Aggregate	Aggregate	Diesel	5433.248	199824.8	199824.8	0	68343.42	0.748874	1.460368	0	0.024929	0.026926	0	0.003	0.03185	0.026056	0.028143	0	0.012	0.091	728.4033	198.6254	0	0.005847	0.005098	0	0.11476	0.031294	0	0.125888	0.10976	0	0	0	0	0.143315	0.124954	0	0	0	0	0	0.202684	0.318068	0.909745	0	0.006902	0.001882	0
Santa Clara	2030	LHDT2	Aggregate	Aggregate	Electricity	523.4249	28364.01	0	28364.01	6941.368	0	0	0	0	0	0	0.002	0.015925	0	0	0	0.008	0.0455	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2030	MCY	Aggregate	Aggregate	Gasoline	29945.67	170059	170059	0	59891.34	0.509869	0	0.103081	0.001864	0	0.003197	0.001	0.0042	0.001997	0	0.003416	0.004	0.012	185.5769	0	42.83228	0.142987	0	0.157242	0.036967	0	0.006341	0.890508	0	1.134366	3.555147	3.783469	3.680755	1.091848	0	1.234067	3.555147	3.783469	3.680755	0.009004	11.04655	0	7.830862	0.001835	0	0.000423
Santa Clara	2030	MDV	Aggregate	Aggregate	Gasoline	174344	5962227	5962227	0	807535.9	0.050767	0	0.286849	0.000902	0	0.001551	0.002	0.003188	0.000981	0	0.001687	0.008	0.00911	363.7401	0	92.5827	0.002213	0	0.068559	0.004925	0	0.033878	0.008456	0	0.317272	0.072796	0.219895	1.355815	0.012339	0	0.347373	0.072796	0.219895	1.355815	0.03954	0.69525	0	2.93398	0.003596	0	0.000915
Santa Clara	2030	MDV	Aggregate	Aggregate	Diesel	2406.787	79682.09	79682.09	0	11072.82	0.026422	0	0	0.003049	0	0	0.002	0.00327	0.003187	0	0	0.008	0.009343	368.9128	0	0	0.000373	0	0	0.058122	0	0	0.008029	0	0	0	0	0	0.00914	0	0	0	0	0	0.0031	0.181562	0	0	0.003496	0	0
Santa Clara	2030	MDV	Aggregate	Aggregate	Electricity	5418.753	169876.9	0	169876.9	26922.58	0	0	0	0	0	0	0.002	0.001532	0	0	0	0.008	0.004377	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2030	MDV	Aggregate	Aggregate	Plug-in Hyb	2963.422	115546.2	49482.19	66063.98	12253.75	0.00281	0	0.11551	0.000321	0	0.001277	0.002	0.001403	0.000349	0	0.001389	0.008	0.004008	119.5471	0	85.63482	0.00037	0	0.041054	0.000474	0	0.019467	0.001215	0	0.173285	0.028447	0.028695	0.345627	0.001773	0	0.189725	0.028447	0.028695	0.345627	0.017986	0.184983	0	1.339893	0.001182	0	0.000847
Santa Clara	2030	MH	Aggregate	Aggregate	Gasoline	2034.688	19970.26	19970.26	0	203.5502	0.205296	0	0.454071	0.001366	0	0.000326	0.003	0.015756	0.001486	0	0.000355	0.012	0.045017	1945.26	0	30.65867	0.006703	0	0.034694	0.016757	0	0.050507	0.023566	0	0.135475	7.46433	0.181652	3.092727	0.034387	0	0.148329	7.46433	0.181652	3.092727	0.045	0.391655	0	2.922173	0.019231	0	0.000303
Santa Clara	2030	MH	Aggregate	Aggregate	Diesel	1064.938	10092.31	10092.31	0	106.4938	3.402012	0	0	0.062183	0	0	0.004	0.015675	0.064995	0	0	0.016	0.044785	1084.369	0	0	0.00483	0	0	0.170843	0	0	0.103997	0	0	0	0	0	0.118394	0	0	0	0	0	0.181066	0.332398	0	0	0.010275	0	0
Santa Clara	2030	MHDT	Aggregate	Aggregate	Gasoline	1369.784	69786.55	69786.55	0	27406.63	0.182504	0.074436	0.34723	0.001338	0	0.000467	0.003	0.015756	0.001455	0	0.000508	0.012	0.045017	1664.876	504.5675	41.89188	0.006139	0.269683	0.040602	0.011558	0.006658	0.029379	0.027836	1.022884	0.21089	0.021107	0.176695	1.842352	0.040618	1.49259	0.230898	0.021107	0.176695	1.842352	0.045	0.52486	15.23455	4.434866	0.016459	0.004988	0.000414
Santa Clara	2030	MHDT	Aggregate	Aggregate	Diesel	10679.13	4158333.4	415833.4	0	127641.8	0.730884	9.892542	1.543564	0.006512	0.00966	0	0.003	0.015941	0.006806	0.010097	0	0.012	0.045547	1109.144	2139.822	0	0.000682	0.00913	0	0.174746	0.33713	0	0.014684	0.196569	0	0	0	0	0.016716	0.223779	0	0	0	0	0	0.21635	0.072794	7.506963	0	0.010503	0.020263	0
Santa Clara	2030	MHDT	Aggregate	Aggregate	Electricity	991.1386	51102.91	0	51102.91	12793.33	0	0	0	0	0	0	0.003	0.007951	0	0	0	0.012	0.022716	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2030	MHDT	Aggregate	Aggregate	Natural Ga	136.8437	5799.937	5799.937	0	1320.474	0.096762	6.249105	0	0.001362	0.019752	0	0.003	0.016004	0.001481	0.021482	0	0.012	0.045726	958.0225	5202.364	0	0.762569	15.80303	0	0.195299	1.060536	0	0.010896	0.225794	0	0	0	0	0.778258	16.12815	0	0	0	0	0	1.06	2.989146	38.55016	0	0	0	0
Santa Clara	2030	OBUS	Aggregate	Aggregate	Gasoline	373.8509	15017.96	15017.96	0	7480.008	0.303475	0.05759	0.379431	0.001075	0	0.000273	0.003	0.01568	0.001169	0	0.000296	0.012	0.044799	1659.483	366.2829	30.178	0.008294	0.194656	0.033726	0.01556	0.004647	0.028492	0.039512	0.74712	0.179242	0.035188	0.193999	3.485652	0.057656	1.090195	0.196247	0.035188	0.193999	3.485652	0.045	0.869951	5.779659	3.676722	0.016406	0.003621	0.000298
Santa Clara	2030	OBUS	Aggregate	Aggregate	Diesel	1041.415	64198.49	64198.49	0	10721.4	0.980356	5.976871	1.366725	0.015111	0.005302	0	0.003	0.018208	0.015794	0.005542	0	0.012	0.052023	1187.709	1474.191	0	0.001456	0.020843	0	0.187124	0.232259	0	0.031354	0.448735	0	0	0	0	0.035694	0.51085	0	0	0	0	0	0.217102	0.12266	7.728975	0	0.011247	0.01396	0
Santa Clara	2030	OBUS	Aggregate	Aggregate	Electricity	23.4704	1822.619	0	1822.619	468.5957	0	0	0	0	0	0	0.003	0.00784	0	0	0	0.012	0.022399	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2030	OBUS	Aggregate	Aggregate	Natural Ga	12.4197	789.0472	789.0472	0	110.5354	0.10256	1.499304	0	0.00148	0.004808	0	0.003	0.016148	0.001609	0.005229	0	0.012	0.046137	931.8762	1168.573	0	0.837982	3.766358	0	0.189969	0.238221	0	0.011973	0.053814	0	0	0	0	0.855222	3.843845	0	0	0	0	0	1.06	3.384146	9.402647	0	0	0	0
Santa Clara	2030	SBUS	Aggregate	Aggregate	Gasoline	198.1997	9649.073	9649.073	0	792.7989	0.406238	0.82859	0.759705	0.000888	0	0.000598	0.002	0.015721	0.000966	0	0.00065	0.008	0.044917	789.8243	2529.341	55.78331	0.007921	2.470848	0.074041	0.023184	0.077325	0.068817	0.038133	10.64152	0.418393	0.132523	0.393216	2.367471	0.055643	15.52808	0.458087	0.132523	0.393216	2.367471	0.045	0.979717	82.24088	9.529837	0.007808	0.025005	0.000551
Santa Clara	2030	SBUS	Aggregate	Aggregate	Diesel	659.3029	14502.39	14502.39	0	9546.705	2.539504	17.36035	0.550768	0.01404	0.011608	0	0.003	0.015721	0.014674	0.012133	0	0.012	0.044917	1118.5	2161.652	0	0.002094	0.007833	0	0.17622	0.340569	0	0.04508	0.168645	0	0	0	0	0.051321	0.19199	0	0	0	0	0	0.171795	0.148382	5.367405	0	0.010592	0.02047	0
Santa Clara	2030	SBUS	Aggregate	Aggregate	Electricity	42.27556	1362.719	0	1362.719	492.3385	0	0	0	0	0	0	0.002	0.002592	0.00786	0	0	0	0.010366	0.022459	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2030	SBUS	Aggregate	Aggregate	Natural Ga	29.19835	683.5221	683.5221	0	422.7921	0.477489	5.21952	0	0.003378	0.012583	0	0.003	0.015721	0.003674	0.013685	0	0.012	0.044917	1216.036	4101.156	0	3.18823	14.62233	0	0.247897	0.836047	0	0.045554	0.208924	0	0	0	0	3.253822	14.92316	0	0	0	0	0	1.06	10.47986	23.50992	0	0	0	0
Santa Clara	2030	UBUS	Aggregate	Aggregate	Gasoline	46.8994	4897.693	4897.693	0	187.5976	0.01748	0	0.295043	0.001197	0	0.000134	0.002	0.03185	0.001302	0	0.000145	0.008	0.091	850.5412	0	34.89923	0.001406	0	0.028862	0.003131	0	0.052846	0.003661	0	0.096632	0.024197	0.090857	0.324693	0.005342	0	0.1058	0.024197	0.090857	0.324693	0.045	0.587543	0	6.131541	0.008408	0	0.000345
Santa Clara	2030	UBUS	Aggregate	Aggregate	Diesel	338.5092	37119.08	37119.08	0	1354.037	0.396482	0	0	0.007209	0	0	0.002	0.00494	0.0385	0.007535	0	0	0.033977	0.11	1140.779	0	0	0.003281	0	0	0.17973	0	0	0.070632	0	0	0	0	0.080409	0	0	0	0	0	0.22	0.081446	0	0	0.010809	0	0
Santa Clara	2030	UBUS	Aggregate	Aggregate	Electricity	78.67225	8935.028	0	8935.028	314.689	0	0	0	0	0	0	0.002	0.007594	0.01925	0	0	0	0.030375	0.055	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2030	UBUS	Aggregate	Aggregate	Natural Ga	76.82557	8920.557	8920.557	0	307.3023	0.058538	0	0	0.000282	0	0	0.00815	0.0385	0.000294	0	0	0	0.032599	0.11	1296.487	0	0	4.23523	0	0	0.264297	0	0	0.060513	0	0	0	0	4.322362	0	0	0	0	0	0.97	48.85872	0	0	0	0	0

Attachment 4: Project Construction Emissions and Health Risk Calculations

Construction Health Risk Assessment and Calculations

123 Sherman Avenue, Palo Alto, CA

Year	Unmitigated DPM	DPM EMFAC2021	Unmitigated Emissions	Unmitigated Fug PM2.5	Fug PM2.5 EMFAC2021	Unmitigated Emissions
2023	0.0118	0.0003	0.0121	0.0191	0.0002	0.0193
2024	0.0042	0.0002	0.0043	0.0000	0.0001	0.0001

Year	Mitigated DPM	DPM EMFAC2021	Mitigated Emissions	Mitigated Fug PM2.5	Fug PM2.5 EMFAC2021	Mitigated Emissions
2023	0.0008	0.0003	0.0011	0.0086	0.0002	0.0088
2024	0.0011	0.0002	0.0012	0.0000	0.0001	0.0001

123 Sherman Avenue, Palo Alto, CA

- Construction Health Impact Modeling

Source Parameters for Point Sources Used in Construction Modeling

Source	Stack Height (ft)	Stack Diam (in)	Exhaust Temp (F)	Volume Flow (acfm)	Velocity (ft/min)	Velocity (ft/sec)
Construction Equipment	9.0	2.5	918	632	18540	309.0

Source	Stack Height (m)	Stack Diam (m)	Exhaust Temp (K)			Velocity (ft/sec)
Construction Equipment	2.74	0.064	765.37			94.2

123 Sherman Avenue, Palo Alto, CA

DPM Construction Emissions and Modeling Emission Rates

Construction Year	Activity	DPM (ton/year)	Source Type	No. Sources	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Emissions per Point Source (g/s)
2023	Construction	0.0121	Point	79	24.2	0.00663	8.36E-04	1.06E-05
2024	Construction	0.0043	Point	79	8.7	0.00237	2.99E-04	3.78E-06
Total		***0.0164***			***32.9***	***0.0090***	***0.0011***	

Emissions assumed to be evenly distributed over each construction areas

hr/day =	10	(8am - 6pm)
days/yr =	365	
hours/year =	3650	

123 Sherman Avenue, Palo Alto, CA

PM2.5 Fugitive Dust Construction Emissions for Modeling

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	PM2.5 Emissions (lb/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate $g/s/m^2$
2023	Construction	CON_FUG	0.0193	38.6	0.01056	1.33E-03	3051.5	4.36E-07
2024	Construction	CON_FUG	0.0001	0.2	0.00005	6.59E-06	3051.5	2.16E-09
Total			***0.0194***	***38.7***	***0.0106***	***0.0013***		

Emissions assumed to be evenly distributed over each construction areas

hr/day =	10	(8am - 6pm)
days/yr =	365	
hours/year =	3650	

123 Sherman Avenue, Palo Alto, CA - Construction Health Impact Summary

Maximum Impacts at MEI Residential Location - Without Mitigation

Emissions Year	Maximum Concentrations: Exhaust PM10/DPM ($\mu g/m^3$)	Maximum Concentrations: Fugitive PM2.5 ($\mu g/m^3$)	Cancer Risk* (per million): Infant/Child	Cancer Risk* (per million): Adult	Hazard Index (-)	Maximum Annual PM2.5 Concentration* ($\mu g/m^3$)
2023	0.0185	0.1196	3.29	0.05	0.004	0.13
2024	0.0066	0.0006	1.09	0.02	0.001	0.01
Total	-	-	**4.38**	**0.07**	-	-
Maximum	0.0185	0.1196	**-**	**-**	**0.004**	**0.13**

* Maximum cancer risk and maximum PM2.5 concentration occur at different receptors.

123 Sherman Avenue, Palo Alto, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 1.5 meter receptor height (1st Floor Level)

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air $(\mu g/m^3)$
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant/Child			Adult
Age –>	**3rd Trimester**	**0 - 2**	**2 - 16**	**16 - 30**
Parameter				
ASF =	10	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information			Infant/Child	Adult - Exposure Information			Adult	Maximum		
			DPM Conc (ug/m3)		Age	Cancer	Modeled DPM Conc (ug/m3)		Age	Cancer			
Exposure Year	Exposure Duration (years)	Age	Year	Annual	Sensitivity Factor	Risk (per million)	Year	Annual	Sensitivity Factor	Risk (per million)	Hazard Index	Fugitive PM2.5	Total PM2.5
0	0.25	-0.25 - 0*	2023	0.0185	10	0.25	2023	0.0185	-	-			
1	1	0 - 1	2023	0.0185	10	3.04	2023	0.0185	1	0.05	0.00	0.12	0.13
2	1	1 - 2	2024	0.0066	10	1.09	2024	0.0066	1	0.02	0.001	0.001	0.01
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00			
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00			
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00			
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00			
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00			
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00			
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00			
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00			
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00			
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00			
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00			
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00			
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00			
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00			
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00			
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00			
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00			
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00			
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00			
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00			
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00			
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00			
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00			
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00			
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00			
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00			
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00			
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00			
Total Increased Cancer Risk						**4.38**				**0.07**			

* Third trimester of pregnancy

123 Sherman Avenue, Palo Alto, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 4.5 meter receptor height (2nd Floor Level)

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant/Child			Adult
Age -->	**3rd Trimester**	**0 - 2**	**2 - 16**	**16 - 30**
Parameter				
ASF =	10	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

Construction Cancer Risk by Year - Maximum Impact Receptor Location

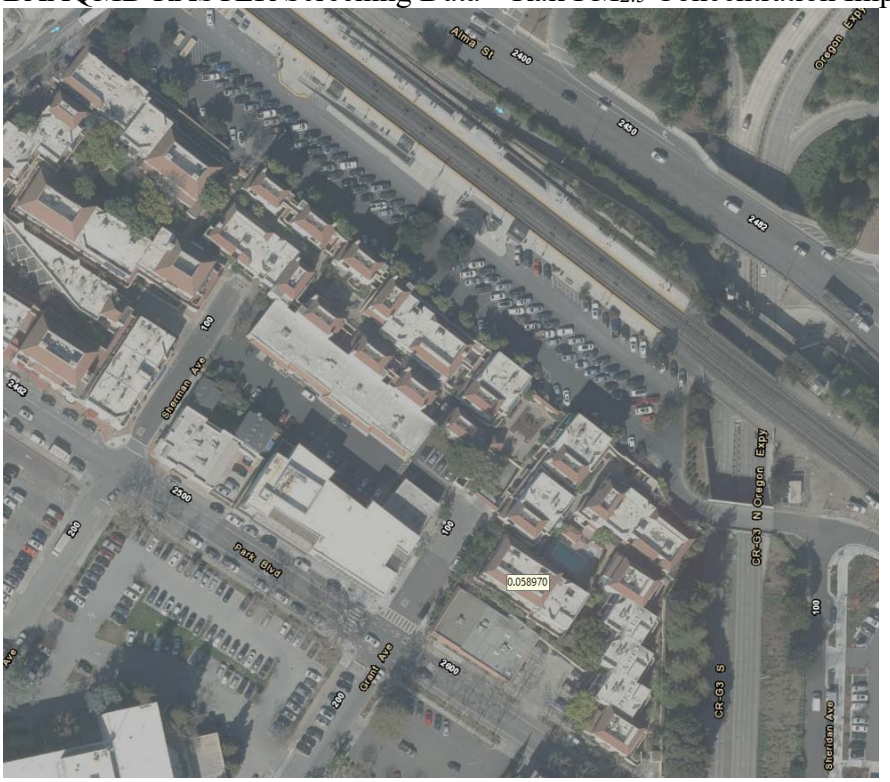
			Infant/Child - Exposure Information			Infant/Child	Adult - Exposure Information			Adult	Maximum		
			DPM Conc (ug/m3)		Age	Cancer	Modeled DPM Conc (ug/m3)		Age	Cancer			
Exposure Year	Exposure Duration (years)	Age	Year	Annual	Sensitivity Factor	Risk (per million)	Year	Annual	Sensitivity Factor	Risk (per million)	Hazard Index	Fugitive PM2.5	Total PM2.5
0	0.25	-0.25 - 0*	2023	0.0180	10	0.25	2023	0.0180	-	-			
1	1	0 - 1	2023	0.0180	10	2.96	2023	0.0180	1	0.05	0.00	0.08	0.10
2	1	1 - 2	2024	0.0064	10	1.06	2024	0.0064	1	0.02	0.001	0.0004	0.01
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00			
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00			
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00			
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00			
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00			
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00			
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00			
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00			
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00			
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00			
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00			
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00			
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00			
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00			
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00			
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00			
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00			
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00			
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00			
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00			
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00			
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00			
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00			
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00			
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00			
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00			
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00			
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00			
Total Increased Cancer Risk						**4.26**				**0.07**			

* Third trimester of pregnancy

Attachment 5: Community Risk Modeling Information and Calculations

BAAQMD RASTER Screening Data – Rail Cancer Risk Impacts at Cancer MEI

BAAQMD RASTER Screening Data – Rail $PM_{2.5}$ Concentration Impacts at $PM_{2.5}$ MEI



CT-EMFAC2017 Emissions Factors for Santa Clara County 2023

File Name:	123 Sherman - Santa Clara (SF) - 2023 - Annual.EF
CT-EMFAC2017 Version:	1.0.2.27401
Run Date:	5/11/2022 13:56
Area:	Santa Clara (SF)
Analysis Year:	2023
Season:	Annual

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category	Gas VMT Fraction Within Category
Truck 1	0.015	0.487	0.513
Truck 2	0.02	0.938	0.047
Non-Truck	0.965	0.014	0.958

Road Type:	Major/Collector	
Silt Loading Factor:	CARB	0.032 g/m2
Precipitation Correction:	CARB	P = 64 days N = 365 days

Fleet Average Running Exhaust Emission Factors (grams/veh-mile)

Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph
PM2.5	0.009229	0.005981	0.004054	0.002896	0.002194	0.001765	0.001511	0.001375
TOG	0.195764	0.127928	0.086105	0.061055	0.046181	0.036838	0.030861	0.027137
Diesel PM	0.000904	0.000732	0.000563	0.000446	0.000382	0.000353	0.00035	0.00037

Fleet Average Running Loss Emission Factors (grams/veh-hour)

Pollutant Name	Emission Factor
TOG	1.35761

Fleet Average Tire Wear Factors (grams/veh-mile)

Pollutant Name	Emission Factor
PM2.5	0.002108

Fleet Average Brake Wear Factors (grams/veh-mile)

Pollutant Name	Emission Factor
PM2.5	0.016808

Fleet Average Road Dust Factors (grams/veh-mile)

Pollutant Name	Emission Factor
PM2.5	0.014855

==========END==========

Oregon Expressway Traffic Emissions and Health Risk Calculations - 2023

Analysis Year = ***2023***

Vehicle Type	2017 Caltrans Vehicles (veh/day)	2023 Vehicles (veh/day)
Total	**31,370**	**33,252**

Increase From 2017	1.06
Vehicles/Direction	**16,626**
Avg Vehicles/Hour/Direction	693

Traffic Data Year = ***2017***

Nearby Project Existing ADT	AADT Total	Total Truck
El Camino Real and Oregon Expressway/Page Mill Rd	31,370	1,101
	Percent of Total Vehicles	3.51%

Traffic Increase per Year (%) = *1.00%*

123 Sherman Avenue, Palo Alto, CA - Offsite Residential Roadway Modeling
Cumulative Operation - Oregon Expressway
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
DPM_NB_ORE	Oregon Expressway Northbound	NB	2	592.9	0.37	13.3	43.7	3.4	Varied	16,626
DPM_SB_ORE	Oregon Expressway Southbound	SB	2	602.9	0.37	13.3	43.7	3.4	Varied	16,626
									Total	33,252

Emission Factors - DPM

Speed Category	1	2	3	4
Travel Speed (mph)	35	25		
Emissions per Vehicle (g/VMT)	0.00035	0.00038		

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and DPM Emissions - DPM_NB_ORE

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	3.91%	650	2.33E-05	9	6.50%	1080	4.22E-05	17	5.58%	927	3.63E-05
2	2.59%	430	1.54E-05	10	7.36%	1224	4.38E-05	18	3.28%	545	2.13E-05
3	2.88%	478	1.71E-05	11	6.33%	1052	3.77E-05	19	2.36%	392	1.40E-05
4	3.34%	555	1.99E-05	12	6.84%	1138	4.08E-05	20	0.92%	153	5.48E-06
5	2.19%	363	1.30E-05	13	6.15%	1023	3.66E-05	21	2.99%	497	1.78E-05
6	3.39%	564	2.02E-05	14	6.15%	1023	3.66E-05	22	4.14%	688	2.47E-05
7	5.98%	994	3.56E-05	15	5.23%	870	3.12E-05	23	2.47%	411	1.47E-05
8	4.66%	774	3.03E-05	16	3.91%	650	2.33E-05	24	0.86%	143	5.14E-06
								Total		16,626	

2023 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_SB_ORE

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.91%	650	2.37E-05	9	6.50%	1080	4.29E-05	17	5.58%	927	3.69E-05
2	2.59%	430	1.57E-05	10	7.36%	1224	4.46E-05	18	3.28%	545	2.17E-05
3	2.88%	478	1.74E-05	11	6.33%	1052	3.83E-05	19	2.36%	392	1.43E-05
4	3.34%	555	2.02E-05	12	6.84%	1138	4.14E-05	20	0.92%	153	5.57E-06
5	2.19%	363	1.32E-05	13	6.15%	1023	3.73E-05	21	2.99%	497	1.81E-05
6	3.39%	564	2.05E-05	14	6.15%	1023	3.73E-05	22	4.14%	688	2.51E-05
7	5.98%	994	3.62E-05	15	5.23%	870	3.17E-05	23	2.47%	411	1.50E-05
8	4.66%	774	3.08E-05	16	3.91%	650	2.37E-05	24	0.86%	143	5.22E-06
								Total		16,626	

123 Sherman Avenue, Palo Alto, CA - Offsite Residential Roadway Modeling
Cumulative Operation - Oregon Expressway
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
PM25_NB_ORE	Oregon Expressway Northbound	NB	2	592.9	0.37	13.3	44	1.3	Varied	16,626
PM25_SB_ORE	Oregon Expressway Southbound	SB	2	602.9	0.37	13.3	44	1.3	Varied	16,626
									Total	33,252

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	35	25		
Emissions per Vehicle (g/VMT)	0.001511	0.002194		

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and PM2.5 Emissions - PM25_NB_ORE

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	191	2.96E-05	9	7.11%	1182	2.65E-04	17	7.38%	1228	2.76E-04
2	0.42%	69	1.07E-05	10	4.39%	730	1.13E-04	18	8.17%	1359	3.05E-04
3	0.41%	68	1.05E-05	11	4.66%	775	1.20E-04	19	5.70%	947	1.46E-04
4	0.26%	44	6.77E-06	12	5.89%	979	1.51E-04	20	4.27%	711	1.10E-04
5	0.50%	83	1.29E-05	13	6.15%	1023	1.58E-04	21	3.26%	542	8.38E-05
6	0.90%	150	2.32E-05	14	6.04%	1004	1.55E-04	22	3.30%	548	8.48E-05
7	3.79%	631	9.75E-05	15	7.01%	1166	1.80E-04	23	2.46%	409	6.32E-05
8	7.76%	1291	2.90E-04	16	7.14%	1186	1.83E-04	24	1.86%	310	4.79E-05
								Total		16,626	

2023 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM25_SB_ORE

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	191	3.01E-05	9	7.11%	1182	2.70E-04	17	7.38%	1228	2.80E-04
2	0.42%	69	1.09E-05	10	4.39%	730	1.15E-04	18	8.17%	1359	3.10E-04
3	0.41%	68	1.07E-05	11	4.66%	775	1.22E-04	19	5.70%	947	1.49E-04
4	0.26%	44	6.88E-06	12	5.89%	979	1.54E-04	20	4.27%	711	1.12E-04
5	0.50%	83	1.31E-05	13	6.15%	1023	1.61E-04	21	3.26%	542	8.52E-05
6	0.90%	150	2.36E-05	14	6.04%	1004	1.58E-04	22	3.30%	548	8.62E-05
7	3.79%	631	9.92E-05	15	7.01%	1166	1.83E-04	23	2.46%	409	6.43E-05
8	7.76%	1291	2.95E-04	16	7.14%	1186	1.87E-04	24	1.86%	310	4.87E-05
								Total		16,626	

123 Sherman Avenue, Palo Alto, CA - Offsite Residential Roadway Modeling
Cumulative Operation - Oregon Expressway
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
TEXH_NB_ORE	Oregon Expressway Northbound	NB	2	592.9	0.37	13.3	44	1.3	Varied	16,626
TEXH_SB_ORE	Oregon Expressway Southbound	SB	2	602.9	0.37	13.3	44	1.3	Varied	16,626
									Total	33,252

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	35	25		
Emissions per Vehicle (g/VMT)	0.03086	0.04618		

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_NB_ORE

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	191	6.05E-04	9	7.11%	1182	5.59E-03	17	7.38%	1228	5.80E-03
2	0.42%	69	2.19E-04	10	4.39%	730	2.31E-03	18	8.17%	1359	6.42E-03
3	0.41%	68	2.14E-04	11	4.66%	775	2.45E-03	19	5.70%	947	2.99E-03
4	0.26%	44	1.38E-04	12	5.89%	979	3.09E-03	20	4.27%	711	2.24E-03
5	0.50%	83	2.63E-04	13	6.15%	1023	3.23E-03	21	3.26%	542	1.71E-03
6	0.90%	150	4.75E-04	14	6.04%	1004	3.17E-03	22	3.30%	548	1.73E-03
7	3.79%	631	1.99E-03	15	7.01%	1166	3.68E-03	23	2.46%	409	1.29E-03
8	7.76%	1291	6.10E-03	16	7.14%	1186	3.75E-03	24	1.86%	310	9.79E-04
								Total		16,626	

2023 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH_SB_ORE

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	191	6.15E-04	9	7.11%	1182	5.68E-03	17	7.38%	1228	5.90E-03
2	0.42%	69	2.23E-04	10	4.39%	730	2.35E-03	18	8.17%	1359	6.53E-03
3	0.41%	68	2.18E-04	11	4.66%	775	2.49E-03	19	5.70%	947	3.04E-03
4	0.26%	44	1.41E-04	12	5.89%	979	3.14E-03	20	4.27%	711	2.28E-03
5	0.50%	83	2.67E-04	13	6.15%	1023	3.28E-03	21	3.26%	542	1.74E-03
6	0.90%	150	4.83E-04	14	6.04%	1004	3.22E-03	22	3.30%	548	1.76E-03
7	3.79%	631	2.03E-03	15	7.01%	1166	3.74E-03	23	2.46%	409	1.31E-03
8	7.76%	1291	6.20E-03	16	7.14%	1186	3.81E-03	24	1.86%	310	9.95E-04
								Total		16,626	

123 Sherman Avenue, Palo Alto, CA - Offsite Residential Roadway Modeling
Cumulative Operation - Oregon Expressway
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
TEVAP_NB_ORE	Oregon Expressway Northbound	NB	2	592.9	0.37	13.3	44	1.3	Varied	16,626
TEVAP_SB_ORE	Oregon Expressway Southbound	SB	2	602.9	0.37	13.3	44	1.3	Varied	16,626
									Total	33,252

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	35	25		
Emissions per Vehicle per Hour (g/hour)	1.35761	1.35761		
Emissions per Vehicle per Mile (g/VMT)	0.03879	0.05430		

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_NB_ORE

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	191	7.60E-04	9	7.11%	1182	6.57E-03	17	7.38%	1228	6.82E-03
2	0.42%	69	2.76E-04	10	4.39%	730	2.90E-03	18	8.17%	1359	7.55E-03
3	0.41%	68	2.69E-04	11	4.66%	775	3.08E-03	19	5.70%	947	3.76E-03
4	0.26%	44	1.74E-04	12	5.89%	979	3.89E-03	20	4.27%	711	2.82E-03
5	0.50%	83	3.30E-04	13	6.15%	1023	4.06E-03	21	3.26%	542	2.15E-03
6	0.90%	150	5.97E-04	14	6.04%	1004	3.98E-03	22	3.30%	548	2.18E-03
7	3.79%	631	2.50E-03	15	7.01%	1166	4.63E-03	23	2.46%	409	1.62E-03
8	7.76%	1291	7.17E-03	16	7.14%	1186	4.71E-03	24	1.86%	310	1.23E-03
								Total		16,626	

2023 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP_SB_ORE

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	191	7.73E-04	9	7.11%	1182	6.68E-03	17	7.38%	1228	6.94E-03
2	0.42%	69	2.80E-04	10	4.39%	730	2.95E-03	18	8.17%	1359	7.68E-03
3	0.41%	68	2.74E-04	11	4.66%	775	3.13E-03	19	5.70%	947	3.82E-03
4	0.26%	44	1.77E-04	12	5.89%	979	3.95E-03	20	4.27%	711	2.87E-03
5	0.50%	83	3.36E-04	13	6.15%	1023	4.13E-03	21	3.26%	542	2.19E-03
6	0.90%	150	6.07E-04	14	6.04%	1004	4.05E-03	22	3.30%	548	2.21E-03
7	3.79%	631	2.55E-03	15	7.01%	1166	4.71E-03	23	2.46%	409	1.65E-03
8	7.76%	1291	7.29E-03	16	7.14%	1186	4.79E-03	24	1.86%	310	1.25E-03
								Total		16,626	

123 Sherman Avenue, Palo Alto, CA - Offsite Residential Roadway Modeling
Cumulative Operation - Oregon Expressway
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
FUG_NB_ORE	Oregon Expressway Northbound	NB	2	592.9	0.37	13.3	44	1.3	Varied	16,626
FUG_SB_ORE	Oregon Expressway Southbound	SB	2	602.9	0.37	13.3	44	1.3	Varied	16,626
									Total	33,252

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	35	25		
Tire Wear - Emissions per Vehicle (g/VMT)	0.00211	0.00211		
Brake Wear - Emissions per Vehicle (g/VMT)	0.01681	0.01681		
Road Dust - Emissions per Vehicle (g/VMT)	0.01486	0.01486		
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.03377	0.03377		

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_NB_ORE

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	191	6.62E-04	9	7.11%	1182	4.09E-03	17	7.38%	1228	4.24E-03
2	0.42%	69	2.40E-04	10	4.39%	730	2.52E-03	18	8.17%	1359	4.70E-03
3	0.41%	68	2.34E-04	11	4.66%	775	2.68E-03	19	5.70%	947	3.27E-03
4	0.26%	44	1.51E-04	12	5.89%	979	3.38E-03	20	4.27%	711	2.46E-03
5	0.50%	83	2.88E-04	13	6.15%	1023	3.53E-03	21	3.26%	542	1.87E-03
6	0.90%	150	5.20E-04	14	6.04%	1004	3.47E-03	22	3.30%	548	1.90E-03
7	3.79%	631	2.18E-03	15	7.01%	1166	4.03E-03	23	2.46%	409	1.41E-03
8	7.76%	1291	4.46E-03	16	7.14%	1186	4.10E-03	24	1.86%	310	1.07E-03
								Total		16,626	

2023 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG_SB_ORE

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	191	6.73E-04	9	7.11%	1182	4.16E-03	17	7.38%	1228	4.31E-03
2	0.42%	69	2.44E-04	10	4.39%	730	2.57E-03	18	8.17%	1359	4.77E-03
3	0.41%	68	2.38E-04	11	4.66%	775	2.72E-03	19	5.70%	947	3.33E-03
4	0.26%	44	1.54E-04	12	5.89%	979	3.44E-03	20	4.27%	711	2.50E-03
5	0.50%	83	2.92E-04	13	6.15%	1023	3.59E-03	21	3.26%	542	1.90E-03
6	0.90%	150	5.28E-04	14	6.04%	1004	3.53E-03	22	3.30%	548	1.93E-03
7	3.79%	631	2.22E-03	15	7.01%	1166	4.10E-03	23	2.46%	409	1.44E-03
8	7.76%	1291	4.54E-03	16	7.14%	1186	4.17E-03	24	1.86%	310	1.09E-03
								Total		16,626	

123 Sherman Avenue, Palo Alto, CA - Oregon Expressway Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
at Construction MEI Receptors, 1.5m (1st Fl) Receptor Heights

Emission Year	2023
Receptor Information	Construction MEI receptors
Number of Receptors	2
Receptor Height	1st Floor (1.5 meters)
Receptor Distances	At Cancer Risk amd PM2.5 MEI locations

Meteorological Conditions	
BAQMD Moffett Federal Airfield Met Data	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Wind Direction	Variable

Construction Cancer Risk MEI, Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0016	0.1379	0.1694

Construction PM2.5 Concentration MEI, PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.1403	0.1336	0.0068

123 Sherman Avenue, Palo Alto, CA - Oregon Expressway Cancer Risk & PM2.5 Impacts at Construction MEIs - 1.5m (1st Fl) Receptor Heights
30 Year Residential Exposure

Cancer Risk Calculation Method

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air $(\mu g/m^3)$
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Cancer Potency Factors $(mg/kg\text{-}day)^{-1}$

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Values

	Infant/Child			Adult
Age -->	3rd Trimester	0 - 2	2 - 16	16 - 30
Parameter				
ASF =	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	0.25	-0.25 - 0*	2023	10	0.0016	0.1379	0.1694	0.022	0.011	0.0008	0.03
1	1	0 - 1	2023	10	0.0016	0.1379	0.1694	0.264	0.129	0.0094	0.40
2	1	1 - 2	2024	10	0.0016	0.1379	0.1694	0.264	0.129	0.0094	0.40
3	1	2 - 3	2025	3	0.0016	0.1379	0.1694	0.042	0.020	0.0015	0.06
4	1	3 - 4	2026	3	0.0016	0.1379	0.1694	0.042	0.020	0.0015	0.06
5	1	4 - 5	2027	3	0.0016	0.1379	0.1694	0.042	0.020	0.0015	0.06
6	1	5 - 6	2028	3	0.0016	0.1379	0.1694	0.042	0.020	0.0015	0.06
7	1	6 - 7	2029	3	0.0016	0.1379	0.1694	0.042	0.020	0.0015	0.06
8	1	7 - 8	2030	3	0.0016	0.1379	0.1694	0.042	0.020	0.0015	0.06
9	1	8 - 9	2031	3	0.0016	0.1379	0.1694	0.042	0.020	0.0015	0.06
10	1	9 - 10	2032	3	0.0016	0.1379	0.1694	0.042	0.020	0.0015	0.06
11	1	10 - 11	2033	3	0.0016	0.1379	0.1694	0.042	0.020	0.0015	0.06
12	1	11 - 12	2034	3	0.0016	0.1379	0.1694	0.042	0.020	0.0015	0.06
13	1	12 - 13	2035	3	0.0016	0.1379	0.1694	0.042	0.020	0.0015	0.06
14	1	13 - 14	2036	3	0.0016	0.1379	0.1694	0.042	0.020	0.0015	0.06
15	1	14 - 15	2037	3	0.0016	0.1379	0.1694	0.042	0.020	0.0015	0.06
16	1	15 - 16	2038	3	0.0016	0.1379	0.1694	0.042	0.020	0.0015	0.06
17	1	16-17	2039	1	0.0016	0.1379	0.1694	0.005	0.002	0.0002	0.01
18	1	17-18	2040	1	0.0016	0.1379	0.1694	0.005	0.002	0.0002	0.01
19	1	18-19	2041	1	0.0016	0.1379	0.1694	0.005	0.002	0.0002	0.01
20	1	19-20	2042	1	0.0016	0.1379	0.1694	0.005	0.002	0.0002	0.01
21	1	20-21	2043	1	0.0016	0.1379	0.1694	0.005	0.002	0.0002	0.01
22	1	21-22	2044	1	0.0016	0.1379	0.1694	0.005	0.002	0.0002	0.01
23	1	22-23	2045	1	0.0016	0.1379	0.1694	0.005	0.002	0.0002	0.01
24	1	23-24	2046	1	0.0016	0.1379	0.1694	0.005	0.002	0.0002	0.01
25	1	24-25	2047	1	0.0016	0.1379	0.1694	0.005	0.002	0.0002	0.01
26	1	25-26	2048	1	0.0016	0.1379	0.1694	0.005	0.002	0.0002	0.01
27	1	26-27	2049	1	0.0016	0.1379	0.1694	0.005	0.002	0.0002	0.01
28	1	27-28	2050	1	0.0016	0.1379	0.1694	0.005	0.002	0.0002	0.01
29	1	28-29	2051	1	0.0016	0.1379	0.1694	0.005	0.002	0.0002	0.01
30	1	29-30	2052	1	0.0016	0.1379	0.1694	0.005	0.002	0.0002	0.01
Total Increased Cancer Risk								1.20	0.586	0.042	**1.83**

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.0003	0.13	0.14

* Third trimester of pregnancy

Alma Street Traffic Emissions and Health Risk Calculations - 2023

Analysis Year = ***2023***

Vehicle Type	2019 Caltrans Vehicles (veh/day)	2023 Vehicles (veh/day)
Total	**25,000**	**26,000**

Increase From 2019	1.04
Vehicles/Direction	**13,000**
Avg Vehicles/Hour/Direction	542

Traffic Data Year = ***2019***

Project Traffic Data - Background Plus Project ADT	AADT Total	Total Truck
Alma Street & Churchill Ave	25,000	878
	Percent of Total Vehicles	3.51%

Traffic Increase per Year (%) = *1.00%*

123 Sherman Avenue, Palo Alto, CA - Offsite Residential Roadway Modeling
Cumulative Operation - Alma Street
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = **2023**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
DPM_EB_ALM	Alma Street Eastbound	EB	2	663.0	0.41	13.3	43.7	3.4	Varied	13,000
DPM_WB_ALM	Alma Street Westbound	WB	2	658.1	0.41	13.3	43.7	3.4	Varied	13,000
									Total	26,000

Emission Factors - DPM

Speed Category	1	2	3	4
Travel Speed (mph)	35	25		
Emissions per Vehicle (g/VMT)	0.00035	0.00038		

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and DPM Emissions - DPM_EB_ALM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	3.91%	508	2.04E-05	9	6.50%	845	3.69E-05	17	5.58%	725	3.17E-05
2	2.59%	336	1.35E-05	10	7.36%	957	3.83E-05	18	3.28%	426	1.86E-05
3	2.88%	374	1.50E-05	11	6.33%	822	3.29E-05	19	2.36%	306	1.23E-05
4	3.34%	434	1.74E-05	12	6.84%	890	3.56E-05	20	0.92%	120	4.79E-06
5	2.19%	284	1.14E-05	13	6.15%	800	3.20E-05	21	2.99%	389	1.56E-05
6	3.39%	441	1.77E-05	14	6.15%	800	3.20E-05	22	4.14%	538	2.16E-05
7	5.98%	777	3.11E-05	15	5.23%	680	2.72E-05	23	2.47%	321	1.29E-05
8	4.66%	606	2.65E-05	16	3.91%	508	2.04E-05	24	0.86%	112	4.49E-06
								Total		13,000	

2023 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_WB_ALM

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.91%	508	2.02E-05	9	6.50%	845	3.67E-05	17	5.58%	725	3.15E-05
2	2.59%	336	1.34E-05	10	7.36%	957	3.80E-05	18	3.28%	426	1.85E-05
3	2.88%	374	1.49E-05	11	6.33%	822	3.27E-05	19	2.36%	306	1.22E-05
4	3.34%	434	1.72E-05	12	6.84%	890	3.54E-05	20	0.92%	120	4.76E-06
5	2.19%	284	1.13E-05	13	6.15%	800	3.18E-05	21	2.99%	389	1.55E-05
6	3.39%	441	1.75E-05	14	6.15%	800	3.18E-05	22	4.14%	538	2.14E-05
7	5.98%	777	3.09E-05	15	5.23%	680	2.70E-05	23	2.47%	321	1.28E-05
8	4.66%	606	2.63E-05	16	3.91%	508	2.02E-05	24	0.86%	112	4.46E-06
								Total		13,000	

123 Sherman Avenue, Palo Alto, CA - Offsite Residential Roadway Modeling
Cumulative Operation - Alma Street
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
PM25_EB_ALM	Alma Street Eastbound	EB	2	663.0	0.41	13.3	44	1.3	Varied	13,000
PM25_WB_ALM	Alma Street Westbound	WB	2	658.1	0.41	13.3	44	1.3	Varied	13,000
									Total	26,000

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	35	25		
Emissions per Vehicle (g/VMT)	0.001511	0.002194		

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and PM2.5 Emissions - PM25_EB_ALM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	150	2.59E-05	9	7.11%	924	2.32E-04	17	7.38%	960	2.41E-04
2	0.42%	54	9.38E-06	10	4.39%	571	9.87E-05	18	8.17%	1062	2.67E-04
3	0.41%	53	9.16E-06	11	4.66%	606	1.05E-04	19	5.70%	741	1.28E-04
4	0.26%	34	5.92E-06	12	5.89%	766	1.32E-04	20	4.27%	556	9.61E-05
5	0.50%	65	1.13E-05	13	6.15%	800	1.38E-04	21	3.26%	424	7.33E-05
6	0.90%	118	2.03E-05	14	6.04%	785	1.36E-04	22	3.30%	429	7.41E-05
7	3.79%	493	8.53E-05	15	7.01%	912	1.58E-04	23	2.46%	320	5.53E-05
8	7.76%	1009	2.53E-04	16	7.14%	928	1.60E-04	24	1.86%	242	4.19E-05
								Total		13,000	

2023 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM25_WB_ALM

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	150	2.57E-05	9	7.11%	924	2.30E-04	17	7.38%	960	2.39E-04
2	0.42%	54	9.32E-06	10	4.39%	571	9.80E-05	18	8.17%	1062	2.65E-04
3	0.41%	53	9.09E-06	11	4.66%	606	1.04E-04	19	5.70%	741	1.27E-04
4	0.26%	34	5.87E-06	12	5.89%	766	1.31E-04	20	4.27%	556	9.54E-05
5	0.50%	65	1.12E-05	13	6.15%	800	1.37E-04	21	3.26%	424	7.27E-05
6	0.90%	118	2.02E-05	14	6.04%	785	1.35E-04	22	3.30%	429	7.36E-05
7	3.79%	493	8.46E-05	15	7.01%	912	1.56E-04	23	2.46%	320	5.49E-05
8	7.76%	1009	2.51E-04	16	7.14%	928	1.59E-04	24	1.86%	242	4.16E-05
								Total		13,000	

123 Sherman Avenue, Palo Alto, CA - Offsite Residential Roadway Modeling
Cumulative Operation - Alma Street
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
TEXH_EB_ALM	Alma Street Eastbound	EB	2	663.0	0.41	13.3	44	1.3	Varied	13,000
TEXH_WB_ALM	Alma Street Westbound	WB	2	658.1	0.41	13.3	44	1.3	Varied	13,000
									Total	26,000

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	35	25		
Emissions per Vehicle (g/VMT)	0.03086	0.04618		

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_EB_ALM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	150	5.29E-04	9	7.11%	924	4.89E-03	17	7.38%	960	5.07E-03
2	0.42%	54	1.92E-04	10	4.39%	571	2.02E-03	18	8.17%	1062	5.61E-03
3	0.41%	53	1.87E-04	11	4.66%	606	2.14E-03	19	5.70%	741	2.62E-03
4	0.26%	34	1.21E-04	12	5.89%	766	2.70E-03	20	4.27%	556	1.96E-03
5	0.50%	65	2.30E-04	13	6.15%	800	2.82E-03	21	3.26%	424	1.50E-03
6	0.90%	118	4.15E-04	14	6.04%	785	2.77E-03	22	3.30%	429	1.51E-03
7	3.79%	493	1.74E-03	15	7.01%	912	3.22E-03	23	2.46%	320	1.13E-03
8	7.76%	1009	5.33E-03	16	7.14%	928	3.28E-03	24	1.86%	242	8.56E-04
								Total		13,000	

2023 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH_WB_ALM

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	150	5.25E-04	9	7.11%	924	4.85E-03	17	7.38%	960	5.04E-03
2	0.42%	54	1.90E-04	10	4.39%	571	2.00E-03	18	8.17%	1062	5.57E-03
3	0.41%	53	1.86E-04	11	4.66%	606	2.13E-03	19	5.70%	741	2.60E-03
4	0.26%	34	1.20E-04	12	5.89%	766	2.68E-03	20	4.27%	556	1.95E-03
5	0.50%	65	2.28E-04	13	6.15%	800	2.80E-03	21	3.26%	424	1.49E-03
6	0.90%	118	4.12E-04	14	6.04%	785	2.75E-03	22	3.30%	429	1.50E-03
7	3.79%	493	1.73E-03	15	7.01%	912	3.20E-03	23	2.46%	320	1.12E-03
8	7.76%	1009	5.29E-03	16	7.14%	928	3.25E-03	24	1.86%	242	8.49E-04
								Total		13,000	

123 Sherman Avenue, Palo Alto, CA - Offsite Residential Roadway Modeling
Cumulative Operation - Alma Street
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
TEVAP_EB_ALM	Alma Street Eastbound	EB	2	663.0	0.41	13.3	44	1.3	Varied	13,000
TEVAP_WB_ALM	Alma Street Westbound	WB	2	658.1	0.41	13.3	44	1.3	Varied	13,000
									Total	26,000

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	35	25		
Emissions per Vehicle per Hour (g/hour)	1.35761	1.35761		
Emissions per Vehicle per Mile (g/VMT)	0.03879	0.05430		

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_EB_ALM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	150	6.65E-04	9	7.11%	924	5.75E-03	17	7.38%	960	5.97E-03
2	0.42%	54	2.41E-04	10	4.39%	571	2.53E-03	18	8.17%	1062	6.60E-03
3	0.41%	53	2.35E-04	11	4.66%	606	2.69E-03	19	5.70%	741	3.29E-03
4	0.26%	34	1.52E-04	12	5.89%	766	3.40E-03	20	4.27%	556	2.47E-03
5	0.50%	65	2.89E-04	13	6.15%	800	3.55E-03	21	3.26%	424	1.88E-03
6	0.90%	118	5.22E-04	14	6.04%	785	3.48E-03	22	3.30%	429	1.90E-03
7	3.79%	493	2.19E-03	15	7.01%	912	4.05E-03	23	2.46%	320	1.42E-03
8	7.76%	1009	6.27E-03	16	7.14%	928	4.12E-03	24	1.86%	242	1.08E-03
								Total		13,000	

2023 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP_WB_ALM

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	150	6.60E-04	9	7.11%	924	5.70E-03	17	7.38%	960	5.92E-03
2	0.42%	54	2.39E-04	10	4.39%	571	2.52E-03	18	8.17%	1062	6.55E-03
3	0.41%	53	2.33E-04	11	4.66%	606	2.67E-03	19	5.70%	741	3.26E-03
4	0.26%	34	1.51E-04	12	5.89%	766	3.37E-03	20	4.27%	556	2.45E-03
5	0.50%	65	2.87E-04	13	6.15%	800	3.52E-03	21	3.26%	424	1.87E-03
6	0.90%	118	5.18E-04	14	6.04%	785	3.46E-03	22	3.30%	429	1.89E-03
7	3.79%	493	2.17E-03	15	7.01%	912	4.02E-03	23	2.46%	320	1.41E-03
8	7.76%	1009	6.22E-03	16	7.14%	928	4.09E-03	24	1.86%	242	1.07E-03
								Total		13,000	

123 Sherman Avenue, Palo Alto, CA - Offsite Residential Roadway Modeling
Cumulative Operation - Alma Street
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
FUG_EB_ALM	Alma Street Eastbound	EB	2	663.0	0.41	13.3	44	1.3	Varied	13,000
FUG_WB_ALM	Alma Street Westbound	WB	2	658.1	0.41	13.3	44	1.3	Varied	13,000
									Total	26,000

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	35	25		
Tire Wear - Emissions per Vehicle (g/VMT)	0.00211	0.00211		
Brake Wear - Emissions per Vehicle (g/VMT)	0.01681	0.01681		
Road Dust - Emissions per Vehicle (g/VMT)	0.01486	0.01486		
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.03377	0.03377		

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_EB_ALM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	150	5.79E-04	9	7.11%	924	3.57E-03	17	7.38%	960	3.71E-03
2	0.42%	54	2.10E-04	10	4.39%	571	2.21E-03	18	8.17%	1062	4.11E-03
3	0.41%	53	2.05E-04	11	4.66%	606	2.34E-03	19	5.70%	741	2.86E-03
4	0.26%	34	1.32E-04	12	5.89%	766	2.96E-03	20	4.27%	556	2.15E-03
5	0.50%	65	2.52E-04	13	6.15%	800	3.09E-03	21	3.26%	424	1.64E-03
6	0.90%	118	4.54E-04	14	6.04%	785	3.03E-03	22	3.30%	429	1.66E-03
7	3.79%	493	1.91E-03	15	7.01%	912	3.52E-03	23	2.46%	320	1.24E-03
8	7.76%	1009	3.90E-03	16	7.14%	928	3.58E-03	24	1.86%	242	9.36E-04
								Total		13,000	

2023 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG_WB_ALM

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	150	5.74E-04	9	7.11%	924	3.55E-03	17	7.38%	960	3.68E-03
2	0.42%	54	2.08E-04	10	4.39%	571	2.19E-03	18	8.17%	1062	4.08E-03
3	0.41%	53	2.03E-04	11	4.66%	606	2.33E-03	19	5.70%	741	2.84E-03
4	0.26%	34	1.31E-04	12	5.89%	766	2.94E-03	20	4.27%	556	2.13E-03
5	0.50%	65	2.50E-04	13	6.15%	800	3.07E-03	21	3.26%	424	1.63E-03
6	0.90%	118	4.51E-04	14	6.04%	785	3.01E-03	22	3.30%	429	1.64E-03
7	3.79%	493	1.89E-03	15	7.01%	912	3.50E-03	23	2.46%	320	1.23E-03
8	7.76%	1009	3.87E-03	16	7.14%	928	3.56E-03	24	1.86%	242	9.30E-04
								Total		13,000	

123 Sherman Avenue, Palo Alto, CA - Alma Street Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
at Construction MEI Receptors, 1.5m (1st Fl) Receptor Heights

Emission Year	2023
Receptor Information	Construction MEI receptors
Number of Receptors	2
Receptor Height	1st Floor (1.5 meters)
Receptor Distances	At Cancer Risk amd PM2.5 MEI locations

Meteorological Conditions	
BAQMD Moffett Federal Airfield Met Data	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Wind Direction	Variable

Construction Cancer Risk MEI, Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0006	0.0667	0.0818

Construction PM2.5 Concentration MEI, PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.1166	0.1109	0.0056

123 Sherman Avenue, Palo Alto, CA - Alma Street Cancer Risk & PM2.5 Impacts at Construction MEIs - 1.5m (1st Fl) Receptor Heights
30 Year Residential Exposure

Cancer Risk Calculation Method

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air $(\mu g/m^3)$
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Cancer Potency Factors $(mg/kg\text{-}day)^{-1}$

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Values

	Infant/Child			Adult
Age -->	3rd Trimester	0 - 2	2 - 16	16 - 30
Parameter				
ASF =	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	TOTAL
0	0.25	-0.25 - 0*	2023	10	0.0006	0.0667	0.0818	0.009	0.005	0.0004	0.01
1	1	0 - 1	2023	10	0.0006	0.0667	0.0818	0.103	0.063	0.0045	0.17
2	1	1 - 2	2024	10	0.0006	0.0667	0.0818	0.103	0.063	0.0045	0.17
3	1	2 - 3	2025	3	0.0006	0.0667	0.0818	0.016	0.010	0.0007	0.03
4	1	3 - 4	2026	3	0.0006	0.0667	0.0818	0.016	0.010	0.0007	0.03
5	1	4 - 5	2027	3	0.0006	0.0667	0.0818	0.016	0.010	0.0007	0.03
6	1	5 - 6	2028	3	0.0006	0.0667	0.0818	0.016	0.010	0.0007	0.03
7	1	6 - 7	2029	3	0.0006	0.0667	0.0818	0.016	0.010	0.0007	0.03
8	1	7 - 8	2030	3	0.0006	0.0667	0.0818	0.016	0.010	0.0007	0.03
9	1	8 - 9	2031	3	0.0006	0.0667	0.0818	0.016	0.010	0.0007	0.03
10	1	9 - 10	2032	3	0.0006	0.0667	0.0818	0.016	0.010	0.0007	0.03
11	1	10 - 11	2033	3	0.0006	0.0667	0.0818	0.016	0.010	0.0007	0.03
12	1	11 - 12	2034	3	0.0006	0.0667	0.0818	0.016	0.010	0.0007	0.03
13	1	12 - 13	2035	3	0.0006	0.0667	0.0818	0.016	0.010	0.0007	0.03
14	1	13 - 14	2036	3	0.0006	0.0667	0.0818	0.016	0.010	0.0007	0.03
15	1	14 - 15	2037	3	0.0006	0.0667	0.0818	0.016	0.010	0.0007	0.03
16	1	15 - 16	2038	3	0.0006	0.0667	0.0818	0.016	0.010	0.0007	0.03
17	1	16-17	2039	1	0.0006	0.0667	0.0818	0.002	0.001	0.0001	0.00
18	1	17-18	2040	1	0.0006	0.0667	0.0818	0.002	0.001	0.0001	0.00
19	1	18-19	2041	1	0.0006	0.0667	0.0818	0.002	0.001	0.0001	0.00
20	1	19-20	2042	1	0.0006	0.0667	0.0818	0.002	0.001	0.0001	0.00
21	1	20-21	2043	1	0.0006	0.0667	0.0818	0.002	0.001	0.0001	0.00
22	1	21-22	2044	1	0.0006	0.0667	0.0818	0.002	0.001	0.0001	0.00
23	1	22-23	2045	1	0.0006	0.0667	0.0818	0.002	0.001	0.0001	0.00
24	1	23-24	2046	1	0.0006	0.0667	0.0818	0.002	0.001	0.0001	0.00
25	1	24-25	2047	1	0.0006	0.0667	0.0818	0.002	0.001	0.0001	0.00
26	1	25-26	2048	1	0.0006	0.0667	0.0818	0.002	0.001	0.0001	0.00
27	1	26-27	2049	1	0.0006	0.0667	0.0818	0.002	0.001	0.0001	0.00
28	1	27-28	2050	1	0.0006	0.0667	0.0818	0.002	0.001	0.0001	0.00
29	1	28-29	2051	1	0.0006	0.0667	0.0818	0.002	0.001	0.0001	0.00
30	1	29-30	2052	1	0.0006	0.0667	0.0818	0.002	0.001	0.0001	0.00
Total Increased Cancer Risk								0.47	0.283	0.020	**0.77**

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.0001	0.11	0.12

* Third trimester of pregnancy

Bay Area Air Quality Management District

Risk & Hazard Stationary Source Inquiry Form

This form is required when users request stationary source data from BAAQMD

This form is to be used with the BAAQMD's Google Earth stationary source screening tables.

Click here for guidance on coducting risk & hazard screening, including roadways & freeways, refer to the District's Risk & Hazard Analysis flow chart.

Click here for District's Recommended Methods for Screening and Modeling Local Risks and Hazards document.

Table A: Requester Contact Information

Date of Request	**3/28/2022**
Contact Name	Casey Divine
Affiliation	Illingworth & Rodkin, Inc.
Phone	707-794-0400 x103
Email	cdivine@illingworthrodkin.com
Project Name	123 Sherman Ave Offices
Address	123 Sherman Ave
City	Palo Alto
County	Santa Clara
Type (residential, commercial, mixed use, industrial, etc.)	Office
Project Size (# of units or building square feet)	~70,000ksf
Comments:	

For Air District assistance, the following steps must be completed:

1. Complete all the contact and project information requested in Table A. Incomplete forms will not be processed. Please include a project site map.

2. Download and install the free program Google Earth, **http://www.google.com/earth/download/ge/,** and then download the county specific Google Earth stationary source application files from the District's website, **http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx.** The small points on the map represent stationary sources permitted by the District (Map A on right). These permitted sources include diesel back-up generators, gas stations, dry cleaners, boilers, printers, auto spray booths, etc. Click on a point to view the source's Information Table, including the name, location, and preliminary estimated cancer risk, hazard index, and PM2.5 concentration.

3. Find the project site in Google Earth by inputting the site's address in the Google Earth search box.

4. Identify stationary sources within at least a 1000ft radius of project site. Verify that the location of the source on the map matches with the source's address in the Information Table, by using the Google Earth address search box to confirm the source's address location. Please report any mapping errors to the District.

5. List the stationary source information in Table B ue section only.

6. Note that a small percentage of the stationary sources have Health Risk Screening Assessment (HRSA) data INSTEAD of screening level data. These sources will be noted by an asterisk next to the Plant Name (Map B on right). If HRSA values are presented, these values have already been modeled and cannot be adjusted further.

7. Email this completed form to District staff. District staff will provide the most recent risk, hazard, and PM2.5 data that are available for the source(s). If this information or data are not available, source emissions data will be provided. Staff will respond to inquiries within three weeks.

Note that a public records request received for the same stationary source information will cancel the processing of your SSIF request.

Submit forms, maps, and questions to Matthew Hanson at 415-749-8733, or mhanson@baaqmd.gov

Table B: Google Earth data

Distance from Receptor (feet) or MEI[1] Cancer/PM2.5	Plant No.	Facility Name	Address	Cancer Risk[2]	Hazard Risk[2]	$PM_{2.5}$[2]	Source No.[3]	Type of Source[4]	Fuel Code[5]	Status/Comments	Construction MEIs: Distance Adjustment Multiplier to Cancer MEI	Construction MEIs: Distance Adjustment Multiplier to PM2.5 MEI	Construction MEIs: Adjusted Cancer Risk Estimate	Construction MEIs: Adjusted Hazard Risk	Construction MEIs: Adjusted PM2.5
460/260	13265	Santa Clara County Roads & Airports Dept	Pmp Sttn at Orgn Expy	3.49	0.01	--		Auto Body Coating Operation		2018 Dataset	0.38	0.56	1.31	0.002	#VALUE!
285/350	20325	Judicial Council of California, JCC 43-D1	270 Grant Avenue	2.22	0.003	0.003		Generators		2018 Dataset	0.25	0.18	0.56	0.001	0.001
550/750	20493	Cloudera Inc.	395 Page Mill Road	1.12	0.0003	0.001		Generators		2018 Dataset	0.10	0.07	0.11	0.00003	0.0001

Footnotes:

1. Maximally exposed individual
2. These Cancer Risk, Hazard Index, and PM2.5 columns represent the values in the Google Earth Plant Information Table.
3. Each plant may have multiple permits and sources.
4. Permitted sources include diesel back-up generators, gas stations, dry cleaners, boilers, printers, auto spray booths, etc.
5. Fuel codes: 98 = diesel, 189 = Natural Gas.
6. If a Health Risk Screening Assessment (HRSA) was completed for the source, the application number will be listed here.
7. The date that the HRSA was completed.
8. Engineer who completed the HRSA. For District purposes only.
9. All HRSA completed before 1/5/2010 need to be multiplied by an age sensitivity factor of 1.7.
10. The HRSA "Chronic Health" number represents the Hazard Index.
11. Further information about common sources:
    a. Sources that only include diesel internal combustion engines can be adjusted using the BAAQMD's Diesel Multiplier worksheet.
    b. The risk from natural gas boilers used for space heating when <25 MM BTU/hr would have an estimated cancer risk of one in a million or less, and a chronic hazard index of 0.003 or
    c. BAAQMD Reg 11 Rule 16 required that all co-residential (sharing a wall, floor, ceiling or is in the same building as a residential unit) dry cleaners cease use of perc on July 1, 2010. Therefore, there is no cancer risk, hazard or PM2.5 concentrations from co-residential dry cleaning businesses in the BAAQMD.
    d. Non co-residential dry cleaners must phase out use of perc by Jan. 1, 2023. Therefore, the risk from these dry cleaners does not need to be factored in over a 70-year period, but instead should reflect
    e. Gas stations can be adjusted using BAAQMD's Gas Station Distance Mulitplier worksheet.
    f. Unless otherwise noted, exempt sources are considered insignificant. See BAAQMD Reg 2 Rule 1 for a list of exempt sources.
    g. This spray booth is considered to be insignificant.

Date last updated:
03/13/2018

Stationary Source Risk & Hazards Screening Report

Area of Interest (AOI) Information

Area : 4,023,546.9 ft²

Feb 24 2022 13:30:48 Pacific Standard Time

Summary

Name	Count	Area(ft²)	Length(ft)
Permitted Facilities 2018	3	N/A	N/A

Permitted Facilities 2018

#	FACID	Name	Address	City	St
1	13265	Santa Clara County Roads & Airports Dept	Pmp Sttn at Orgn Expy	Palo Alto	CA
2	20325	Judicial Council of California, JCC 43-D1	270 Grant Avenue	Palo Alto	CA
3	20493	Cloudera Inc.	395 Page Mill Road	Palo Alto	CA

#	Zip	County	Cancer	Hazard	PM_25	Type	Count
1	94304	Santa Clara	3.490	0.010	0.000	Contact BAAQMD	1
2	94306	Santa Clara	2.220	0.000	0.000	Generators	1
3	94306	Santa Clara	1.120	0.000	0.000	Generators	1

Note: The estimated risk and hazard impacts from these sources would be expected to be substantially lower when site specific Health Risk Screening Assessments are conducted.

The screening level map is not recommended for evaluating sensitive land uses such as schools, senior centers, day cares, and health facilities.