865 EMBEDDED WAY INDUSTRIAL PROJECT AIR QUALITY ASSESSMENT

San José, California

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Introduction

The purpose of this report is to address air quality and community health risk impacts associated with the proposed industrial project located at 865 Embedded Way in San José, California. The air quality impacts and greenhouse gas (GHG) emissions from this project would be associated with construction of the new buildings and operation of the facility. Air pollutant and GHG emissions associated with construction and operation of the project were predicted using appropriate computer models. In addition, the potential health risk impacts associated with construction and operation of the project, and the impact of existing toxic air contaminant (TAC) sources affecting the nearby sensitive receptors were evaluated. The analysis was conducted following guidance provided by the Bay Area Air Quality Management District (BAAQMD).[1]

Project Description

The current 10.17-acre project site is mostly vacant and consists of undeveloped grassland. The project proposes to construct a one-story, 121,850-square-foot (sf) industrial/manufacturing warehouse building surrounded by a paved parking lot with a total of 298 parking spaces. The northern side of the proposed building would include 12 truck loading docks and the southeast corner of the building would include a 472-horsepower (HP) diesel emergency fire pump. While a designated end use has not been determined for the proposed building, the project is designed for a research and development (R&D) use. The land use and zoning designation allow for a variety of industrial uses, such as R&D, manufacturing, assembly, testing, and offices. For purposes of this study, the project was assumed to be an R&D facility.

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

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

region-wide emissions and localized emissions. High particulate matter levels 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

TACs are a broad class of compounds known to cause morbidity or mortality, often because they cause cancer. 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. Health risks from TACs are estimated using the Office of Environmental Health Hazard Assessment (OEHHA) risk assessment guidelines, which 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, people 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, 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 single-family residences to the west of the project site opposite Coyote Creek. This project would not introduce new sensitive receptors (i.e., residents) to the area.

[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.

Regulatory Setting

Federal Regulations

National Ambient Air Quality Standards (NAAQS) for criteria air pollutants are established by the United States Environmental Protection Agency (EPA). Where the standards are not met, States are required to develop a State Implementation Plan (SIP) to demonstrate a plan to meet the standard or show progress toward meeting the standard. EPA also establishes nationwide emission standards for mobile sources, which include on-road (highway) motor vehicles such trucks, buses, and automobiles, and non-road (off-road) vehicles and equipment used in construction, agricultural, industrial, and mining activities (such as bulldozers and loaders). The EPA sets nationwide fuel standards, however California also has the ability to set motor vehicle emission standards and standards for fuel, as long as they are the same or more stringent than the nationwide 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 NO_X and particulate matter (PM_{10} and $PM_{2.5}$) and because the EPA has identified DPM 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 particulate matter 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. Current standards have 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 diesel 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 Air Quality Regulations

The CARB is the agency responsible for the coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA), adopted in 1988. The CCAA requires that all air districts in the state achieve and maintain the California Ambient Air Quality Standards (CAAQS) by the earliest practical date. The CCAA specifies that districts should focus on reducing the emissions from transportation and air-wide emission sources and provides districts with the authority to regulate indirect sources.

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

CARB is also responsible for developing and implementing air pollution control plans to achieve and maintain the NAAQS. CARB is primarily responsible for statewide pollution sources and produces a major part of the SIP. Local air districts provide additional strategies for sources under their jurisdiction. CARB combines this data and submits the completed SIP to the EPA.

Other CARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air pollution control and air quality management districts), establishing CAAQS (which in many cases are more stringent than the NAAQS), determining and updating area designations and maps, and setting emissions standards for new mobile sources, consumer products, small utility engines, and off-road vehicles.

California Clean Air Act

In 1988, the CCAA required that all air districts in the state endeavor to achieve and maintain CAAQS for CO, O_3, SO_2, and NO_2 by the earliest practical date. The CCAA provides districts with authority to regulate indirect sources and mandates that air quality districts focus particular attention on reducing emissions from transportation and area-wide emission sources. Each nonattainment district is required to adopt a plan to achieve a 5 percent annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each nonattainment pollutant or its precursors. A Clean Air Plan shows how a district would reduce emissions to achieve air quality standards. Generally, the state standards for these pollutants are more stringent than the national standards.

California Air Resources Board Handbook

In 1998, CARB identified particulate matter from diesel-fueled engines (DPM) as a TAC. CARB has completed a risk management process that identified potential cancer risks for a range of activities using diesel-fueled engines.[4] CARB subsequently developed an Air Quality and Land Use Handbook[5] (Handbook) in 2005 that is intended to serve as a general reference guide for evaluating and reducing air pollution impacts associated with new projects that go through the land use decision-making process. The 2005 CARB Handbook recommends that planning agencies consider proximity to air pollution sources when considering new locations for "sensitive" land uses, such as residences, medical facilities, daycare centers, schools, and playgrounds.

Air pollution sources of concern include freeways, rail yards, ports, refineries, distribution centers, chrome plating facilities, dry cleaners, and large gasoline service stations. Key recommendations in the Handbook include taking steps to consider or avoid siting new, sensitive land uses:

- Within 500 feet of a freeway, urban roads with 100,000 vehicles/day or rural roads with 50,000 vehicles/day.

[4] California Air Resources Board, 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. October.
[5] California Air Resources Board, 2005. *Air Quality and Land Use Handbook: A Community Health Perspective.* April.

- Within 300 feet of gasoline fueling stations (note that new fueling stations utilize enhanced vapor recovery systems that substantially reduce emissions).
- Within 300 feet of dry-cleaning operations (note that dry cleaning with TACs is being phased out and will be prohibited in 2023).

Truck and Bus Regulation

CARB is actively enforcing heavy-duty diesel vehicle regulations that require fleets to replace or retrofit heavy-duty diesel vehicles (i.e., “Truck and Bus Regulation"), with full implementation of the program scheduled for January 1, 2023. Compliance with the program is generally considered if vehicles are equipped with a 2010 or newer engine model year. As of January 1, 2020, the DMV cannot register any vehicle that does not meet the requirements of the Truck and Bus Regulation.

Other CARB diesel programs affecting heavy-duty diesel vehicles include:

- Idling limits of no more than 5 minutes with special exceptions.
- Emission Control Labels must be affixed to engines of all commercial heavy-duty diesel vehicles, and must be legible as proof the engine, at minimum, meets U.S. federal emissions standards for the engine model year.
- The Periodic Smoke Inspection Program requires owners of California-based fleets of two or more diesel vehicles to perform annual smoke opacity tests and to keep records for at least two years for each vehicle.
- The Heavy-Duty Vehicle Inspection Program uses random roadside inspections to verify that diesel engines do not smoke excessively and are tamper-free.

Off-Road Vehicle and Equipment Regulations

CARB has also adopted and implemented regulations to reduce DPM and emissions of nitrogen oxides (NOx) 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 NOx 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, is expected to substantially reduce emissions of DPM and NOx.

Fleet owners must report the vehicle and engine information for all vehicles within their fleets operating in California. Fleet owners must also report owner information. Fleet owners should report using DOORS, which is CARB’s online reporting tool. CARB issues a unique Equipment

Identification Number (EIN) that is assigned to each vehicle. The fleet owner must label their vehicles with the EIN.

Other CARB diesel programs affecting off-road vehicles and equipment include:

- Idling limits of no more than 5 minutes with special exceptions.
- Portable engines 50 hp or greater may require a permit or registration to legally operate. BAAQMD is responsible for taking enforcement action against individuals who own or operate portable equipment without a registration or permit.

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 the 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 NAAQS and 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.[6] 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 populations. Risk reduction activities associated with the CARE program are focused on the most at-risk communities in the Bay Area. The BAAQMD defines overburdened communities as areas located (i) within a census tract identified by the California Communities Environmental Health Screening Tool (CalEnviroScreen), Version 4.0 implemented by OEHHA, as having an overall score at or above the 70th percentile, or (ii) within 1,000 feet of any such census tract.[7] The CalEnviroScreen 4.0 overall percentile score is 67.0. The project site is not within a CARE area

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

and is not within a BAAQMD overburdened area as identified by CalEnviroScreen as the project site is scored at the 17th percentile.[8]

The BAAQMD California Environmental Quality Act (*CEQA) Air Quality Guidelines*[9] 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 GHG emissions.

BAAQMD Rules and Regulations

Combustion equipment associated with the proposed project that 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 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
- 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
    - 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.

[8] OEHAA, CalEnviroScreen 4.0 Indicator Maps https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40
[9] Bay Area Air Quality Management District, 2017. *CEQA Air Quality Guidelines*. May.

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 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 (HI) of 1.0.

Stationary Diesel Airborne Toxic Control Measure

The BAAQMD administers the CARB's Airborne Toxic Control Measure (ACTM) for Stationary Diesel engines (section 93115, title 17 CA Code of Regulations). The project's stationary sources will be new stationary emergency standby diesel engines for a fire pump larger than 50 hp. These limits vary based on maximum engine power. All engines are limited to PM emission rates of 0.15 g/hp-hour, regardless of size. This ACTM limits engine operation 50 hours per year for routine testing and maintenance.

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 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 in an emergency standby basis, 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.

BACT for Diesel Engines

Since the fire pumps 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:

> <u>I.C. Engine – Compression Ignition >50hp and <1.000hp</u>: 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.
>
> <u>I.C. Engine – Compression Ignition >999hp</u>: 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 (PM_{10} or $PM_{2.5}$) limit is 0.02 g/hp-hr. POC (i.e., ROG) limits are 0.14 g/hp-hr.

<u>San José Envision 2040 General Plan</u>

The San José Envision 2040 General Plan includes goals, policies, and actions to reduce exposure of the City's sensitive population to exposure of air pollution and toxic air contaminants or TACs. The following goals, policies, and actions are applicable to the proposed project and this assessment:

Applicable Goals – Air Pollutant Emission Reduction
Goal MS-10 Minimize emissions from new development.

Applicable Policies – Air Pollutant Emission Reduction
MS-10.1 Assess projected air emissions from new development in conformance with the Bay Area Air Quality Management District (BAAQMD) CEQA Guidelines and relative to state and federal standards. Identify and implement feasible air emission reduction measures.

MS-10.2 Consider the cumulative air quality impacts from proposed developments for proposed land use designation changes and new development, consistent with the region's Clean Air Plan and State law.

MS-10.4 Encourage effective regulation of mobile and stationary sources of air pollution, both inside and outside of San José. In particular, support Federal and State regulations to improve automobile emission controls.

MS-10.7 Encourage regional and statewide air pollutant emission reduction through energy conservation to improve air quality.

Applicable Goals – Toxic Air Contaminants

Goal MS-11 Minimize exposure of people to air pollution and toxic air contaminants such as ozone, carbon monoxide, lead, and particulate matter.

Applicable Policies – Toxic Air Contaminants

MS-11.2 For projects that emit toxic air contaminants, require project proponents to prepare health risk assessments in accordance with BAAQMD-recommended procedures as part of environmental review and employ effective mitigation to reduce possible health risks to a less than significant level. Alternatively, require new projects (such as, but not limited to, industrial, manufacturing, and processing facilities) that are sources of TACs to be located an adequate distance from residential areas and other sensitive receptors.

MS-11.3 Review projects generating significant heavy duty truck traffic to designate truck routes that minimize exposure of sensitive receptors to TACs and particulate matter.

MS-11.4 Encourage the installation of appropriate air filtration at existing schools, residences, and other sensitive receptor uses adversely affected by pollution sources.

MS-11.5 Encourage the use of pollution absorbing trees and vegetation in buffer areas between substantial sources of TACs and sensitive land uses.

Actions – Toxic Air Contaminants

MS-11.6 Develop and adopt a comprehensive Community Risk Reduction Plan that includes: baseline inventory of toxic air contaminants (TACs) and particulate matter smaller than 2.5 microns ($PM_{2.5}$), emissions from all sources, emissions reduction targets, and enforceable emission reduction strategies and performance measures. The Community Risk Reduction Plan will include enforcement and monitoring tools to ensure regular review of progress toward the emission reduction targets, progress reporting to the public and responsible agencies, and periodic updates of the plan, as appropriate

MS-11.7 Consult with BAAQMD to identify stationary and mobile TAC sources and determine the need for and requirements of a health risk assessment for proposed developments.

MS-11.8 For new projects that generate truck traffic, require signage which reminds drivers that the State truck idling law limits truck idling to five minutes.

Applicable Goals – Construction Air Emissions

Goal MS-13 Minimize air pollutant emissions during demolition and construction activities.

Applicable Policies – Construction Air Emissions

MS-13.1 Include dust, particulate matter, and construction equipment exhaust control measures as conditions of approval for subdivision maps, site development and planned development permits, grading permits, and demolition permits. At minimum, conditions shall conform to construction mitigation measures recommended in the current BAAQMD CEQA Guidelines for the relevant project size and type.

Applicable Actions – Construction Air Emissions

MS-13.4 Adopt and periodically update dust, particulate, and exhaust control standard measures for demolition and grading activities to include on project plans as conditions of approval based upon construction mitigation measures in the BAAQMD CEQA Guidelines.

<u>Significance Thresholds</u>

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 its thresholds in the *CEQA Air Quality Guidelines* in 2017 to include the latest BAAQMD significance thresholds that were used in this analysis and are summarized in Table 1. Community health risks are considered significant if they exceed these thresholds.

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	None	
Health Risks and Hazards	**Single Sources Within 1,000-foot Zone of Influence**	**Combined Sources (Cumulative from all sources within 1000-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 $\mu g/m^3$	0.8 $\mu g/m^3$	
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.			

Source: Bay Area Air Quality Management District, 2017

AIR QUALITY IMPACTS AND MITIGATION MEASURES

Impact AIR-1: Conflict with or obstruct implementation of the applicable air quality plan?

BAAQMD is the regional agency responsible for overseeing compliance with State and Federal laws, regulations, and programs within the San Francisco Bay Area Air Basin (SFBAAB). BAAQMD, with assistance from the Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC), prepares and implements specific plans to meet the applicable laws, regulations, and programs. The most recent and comprehensive of which is the *Bay Area 2017 Clean Air Plan*.[10] The primary goals of the Clean Air Plan are to attain air quality standards, reduce population exposure and protect public health, and reduce GHG emissions and protect the climate. The BAAQMD has also developed CEQA guidelines to assist lead agencies in evaluating the significance of air quality and GHG impacts. In formulating compliance strategies, BAAQMD relies on planned land uses established by local general plans. Land use planning affects vehicle travel, which, in turn, affects region-wide emissions of air pollutants and GHGs.

The 2017 Clean Air Plan, adopted by BAAQMD in April 2017, includes control measures that are intended to reduce air pollutant emissions in the Bay Area either directly or indirectly. Guidance provided in the BAAQMD CEQA guidelines recommends that Plans show consistency with the control measures listed within the Clean Air Plan. At the project-level, BAAQMD's CEQA guidance examines whether a project supports the Clean Air Plan's primary goals: (1) attain air quality standards, (2) reduce population exposure and protecting public health in the Bay Area; and (3) reduce GHG emissions and protect the climate. The proposed project would not conflict with the latest Clean Air planning efforts since 1) project would have emissions below the BAAQMD thresholds (see Impact below), 2) the project would be considered urban infill and approved to be an active commercial or industrial land use and would not adversely affect public health in the Bay Area, and 3) would not result in a significant impact on climate change.

Impact AIR-2: 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 NAAQS and the CAAQS. The area is also considered non-attainment for PM_{10} under the CAAQS, but not the NAAQS. 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. The O_3 precursor pollutant thresholds are for ROG and NOx, while PM_{10}, and $PM_{2.5}$ have specific thresholds. The thresholds apply to both construction period emissions and operational period emissions.

[10] Bay Area Air Quality Management District (BAAQMD), 2017. *Final 2017 Clean Air Plan.*

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 and 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.[11] The CalEEMod model output along with construction inputs are included in *Attachment 2* and EMFAC2021 vehicle emissions modeling outputs are included in *Attachment 3*.

<u>CalEEMod Modeling</u>

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	Acreage
Research & Development	121.85	1,000-sf	121,850	10.17
Parking Lot	298	Parking Spaces	86,000	

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. The construction build-out scenario, including equipment list and schedule, were based on project-specific construction information provided by the project applicant.

The CalEEMod construction equipment worksheet provided by the applicant included the schedule for each phase of construction (included in *Attachment 2*). Within each construction phase, the quantity of equipment to be used along with the average use hours per day and total number of workdays were provided. Since different equipment would have different estimates of the use per phase, the hours per day for each piece of equipment was computed by dividing the total number of hours that the equipment would be used by the total number of days in that phase. The construction schedule assumed that the earliest possible start date would be February 2023 and would be built out over a period of approximately 10 months, or 195 construction workdays. The earliest year of full operation was assumed to be 2024. Emission rates for construction equipment and traffic are lower in future years as newer equipment with lower emissions rates is introduced into the overall fleet replacing older equipment with high emission rates.

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

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 soil material imported and/or exported to the site and the estimate of concrete and asphalt truck trips. The total trips for those were computed by multiplying the daily trip rate by the number of days in that phase. Haul trips for grading were estimated from the provided grading volumes by 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. Therefore, 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 default assumptions, where worker trips are assumed to be comprised of light-duty autos (EMFAC category LDA) and light duty trucks (EMFAC category LDT1and LDT2). Vendor trips are comprised of delivery and large trucks (EMFAC category MHDT and HHDT) and haul trips, including concrete 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 (soil import/export). Each trip was assumed to include an idle time of 5 minutes. Emissions associated with vehicle starts were also included. On road emissions in Santa Clara County for the year 2023 were used in these calculations. Table 3 provides the traffic inputs that were combined with the EMFAC2021 emission database to compute vehicle emissions.

Table 3. Construction Traffic Data Used for EMFAC2021 Model Runs

CalEEMod Run/Land Uses and Construction Phase	Total Trips by Trip Type			Notes
	Worker[1]	Vendor[1]	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	CalEEMod default distance with 5-min truck idle time.
Demolition	110	-	-	CalEEMod default worker trips.
Site Preparation	345	-	-	CalEEMod default worker trips.
Grading	1,480	-	2,250	14,000-cy soil import. CalEEMod default worker trips.
Trenching	720	-	-	CalEEMod default worker trips.
Building Construction	4,800	2,176	1,320	660 concrete truck round trips. CalEEMod default worker and vendor trips.
Paving	260	-	240	1,000-cy asphalt hauling. CalEEMod default worker trips.
Architectural Coating	195	-	-	CalEEMod default worker trips

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

Summary of Computed Construction Period Emissions

Average daily emissions were annualized for each year of construction by dividing the annual construction emissions by the number of active construction workdays that year. Table 4 shows the 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 annualized project construction emissions would not exceed the BAAQMD significance thresholds during any year of construction.

Table 4. Construction Period Emissions

Year	ROG	NOx	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
Construction Emissions Per Year (Tons)				
2023	0.76	1.08	0.05	0.06
Average Daily Construction Emissions Per Year (pounds/day)				
2023 (195 construction workdays)	7.77	11.13	0.51	0.62
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. San Jose General Policy MS-10.1 specifies that projects should assess projected air emissions from new development in conformance with the BAAQMD CEQA Guidelines, relative to state and federal standards and identify and implement feasible air emission reduction measures. Thus, San Jose General Policy MS-10.1 requires construction projects implement BAAQMD-Recommended Standard Measures to control PM_{10} and $PM_{2.5}$ emissions. *Mitigation Measure AQ-1 would implement BAAQMD's standard measures.*

Mitigation Measure AQ-1: Implement BAAQMD-Recommended Standard Measures to Control Particulate Matter Emissions during Construction.

Measures to reduce fugitive dust (i.e., PM_{10} and $PM_{2.5}$) emissions from construction are recommended to reduce fugitive dust emissions and ensure that health impacts to nearby sensitive receptors are minimized. During any construction period ground disturbance, the applicant shall ensure that the project contractor implements basic measures to control dust and exhaust. Implementation of the dust control 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. The contractor shall implement the following standard best management practices:

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 Mitigation Measure AQ-1

Mitigation Measure AQ-1 represents standard mitigation measures that would achieve greater than a 50 percent reduction in on-site fugitive $PM_{2.5}$ emissions. These measures are consistent with recommendations in the BAAMQD CEQA Guidance for providing "best management practices" to control construction emissions.

Operational Period Emissions

Operational air emissions from the project would be generated primarily from trucks using the industrial facility and autos driven by future employees. Evaporative emissions from architectural coatings and maintenance products (classified as consumer products) are typical emissions from these types of uses. CalEEMod was used to estimate emissions from operation of the proposed project assuming full build-out.

<u>CalEEMod Inputs</u>

Land Uses

The project land uses were input to CalEEMod as described above for the construction 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 2024 if construction begins in 2023. Emissions associated with build-out later than 2024 would be lower.

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 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 vehicle emission factors and fleet mix were updated with the emission rates and fleet mix from EMFAC2021. On road emission rates from 2024 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.[12]

Traffic Information

CalEEMod allows the user to enter specific vehicle trip generation rates. Project-specific traffic trip generation estimates were provided for this assessment.[13] The project would produce 1,269 new daily trips after a *Location-Based Reduction* and *VMT-Based Reduction*. The daily trip generation was calculated using ITE trip generation rates, the size of the project, and the adjusted total automobile trips after reductions. The Saturday and Sunday trip rates were derived 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.

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 electricity produced emission rate was modified in CalEEMod. An emission factor of 178 pounds of CO_2 per megawatt of electricity produced was entered into CalEEMod, which is based on San Jose Clean Energy's 2020 emissions rate.[14] It should be noted that per Climate Smart San Jose and San Jose's Greenhouse Gas Reduction Strategy, SJCE's goal is provision of 100-percent carbon-free electricity prior to 2030.[15]

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

[13] Hexagon Transportation Consultants, Inc., *Embedded Way Industrial Development Transportation Analysis*, July 13, 2022.

[14] San Jose Clean Energy Website, Standard GreenSource service. Web: https://sanjosecleanenergy.org/commercial-rates/

[15] City of San José, 2020. "2030 Greenhouse Gas Reduction Strategy", August. Web: https://www.sanjoseca.gov/home/showpublisheddocument/63667/637347412207870000

The City of San José passed an ordinance in December 2020 that prohibits the use of natural gas infrastructure in new residential, office, and most retail-type buildings.[16] This ordinance applies to any new construction starting August 1, 2021. Natural gas use for the R&D land use was set to zero and reassigned to electricity use in CalEEMod.

Project Stationary Sources

The project proposes to include one 462-horsepower (HP) diesel fire pump located in the southeast corner of the proposed building. For modeling purposes, it was assumed that the fire pump would be operated primarily for testing and maintenance purposes, and used during emergencies. CARB and BAAQMD requirements limit these engine operations to 50 hours each per year of non-emergency operation. During testing periods, the engines would typically be run for less than one hour. The engines would be required to meet CARB and EPA emission standards and consume commercially available California low-sulfur diesel fuel. Additionally, the generator would have to meet BAAQMD BACT requirements for IC Engine-Compression Ignition: Stationary Emergency, non-Agricultural, non-direct drive fire pump sources. The fire pump's 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 estimated to be 100% aerobic conditions to represent City wastewater treatment plant conditions. The project site would not send wastewater to on-site septic tanks or facultative lagoons.

Summary of Computed Operational Period Emissions

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

Table 5. Operational Period Emissions

Scenario	ROG	NO_X	PM_{10}	$PM_{2.5}$
2024 Project Operational Emissions (*tons/year*)	1.16	0.50	0.82	0.21
BAAQMD Thresholds (tons /year)	*10 tons*	*10 tons*	*15 tons*	*10 tons*
Exceed Thresholds?	No	No	No	No
2024 Project Operational Emissions (*lbs./day*)[1]	6.38	2.74	4.49	1.16
BAAQMD Thresholds (lbs./day)	*54 lbs.*	*54 lbs.*	*82 lbs.*	*54 lbs.*
Exceed Threshold?	No	No	No	No

Notes: [1] Assumes 365-day operation.

[16] City of San José, 2020. "ORDINANCE NO. 30502", December. Web: https://www.sanjoseca.gov/home/showpublisheddocument/69230/637485403354170000njoseca.gov/Home/Components/News/News/2210/4699

Impact AIR-3: 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 an emergency fire pump powered by diesel engines. Traffic generated by the project would consist of light-duty gasoline-powered vehicles along with trucks, 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 which includes the project contribution.

Community Risk Methodology for Construction and Operation

Community risk impacts are addressed by predicting increased lifetime 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,[17] 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 would be present for extended periods of time (i.e., chronic exposures). This includes the existing residences to the west of the site, as shown in Figure 1. Residential receptors are assumed to include all receptor groups

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

(i.e., third trimester, infants, children, and adults) with almost continuous exposure to project emissions.

Health Risks from the Project

Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known TAC. These exhaust emissions (i.e., DPM) pose health risks for sensitive receptors such as surrounding residents. The primary community risk impact issues associated with construction emissions are cancer risk and exposure to $PM_{2.5}$. 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 $PM_{2.5}$.[18] This assessment included dispersion modeling to predict the offsite concentrations resulting from project construction, so that lifetime cancer risks and non-cancer health effects could be evaluated.

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 0.04 tons (75 pounds). The on-road emissions are a result of haul truck travel during 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 0.06 tons (111 pounds) for the overall construction period.

Operational Truck Traffic Emissions

Based on the proposed 12 truck loading docks, it was estimated that there would be 24 trucks or 48 truck trips generated daily by the project, which are assumed to be heavy-duty diesel-powered trucks and a source of long-term DPM emissions. These trucks would travel to and from the site and are anticipated to idle at loading docks for 5 minutes for each trip.

Emissions of DPM (assumed to be PM_{10} exhaust) from these activities were computed using the CARB EMFAC2021 model assuming trucks would travel along Hellyer Avenue at an average speed of 45 mph and along Embedded Way at 35 mph. While on-site, the trucks were assumed to travel at a speed of 5 miles per hour and each truck would idle at the warehouse site for 5 minutes per trip. Idling emissions were computed based on EMFAC2021 emission rates for 5-mph travel and converted to hourly emissions. Fugitive $PM_{2.5}$ emissions from truck travel would occur due to tire and brake wear and from road dust generated by the trucks. The fugitive $PM_{2.5}$ emissions were computed using the Caltrans CT-EMFAC2017 model.

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

Operational Fire Pump Emissions

The fire pump would be operated for testing and maintenance purposes, with a maximum of 50 hours per year of non-emergency operation under normal conditions. The diesel engine powering the fire pump would be subject to CARB's Stationary Diesel Airborne Toxics Control Measure (ATCM) and require permits from the BAAQMD, since they will be equipped with an engine larger than 50-hp. BACT requirements would apply to these generators that would limit DPM emissions. During testing periods, the engine would typically be run for less than one hour under light engine loads. The fire pump engine would be required to meet EPA emission standards and consume commercially available low sulfur diesel fuel. Additionally, the generators would have to meet BAAQMD BACT requirements for IC Engine-Compression Ignition: Stationary Emergency, non-Agricultural, non-direct drive fire pump sources. The emissions from the operation of the fire pump were calculated using the CalEEMod model.

Dispersion Modeling

The U.S. EPA AERMOD dispersion model was used to predict concentrations of DPM and $PM_{2.5}$ concentrations at sensitive receptors in the vicinity of the project area. The AERMOD dispersion model is a BAAQMD-recommended model for use in modeling analysis of these types of emission activities for CEQA projects.[19]

The modeling used a five-year meteorological data set (2013-2017) from the San José Airport prepared for use with the AERMOD model by the BAAQMD. Construction emissions were modeled as occurring during weekdays between 8:00 a.m. to 5:00 p.m. per the project applicant's construction schedule. Operational truck and generator emissions were assumed to occur at any time during a 24-hour day, 365 days per year. Construction, traffic, and stationary sources and receptor elevations were based on USGS NED data with a 10-meter resolution. Annual DPM and $PM_{2.5}$ concentrations from construction activities during the 2023 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) were used to represent the breathing height of nearby residents.[20]

Construction Sources

Emission sources for the construction site were grouped into two categories: exhaust emissions of DPM and fugitive $PM_{2.5}$ dust emissions. To represent the construction equipment exhaust emissions, an area source emission release height of 20 feet (6 meters) was used for the area sources.[21] The release height incorporates both the physical release height from the construction equipment (i.e., the height of the exhaust pipe) and plume rise after it leaves the exhaust pipe. Plume rise is due to both the high temperature of the exhaust and the high velocity of the exhaust gas. It should be noted that when modeling an area source, plume rise is not calculated by the

[19] Bay Area Air Quality Management District (BAAQMD), 2012, *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0.* May.

[20] 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

[21] California Air Resource Board, 2007. *Proposed Regulation for In-Use Off-Road Diesel Vehicles, Appendix D: Health Risk Methodology*. April. Web: https://ww3.arb.ca.gov/regact/2007/ordiesl07/ordiesl07.htm

AERMOD dispersion model as it would be for a point source (exhaust stack). Therefore, the release height from an area source used to represent emissions from sources with plume rise, such as construction equipment, should be based on the height the exhaust plume is expected to achieve, not just the height of the top of the exhaust pipe.

For modeling fugitive $PM_{2.5}$ emissions, a near-ground level release height of 7 feet (2 meters) was used for the area source. 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. Emissions from the construction equipment and on-road vehicle travel were distributed throughout the modeled area sources. Figure 1 shows the project site, construction area modeled, and receptors.

Truck Traffic Sources

Project operation was assumed to occur for 365 days per year and that the trucks could be operating at any hour of the day (i.e., 24 hours/day). Operation with truck traffic was assumed to begin in 2024. The U.S. EPA AERMOD model was used with San Jose Airport meteorology data to model truck travel and idling emissions. Truck travel was modeled using line-volume sources at the project site and along Hellyer Avenue. Idle emissions were modeled as coming from 6 point sources located at the warehouse loading dock area. Truck idling emission source information was based on San Joaquin Valley Air Pollution Control District (SJVAPCD) information for these types of sources.[22] The effects of building downwash from the project building were included in the modeling. Figure 1 shows the project site, truck travel routes modeled, and truck idle locations.

Fire Pump Sources

Fire pump stack parameters (exhaust flow rate, and exhaust gas temperature) for modeling the fire pump were based on BAAQMD default parameters for diesel engines[23] and estimated stack height of 5 feet above the rooftop level. Annual average DPM and $PM_{2.5}$ concentrations were modeled assuming that fire pump testing could occur at any time of the day (24 hours per day, 365 days per year). Figure 1 shows the locations of modeled fire pump sources.

<u>Health Risks of all Project TAC Sources at Project MEI</u>

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

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[22] SJVAPCD, Guidance for Air Dispersion Modeling, Draft 01/07 Rev 2.0.
[23] The San Francisco Community Risk Reduction Plan: Technical Support Document, BAAQMD, San Francisco Dept. of Public Health, and San Francisco Planning Dept., December 2012

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 DPM reference exposure level of 5 µg/m^3.

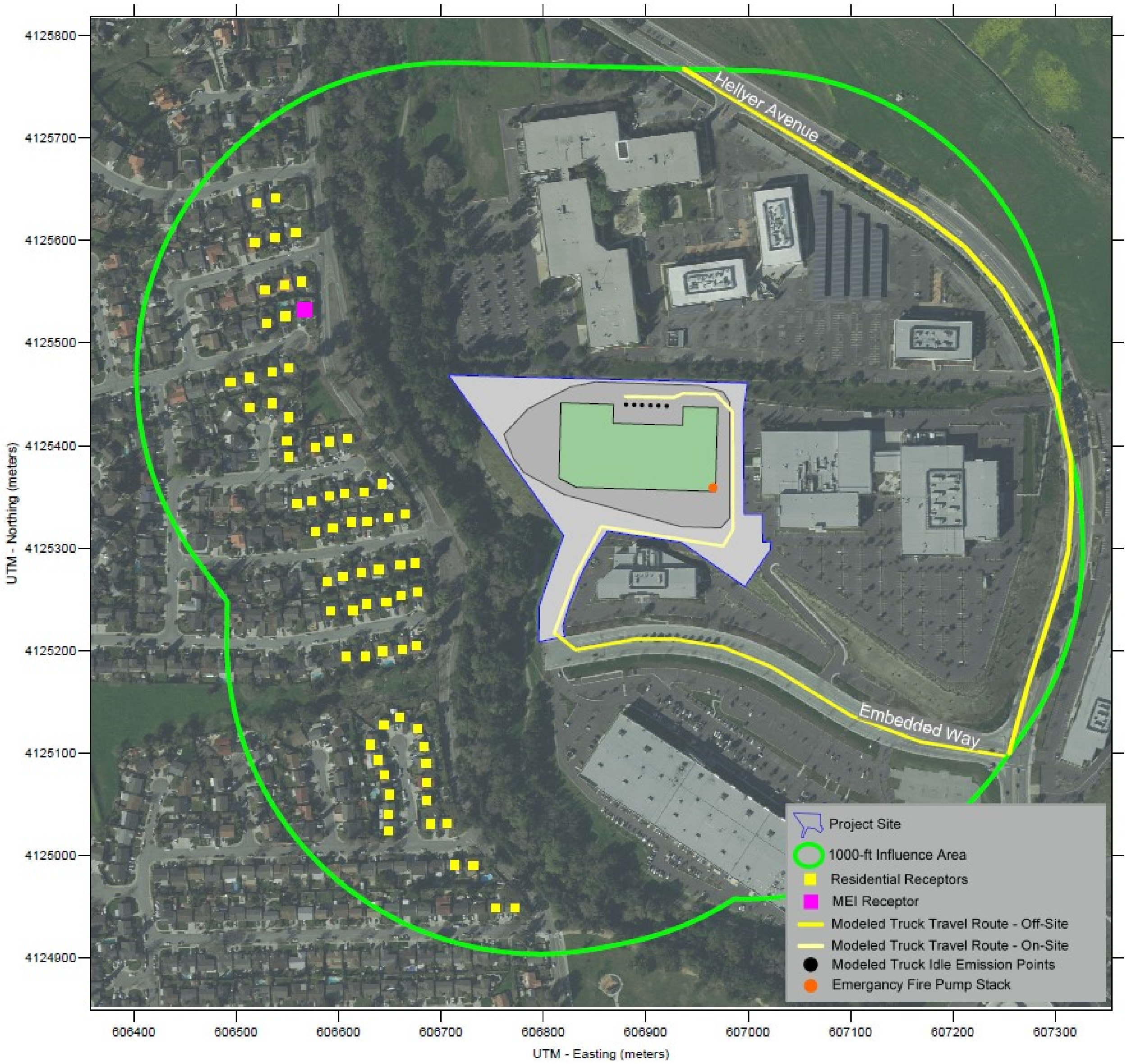
The maximum modeled annual DPM and $PM_{2.5}$ concentrations were identified at nearby sensitive receptors to find the maximally exposed individuals (MEI). The cumulative risk impacts from a project are the combination of construction and operation sources. These sources include on-site construction activity, truck traffic, and infrequent emergency fire pump operation. The maximum project cancer risk impact is computed by adding the construction cancer risk for an infant/child to the increased cancer risk for the project operational conditions from the truck traffic and fire pump operation at the MEI. Residential sensitive receptors were assumed be present near the site for up to 30 years. The cancer risks from construction and operation of the project were summed together. Unlike the increased maximum cancer risk, the annual $PM_{2.5}$ concentration and HI risks are not cumulative but based on an annual maximum risk for the entirety of the project.

Results of this assessment indicated that the project MEI was located at a single-family residence to the northwest of the project site opposite Coyote Creek. The unmitigated maximum cancer risks, annual $PM_{2.5}$ concentration, and non-cancer hazards at the MEI from project construction and operation activities would be below the single-source significance thresholds. Table 6 summarizes the maximum cancer risks, $PM_{2.5}$ concentrations, and HIs for project related construction and operational activities affecting the MEI. *Attachment 4* to this report includes the emission calculations used for the construction and operational modeling and the cancer risk calculations.

Table 6. Project Health Risk Impacts at the Off-Site MEI

Source		Cancer Risk (per million)	Annual $PM_{2.5}$ (µg/m^3)	Hazard Index
Project Impact at MEI				
Project Construction (Years 0-1)	Unmitigated	0.47 (infant)	0.01	<0.01
Project Truck Traffic (Years 2-30)	Unmitigated	0.21 (infant)	<0.01	<0.01
Project Fire Pump (Years 2-30)	Unmitigated	0.23 (infant)	<0.01	<0.01
Total/Maximum Project Impact (Years 0-30)	Unmitigated	0.91 (infant)	0.01	<0.01
BAAQMD Single-Source Threshold		***10***	***0.3***	***1.0***
Exceed Threshold?	Unmitigated	*No*	*No*	*No*

Figure 1. Locations of Project Construction Site, Truck Travel Routes, Truck Idling, Fire Pump, Off-Site Sensitive Receptors, and Maximum TAC Impact (MEI)



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

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 a project site (i.e., influence area). These sources include rail lines, highways, busy surface streets, and stationary sources identified by BAAQMD.

A review of the project area based on provided traffic information indicated that Hellyer Avenue would have average daily traffic (ADT) exceeding 10,000 vehicles. Other streets within the influence area would have less than 10,000 vehicles per day. A review of BAAQMD's stationary source geographic information systems (GIS) map tool identified one stationary source with the potential to affect the project site and MEI within the influence area. Figure 2 shows the project area, TAC sources within the influence area, and the location of the MEI. Community risk impacts from these sources upon the MEI are reported in Table 7. Details of the modeling and community risk calculations are included in *Attachment 5.*

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

Local Roadways – Hellyer Avenue

A refined analysis of potential health impacts from vehicle traffic on Hellyer Avenue was conducted since the roadway was estimated to have ADT exceeding 10,000 vehicles. The refined analysis involved predicting emissions for the traffic volume and mix of vehicle types on the roadway near the project site and using an atmospheric dispersion model to predict exposure to TACs. The associated cancer risks are then computed based on the modeled exposures. *Attachment 1* includes a description of how community risk impacts, including cancer risk are computed.

Emission Rates

This analysis involved the development of DPM, organic TACs, and $PM_{2.5}$ emissions for traffic on the roadways using the Caltrans version of the EMFAC2017 emissions model, known as CT-

EMFAC2017. CT-EMFAC2017 provides emission factors for mobile source criteria pollutants and TACs, including DPM.[24] Emission processes modeled include running exhaust for DPM, $PM_{2.5}$ and total organic compounds (e.g., 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. DPM emissions are projected to decrease in the future and are reflected in the CT-EMFAC2017 emissions data. Inputs to the model include region (i.e., Santa Clara County), type of road (i.e., major/collector), truck percentage for non-state highways in Santa Clara County (3.51 percent),[25] 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 project MEI, the CT-EMFAC2017 model was used to develop vehicle emission factors for the year 2023 (project construction 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, as discussed above, overall vehicle emissions, and in particular diesel truck emissions, will decrease in the future.

The ADT for Hellyer Avenue was based on AM and PM peak-hour background plus project traffic volumes for the nearby roadway provided by the project's traffic data.[26] The calculated ADT on Hellyer Avenue would be 12,710 vehicles. Average hourly traffic distributions for Santa Clara County roadways were developed using the EMFAC model,[27] 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, average speeds of 45 mph on Hellyer Avenue were assumed for all vehicles based on posted speed limits of the roadway.

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.[28] TAC and $PM_{2.5}$ emissions from traffic on Hellyer Avenue within 1,000 feet of the project site were evaluated. Vehicle traffic on the roadway was modeled using a series of volume sources along a

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[24] The version CT-EMFAC2017 was used in the analysis because Caltrans has not yet release a CT-EMFAC version with the updated EMFAC2021 emissions that would provide TAC emission rates.

[25] 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

[26] Hexagon Transportation Consultants, Inc., *Embedded Way Industrial Development Transportation Analysis*, July 13, 2022.

[27] 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.

[28] BAAQMD. *Recommended Methods for Screening and Modeling Local Risks and Hazards*. May 2012

line (line volume sources); with line segments used for opposing travel directions on the roadway. The same meteorological data and off-site sensitive receptor locations from the previous project impact dispersion modeling were used in the roadway modeling. Other inputs to the model included road geometry, hourly traffic emissions, and receptor locations. Roadway sources and receptor elevations were based on USGS NED data with a 10-meter resolution. Annual TAC and $PM_{2.5}$ concentrations for 2023 from traffic on the roadway were calculated using the model. Concentrations were calculated at the project MEI with receptor heights of 5 feet (1.5 meters) to represent the breathing heights at the MEI receptor.

Computed Cancer and Non-Cancer Health Impacts

The cancer risk, $PM_{2.5}$ concentration, and HI impacts from Hellyer Avenue on the project MEI are shown in Table 7. Figure 2 shows the roadway links used for the modeling and receptor locations where concentrations were calculated. Details of the emission calculations, dispersion modeling, and cancer risk calculations for the receptors with the maximum cancer risk from Hellyer Avenue 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 2020* GIS website,[29] which identifies the location of nearby stationary sources and their estimated risk and hazard impacts, including emissions and adjustments to account for new OEHHA guidance. One source was identified using this tool, with the source being diesel generator. The BAAQMD GIS website provided screening risks and hazards for this source; therefore, a stationary source information request was not required to be submitted to BAAQMD.

The screening level risks and hazards provided by BAAQMD for the stationary source was adjusted for distance using BAAQMD's *Distance Adjustment Multiplier Tool for Diesel Internal Combustion Engines*. Community risk impacts from the stationary source upon the project MEI are reported in Table 7.

Summary of Cumulative Health Risk Impact at Construction MEI

Table 7 reports both the project and cumulative community risk impacts at the sensitive receptor most affected by project construction and operation (i.e., the project MEI). The project would not have an exceedance with respect to community risk caused by project construction and operation activities since the unmitigated cancer risk, annual $PM_{2.5}$ concentration, and HI do not exceed the BAAQMD single-source or cumulative-source threshold.

[29] BAAQMD, https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=845658c19eae4594b9f4b805fb9d89a3

Table 7. Impacts from Combined Sources at Project MEI

Source		Cancer Risk (per million)	Annual $PM_{2.5}$ (µg/m^3)	Hazard Index
Project Impacts				
Total/Maximum Project Impact	Unmitigated	0.91	0.01	<0.01
Cumulative Sources				
Hellyer Ave, ADT 12,710		0.05	<0.01	<0.01
KBAY-KEZR Alpha Media LLC (Facility ID #201638, Generators), MEI at 750 feet		0.01	-	-
Combined Sources	Unmitigated	0.97	<0.02	<0.02
BAAQMD Cumulative Source Threshold		***100***	***0.8***	***10.0***
Exceed Threshold?	Unmitigated	*No*	*No*	*No*

Supporting Documentation

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

Attachment 2 includes the CalEEMod output for project construction and operational criteria air pollutants. Also included are any modeling assumptions.

Attachment 3 includes the EMFAC2021 emissions modeling.

Attachment 4 is the health risk assessment. This includes the summary of the dispersion modeling and the cancer risk calculations for construction and operation. The AERMOD dispersion modeling files for this assessment, 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 project MEI.

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.[30] 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.[31] 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.[32] Exposure parameters from the OEHHA guidelines and the recent BAAQMD HRA Guidelines were used in this evaluation.

<u>Cancer Risk</u>

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

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[30] 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.
[31] CARB, 2015. *Risk Management Guidance for Stationary Sources of Air Toxics*. July 23.
[32] 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

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

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: **Oppidan Industrial - S. San Jose**

Complete ALL Portions in Yellow

See Equipment Type TAB for type, horsepower and load factor

Project Size	**0 Dwelling Units**	**10.165 total project acres disturbed**	
	0 s.f. residential		
	0 s.f. retail		
	0 s.f. office/commercial		
	121,850 s.f. other, specify: Industrial		
	s.f. parking garage	**spaces**	
	86,000 s.f. parking lot	**298 spaces**	
Construction Hours	**8 am to**	**5 pm**	

Pile Driving? Y/N? NO

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

IF YES (if BOTH separate values) --> FIRE PUMP ONLY

Kilowatts/Horsepower: 472 HP

Fuel Type: DIESEL

Location in project (Plans Desired if Available):

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:**	**2/8/2023**	**Total phase:**	**11**			**Overall Import/Export Volumes**
		End Date:	**2/22/2023**					
0	Concrete/Industrial Saws	81	0.73	0		0.0	0	**Demolition Volume**
2	Excavators	158	0.38	9	3	2.5	54	Square footage of buildings to be demolished
1	Rubber-Tired Dozers	247	0.4	9	2	1.6	18	(*or* total tons to be hauled)
1	Tractors/Loaders/Backhoes	97	0.37	9	2	1.6	18	0 square feet *or*
								0 Hauling volume (tons)
								Any pavement demolished and hauled? 0 tons
	Site Preparation	**Start Date:**	**2/8/2023**	**Total phase:**	**15**			
		End Date:	**2/28/2023**					
5	Graders	187	0.41	9	5	3.0	225	
2	Rubber Tired Dozers	247	0.4	9	2	1.2	36	
2	Tractors/Loaders/Backhoes	97	0.37	9	2	1.2	36	
	Grading / Excavation	**Start Date:**	**2/8/2023**	**Total phase:**	**37**			
		End Date:	**3/30/2023**					**Soil Hauling Volume**
3	Excavators	158	0.38	9	16	3.9	432	Export volume = 0 cubic yards?
4	Graders	187	0.41	9	18	4.4	648	Import volume = 18,0000 cubic yards?
3	Rubber Tired Dozers	247	0.4	9	8	1.9	216	
3	Concrete/Industrial Saws	81	0.73	4	3	0.3	36	
3	Tractors/Loaders/Backhoes	97	0.37	9	10	2.4	270	
	Other Equipment?							
	Trenching/Foundation	**Start Date:**	**3/30/2023**	**Total phase:**	**72**			
		End Date:	**7/7/2023**					
2	Tractor/Loader/Backhoe	97	0.37	9	4	0.5	72	
2	Excavators	158	0.38	9	6	0.8	108	
	Other Equipment?			40	5			
	Building - Exterior	**Start Date:**	**7/11/2023**	**Total phase:**	**64**			**Cement Trucks 660 Total Round-Trips**
		End Date:	**10/6/2023**					
1	Cranes	231	0.29	5	60	4.7	300	Electric? (Y/N) N Otherwise assumed diesel
2	Forklifts	89	0.2	6	64	6.0	768	Liquid Propane (LPG)? (Y/N) Y Otherwise Assumed diesel
	Generator Sets	84	0.74			0.0	0	Or temporary line power? (N) ___
3	Tractors/Loaders/Backhoes	97	0.37	9	64	9.0	1728	
4	Welders	46	0.45	9	20	2.8	720	
4	Boom Lift	62	0.31	4	64	4.0	1024	
Building - Interior/Architectural Coating		**Start Date:**	**10/4/2023**	**Total phase:**	**13**			
		End Date:	**10/20/2023**					
	Air Compressors	78	0.48			0.0	0	
2	Aerial Lift	62	0.31	4	13	4.0	104	
	Other Equipment?							
	Paving	**Start Date:**	**10/2/2023**	**Total phase:**	**26**			
		Start Date:	**11/6/2023**					
	Cement and Mortar Mixers	9	0.56			0.0	0	
1	Pavers	130	0.42	8	4	1.2	32	**Asphalt? _1,000_ cubic yards or ____ round trips?**
1	Paving Equipment	132	0.36	8	10	3.1	80	
1	Rollers	80	0.38	8	8	2.5	64	
1	Tractors/Loaders/Backhoes	97	0.37	8	14	4.3	112	
	Other Equipment?					0	0	
	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

Complete one sheet for each project component

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

Traffic Consultant Trip Gen						CalEEMod Default		
Land Use		Size	Daily Trips	New Trips	Weekday Trip Gen	Weekday	Sat	Sun
Apartmetns High Rise	ksf	121.85	1350	1269	***10.41***	11.26	1.9	1.11
Location-Based Reduction	*5%*		*-68*			*Rev*	***1.76***	***1.03***
VMT-Based Reduction	*1.05%*		*-13*					

Project Trip Generation Estimates

	Reduction	VMT			Daily		AM Peak Hour						PM Peak Hour					
								Split		Trip				Split		Trip		
Land Use	%	Existing	Project	Size	Rate	Trip	Rate	In	Out	In	Out	Total	Rate	In	Out	In	Out	Total
#760 - Research and Development Center				121,850 Square Feet	11.080	1,350	1.030	82%	18%	103	23	126	0.980	16%	84%	19	100	119
Location-Based Reduction[1]	*5%*					*-68*				*-5*	*-1*	*-6*				*-1*	*-5*	*-6*
VMT-Based Reduction[2]	*1.05%*	15.19	15.03			*-13*				*-1*	*0*	*-1*				*0*	*-1*	*-1*
Total Project Trips						**1,269**				**97**	**22**	**119**				**18**	**94**	**112**

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

[1] The place type for the project site (Suburban with Single-Family Homes) is obtained from the City of San Jose VMT Evaluation Tool (February 29, 2019). The location-based vehicle mode shares are obtained from Table 6 of the City of San Jose Transportation Analysis Handbook (April 2020). The trip reductions are based on the percent of mode share for all of the other modes of travel beside vehicle.

[2] Existing and project VMTs were estimated using the City of San Jose VMT Evaluation Tool. It is assumed that every percent reduction in VMT per-employee is equivalent to one percent reduction in peak-hour vehicle trips.

Construction Criteria Air Pollutants

Unmitigated	ROG	NOX	PM10 Exhaust	PM2.5 Exhaust	**CO2e**	
Year	Tons				MT	
Construction Equipment						
2023	0.74	0.89	0.04	0.06	139.98	
EMFAC						
2023	0.02	0.20	0.01	0.01	151.85	
Total Construction Emissions by Year						
2023	0.76	1.08	0.05	0.06	291.82	
	Total Construction Emissions					
Tons	0.76	1.08	0.05	0.06	291.82	
Pounds/Workdays	*Average Daily Emissions*				Workdays	
2023	7.77	11.13	0.51	0.62		**195**
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**		
	Total Construction Emissions					
Pounds	7.77	11.13	0.51	0.62	0.00	
Average	7.77	11.13	0.51	0.62	0.00	195.00
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	1.16	0.50	0.82	0.21		
	Existing Use Emissions					
Total						
	Net Annual Operational Emissions					
Tons/year	1.16	0.50	0.82	0.21		
Threshold - Tons/year	**10.0**	**10.0**	**15.0**	**10.0**		
	Average Daily Emissions					
Pounds Per Day	6.38	2.74	4.49	1.16		
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**		

Category	**CO2e**			
	Project	Existing	Project 2030	Existing
Area	0.01			
Energy	83.25			
Mobile	827.21			
Waste	4.66			
Water	63.23			
TOTAL	978.35	0.00	0.00	0.00
Net GHG Emissions		978.35		0.00
Service Population	0.00			
Per Capita Emissions		#DIV/0!		#DIV/0!
	0	units		
CA DOF 2020 =	0	pphh		

865 Embedded Way, San Jose - Santa Clara County, Annual

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

865 Embedded Way, San Jose

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Research & Development	121.85	1000sqft	10.17	121,850.00	0
Parking Lot	298.00	Space	0.00	86,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2024
Utility Company	San Jose Clean Energy				
CO2 Intensity (lb/MWhr)	178	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SJCE 2020 Rate = 178

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

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

Grading - grading = 18,000-cy import

865 Embedded Way, San Jose - 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, build ext = 660 cement truck round trips, paving = 1,000-cy asphalt hauling

Vehicle Trips - Provided traffic trip gen with reductions

Vehicle Emission Factors - EMFAC2021 vehicle emission factors Santa Clara Co 2024

Fleet Mix - EMFAC2021 fleet mix Santa Clara Co 2024

Energy Use - San Jose Reach Codes - no natural gas

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

Stationary Sources - Emergency Generators and Fire Pumps - one diesel powered fire pump, 472-hp, 50 hrs/year

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

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	12.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
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 Final

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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
tblConstructionPhase	NumDays	20.00	13.00
tblConstructionPhase	NumDays	300.00	64.00
tblConstructionPhase	NumDays	20.00	11.00
tblConstructionPhase	NumDays	30.00	37.00
tblConstructionPhase	NumDays	20.00	26.00
tblConstructionPhase	NumDays	10.00	15.00
tblConstructionPhase	PhaseEndDate	8/20/2024	10/20/2023
tblConstructionPhase	PhaseEndDate	6/25/2024	10/6/2023
tblConstructionPhase	PhaseEndDate	3/7/2023	2/22/2023
tblConstructionPhase	PhaseEndDate	5/2/2023	3/30/2023
tblConstructionPhase	PhaseEndDate	7/23/2024	11/6/2023
tblConstructionPhase	PhaseEndDate	3/21/2023	2/28/2023
tblConstructionPhase	PhaseStartDate	7/24/2024	10/4/2023
tblConstructionPhase	PhaseStartDate	5/3/2023	7/11/2023
tblConstructionPhase	PhaseStartDate	3/22/2023	2/8/2023
tblConstructionPhase	PhaseStartDate	6/26/2024	10/2/2023
tblConstructionPhase	PhaseStartDate	3/8/2023	2/8/2023
tblEnergyUse	NT24E	3.70	3.71
tblEnergyUse	NT24NG	6.67	0.00
tblEnergyUse	T24E	1.32	1.33

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tblEnergyUse	T24NG	19.51	0.00
tblFleetMix	HHD	6.4040e-003	7.3070e-003
tblFleetMix	HHD	6.4040e-003	7.3070e-003
tblFleetMix	LDA	0.57	0.53
tblFleetMix	LDA	0.57	0.53
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	LHD1	0.02	0.02
tblFleetMix	LHD1	0.02	0.02
tblFleetMix	LHD2	5.1020e-003	5.6410e-003
tblFleetMix	LHD2	5.1020e-003	5.6410e-003
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	MH	2.7760e-003	2.6660e-003
tblFleetMix	MH	2.7760e-003	2.6660e-003
tblFleetMix	MHD	7.9340e-003	9.3580e-003
tblFleetMix	MHD	7.9340e-003	9.3580e-003
tblFleetMix	OBUS	9.0000e-004	1.0550e-003
tblFleetMix	OBUS	9.0000e-004	1.0550e-003
tblFleetMix	SBUS	9.1400e-004	6.8200e-004
tblFleetMix	SBUS	9.1400e-004	6.8200e-004
tblFleetMix	UBUS	3.8000e-004	4.1700e-004
tblFleetMix	UBUS	3.8000e-004	4.1700e-004
tblGrading	MaterialImported	0.00	18,000.00
tblLandUse	LandUseSquareFeet	119,200.00	86,000.00

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tblLandUse	LotAcreage	2.80	10.17
tblLandUse	LotAcreage	2.68	0.00
tblOffRoadEquipment	LoadFactor	0.31	0.31
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.31	0.31
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Aerial Lifts
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Aerial Lifts
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00

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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	4.70
tblOffRoadEquipment	UsageHours	8.00	2.50
tblOffRoadEquipment	UsageHours	8.00	3.90
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	4.40
tblOffRoadEquipment	UsageHours	8.00	1.20
tblOffRoadEquipment	UsageHours	8.00	3.10
tblOffRoadEquipment	UsageHours	8.00	2.50
tblOffRoadEquipment	UsageHours	8.00	1.60
tblOffRoadEquipment	UsageHours	8.00	1.90
tblOffRoadEquipment	UsageHours	8.00	1.20
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	9.00
tblOffRoadEquipment	UsageHours	8.00	2.40
tblOffRoadEquipment	UsageHours	8.00	1.20
tblOffRoadEquipment	UsageHours	8.00	2.80
tblProjectCharacteristics	CO2IntensityFactor	807.98	178
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	472.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	HaulingTripNumber	2,250.00	0.00
tblTripsAndVMT	VendorTripNumber	34.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00

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tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	40.00	0.00
tblTripsAndVMT	WorkerTripNumber	75.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblVehicleEF	HHD	0.02	0.23
tblVehicleEF	HHD	0.05	0.12
tblVehicleEF	HHD	6.33	5.20
tblVehicleEF	HHD	0.40	0.77
tblVehicleEF	HHD	5.9420e-003	6.2600e-004
tblVehicleEF	HHD	1,048.88	832.32
tblVehicleEF	HHD	1,413.90	1,617.13
tblVehicleEF	HHD	0.05	0.02
tblVehicleEF	HHD	0.17	0.13
tblVehicleEF	HHD	0.22	0.26
tblVehicleEF	HHD	7.0000e-006	1.9000e-005
tblVehicleEF	HHD	5.39	4.08
tblVehicleEF	HHD	2.69	1.85
tblVehicleEF	HHD	2.32	2.73
tblVehicleEF	HHD	2.5820e-003	2.1820e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.02	0.03
tblVehicleEF	HHD	2.4710e-003	2.0820e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8830e-003	8.7810e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	2.0000e-006	1.9600e-004

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tblVehicleEF	HHD	9.3000e-005	5.8000e-005
tblVehicleEF	HHD	0.43	0.33
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	4.1000e-005	5.2500e-004
tblVehicleEF	HHD	2.0000e-006	0.00
tblVehicleEF	HHD	9.7610e-003	7.2800e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	2.0000e-006	1.9600e-004
tblVehicleEF	HHD	9.3000e-005	5.8000e-005
tblVehicleEF	HHD	0.49	0.59
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.08	0.14
tblVehicleEF	HHD	4.1000e-005	5.2500e-004
tblVehicleEF	HHD	3.0000e-006	0.00
tblVehicleEF	LDA	1.7200e-003	2.0530e-003
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.52	0.65
tblVehicleEF	LDA	2.08	2.89
tblVehicleEF	LDA	234.59	245.08
tblVehicleEF	LDA	49.79	63.51
tblVehicleEF	LDA	3.9560e-003	4.1620e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	0.16	0.23
tblVehicleEF	LDA	0.04	7.1680e-003
tblVehicleEF	LDA	1.2900e-003	1.1710e-003
tblVehicleEF	LDA	1.6800e-003	1.9100e-003
tblVehicleEF	LDA	0.02	2.5090e-003

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tblVehicleEF	LDA	1.1880e-003	1.0780e-003
tblVehicleEF	LDA	1.5440e-003	1.7560e-003
tblVehicleEF	LDA	0.04	0.27
tblVehicleEF	LDA	0.08	0.08
tblVehicleEF	LDA	0.03	0.00
tblVehicleEF	LDA	6.4090e-003	7.8860e-003
tblVehicleEF	LDA	0.03	0.20
tblVehicleEF	LDA	0.19	0.30
tblVehicleEF	LDA	2.3210e-003	2.4230e-003
tblVehicleEF	LDA	4.9300e-004	6.2800e-004
tblVehicleEF	LDA	0.04	0.27
tblVehicleEF	LDA	0.08	0.08
tblVehicleEF	LDA	0.03	0.00
tblVehicleEF	LDA	9.3170e-003	0.01
tblVehicleEF	LDA	0.03	0.20
tblVehicleEF	LDA	0.21	0.32
tblVehicleEF	LDT1	3.6010e-003	6.2220e-003
tblVehicleEF	LDT1	0.06	0.10
tblVehicleEF	LDT1	0.85	1.42
tblVehicleEF	LDT1	2.26	5.22
tblVehicleEF	LDT1	280.86	325.38
tblVehicleEF	LDT1	60.30	85.98
tblVehicleEF	LDT1	5.8110e-003	9.3750e-003
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.07	0.13
tblVehicleEF	LDT1	0.21	0.38
tblVehicleEF	LDT1	0.04	9.2260e-003
tblVehicleEF	LDT1	1.6380e-003	1.9270e-003
tblVehicleEF	LDT1	2.1080e-003	2.8980e-003

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tblVehicleEF	LDT1	0.02	3.2290e-003
tblVehicleEF	LDT1	1.5070e-003	1.7740e-003
tblVehicleEF	LDT1	1.9380e-003	2.6650e-003
tblVehicleEF	LDT1	0.07	0.60
tblVehicleEF	LDT1	0.15	0.16
tblVehicleEF	LDT1	0.06	0.00
tblVehicleEF	LDT1	0.02	0.03
tblVehicleEF	LDT1	0.08	0.47
tblVehicleEF	LDT1	0.27	0.54
tblVehicleEF	LDT1	2.7790e-003	3.2170e-003
tblVehicleEF	LDT1	5.9700e-004	8.5000e-004
tblVehicleEF	LDT1	0.07	0.60
tblVehicleEF	LDT1	0.15	0.16
tblVehicleEF	LDT1	0.06	0.00
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.08	0.47
tblVehicleEF	LDT1	0.30	0.59
tblVehicleEF	LDT2	2.9320e-003	2.8180e-003
tblVehicleEF	LDT2	0.06	0.08
tblVehicleEF	LDT2	0.73	0.83
tblVehicleEF	LDT2	2.69	3.62
tblVehicleEF	LDT2	301.75	336.52
tblVehicleEF	LDT2	65.36	86.38
tblVehicleEF	LDT2	5.6680e-003	6.0160e-003
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.06	0.07
tblVehicleEF	LDT2	0.25	0.33
tblVehicleEF	LDT2	0.04	8.8660e-003
tblVehicleEF	LDT2	1.3400e-003	1.3330e-003

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tblVehicleEF	LDT2	1.7010e-003	2.1080e-003
tblVehicleEF	LDT2	0.02	3.1030e-003
tblVehicleEF	LDT2	1.2340e-003	1.2260e-003
tblVehicleEF	LDT2	1.5640e-003	1.9380e-003
tblVehicleEF	LDT2	0.06	0.29
tblVehicleEF	LDT2	0.12	0.08
tblVehicleEF	LDT2	0.06	0.00
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.06	0.21
tblVehicleEF	LDT2	0.28	0.38
tblVehicleEF	LDT2	2.9850e-003	3.3260e-003
tblVehicleEF	LDT2	6.4700e-004	8.5400e-004
tblVehicleEF	LDT2	0.06	0.29
tblVehicleEF	LDT2	0.12	0.08
tblVehicleEF	LDT2	0.06	0.00
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.21
tblVehicleEF	LDT2	0.31	0.42
tblVehicleEF	LHD1	4.9880e-003	5.3690e-003
tblVehicleEF	LHD1	7.8580e-003	8.1950e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.18	0.20
tblVehicleEF	LHD1	0.71	0.90
tblVehicleEF	LHD1	1.05	2.16
tblVehicleEF	LHD1	8.86	8.72
tblVehicleEF	LHD1	779.34	782.62
tblVehicleEF	LHD1	11.55	17.84
tblVehicleEF	LHD1	7.4200e-004	6.4000e-004
tblVehicleEF	LHD1	0.04	0.04

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tblVehicleEF	LHD1	0.02	0.04
tblVehicleEF	LHD1	0.06	0.05
tblVehicleEF	LHD1	0.65	0.66
tblVehicleEF	LHD1	0.30	0.44
tblVehicleEF	LHD1	8.4200e-004	6.8100e-004
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	9.7790e-003	9.4140e-003
tblVehicleEF	LHD1	9.6230e-003	0.01
tblVehicleEF	LHD1	2.4700e-004	2.2700e-004
tblVehicleEF	LHD1	8.0500e-004	6.5100e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.4450e-003	2.3540e-003
tblVehicleEF	LHD1	9.1590e-003	0.01
tblVehicleEF	LHD1	2.2800e-004	2.0900e-004
tblVehicleEF	LHD1	1.9120e-003	0.13
tblVehicleEF	LHD1	0.07	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	9.8500e-004	0.00
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	0.20	0.18
tblVehicleEF	LHD1	0.07	0.11
tblVehicleEF	LHD1	8.6000e-005	8.5000e-005
tblVehicleEF	LHD1	7.6080e-003	7.6450e-003
tblVehicleEF	LHD1	1.1400e-004	1.7600e-004
tblVehicleEF	LHD1	1.9120e-003	0.13
tblVehicleEF	LHD1	0.07	0.03
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	9.8500e-004	0.00
tblVehicleEF	LHD1	0.11	0.11

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tblVehicleEF	LHD1	0.20	0.18
tblVehicleEF	LHD1	0.08	0.12
tblVehicleEF	LHD2	3.0380e-003	3.1580e-003
tblVehicleEF	LHD2	6.6540e-003	6.9670e-003
tblVehicleEF	LHD2	7.7290e-003	0.01
tblVehicleEF	LHD2	0.14	0.14
tblVehicleEF	LHD2	0.59	0.57
tblVehicleEF	LHD2	0.60	1.22
tblVehicleEF	LHD2	13.88	13.77
tblVehicleEF	LHD2	754.92	827.31
tblVehicleEF	LHD2	7.59	9.92
tblVehicleEF	LHD2	1.7350e-003	1.6800e-003
tblVehicleEF	LHD2	0.07	0.08
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.77	0.90
tblVehicleEF	LHD2	0.17	0.24
tblVehicleEF	LHD2	1.4370e-003	1.3710e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.2700e-004	1.0100e-004
tblVehicleEF	LHD2	1.3750e-003	1.3110e-003
tblVehicleEF	LHD2	0.04	0.03
tblVehicleEF	LHD2	2.6920e-003	2.6640e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.1700e-004	9.3000e-005
tblVehicleEF	LHD2	9.8500e-004	0.07
tblVehicleEF	LHD2	0.04	0.02

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tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	5.1400e-004	0.00
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	LHD2	1.3300e-004	1.3200e-004
tblVehicleEF	LHD2	7.2890e-003	7.9720e-003
tblVehicleEF	LHD2	7.5000e-005	9.8000e-005
tblVehicleEF	LHD2	9.8500e-004	0.07
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	5.1400e-004	0.00
tblVehicleEF	LHD2	0.13	0.13
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.04	0.07
tblVehicleEF	MCY	0.33	0.16
tblVehicleEF	MCY	0.25	0.18
tblVehicleEF	MCY	18.60	12.67
tblVehicleEF	MCY	9.06	8.00
tblVehicleEF	MCY	210.08	187.74
tblVehicleEF	MCY	60.71	48.38
tblVehicleEF	MCY	0.07	0.04
tblVehicleEF	MCY	0.02	8.0200e-003
tblVehicleEF	MCY	1.15	0.57
tblVehicleEF	MCY	0.27	0.14
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	1.9970e-003	1.9020e-003
tblVehicleEF	MCY	2.9300e-003	3.4560e-003
tblVehicleEF	MCY	5.0400e-003	4.2000e-003

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tblVehicleEF	MCY	1.8650e-003	1.7790e-003
tblVehicleEF	MCY	2.7520e-003	3.2480e-003
tblVehicleEF	MCY	0.90	3.90
tblVehicleEF	MCY	0.68	3.56
tblVehicleEF	MCY	0.49	0.00
tblVehicleEF	MCY	2.19	1.06
tblVehicleEF	MCY	0.53	3.75
tblVehicleEF	MCY	1.93	1.35
tblVehicleEF	MCY	2.0790e-003	1.8560e-003
tblVehicleEF	MCY	6.0100e-004	4.7800e-004
tblVehicleEF	MCY	0.90	0.09
tblVehicleEF	MCY	0.68	3.56
tblVehicleEF	MCY	0.49	0.00
tblVehicleEF	MCY	2.72	1.28
tblVehicleEF	MCY	0.53	3.75
tblVehicleEF	MCY	2.10	1.46
tblVehicleEF	MDV	3.4000e-003	3.7500e-003
tblVehicleEF	MDV	0.07	0.10
tblVehicleEF	MDV	0.78	0.94
tblVehicleEF	MDV	2.95	3.90
tblVehicleEF	MDV	364.87	405.81
tblVehicleEF	MDV	77.92	103.32
tblVehicleEF	MDV	7.5920e-003	8.3410e-003
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.07	0.10
tblVehicleEF	MDV	0.29	0.41
tblVehicleEF	MDV	0.04	9.0000e-003
tblVehicleEF	MDV	1.4300e-003	1.3730e-003
tblVehicleEF	MDV	1.8100e-003	2.1610e-003

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tblVehicleEF	MDV	0.02	3.1500e-003
tblVehicleEF	MDV	1.3190e-003	1.2660e-003
tblVehicleEF	MDV	1.6640e-003	1.9870e-003
tblVehicleEF	MDV	0.07	0.35
tblVehicleEF	MDV	0.13	0.09
tblVehicleEF	MDV	0.07	0.00
tblVehicleEF	MDV	0.01	0.02
tblVehicleEF	MDV	0.06	0.27
tblVehicleEF	MDV	0.34	0.49
tblVehicleEF	MDV	3.6060e-003	4.0090e-003
tblVehicleEF	MDV	7.7100e-004	1.0210e-003
tblVehicleEF	MDV	0.07	0.35
tblVehicleEF	MDV	0.13	0.09
tblVehicleEF	MDV	0.07	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.06	0.27
tblVehicleEF	MDV	0.38	0.54
tblVehicleEF	MH	9.5570e-003	0.01
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	0.93	1.29
tblVehicleEF	MH	2.03	2.49
tblVehicleEF	MH	1,501.42	1,686.59
tblVehicleEF	MH	18.14	22.55
tblVehicleEF	MH	0.06	0.07
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.31	1.54
tblVehicleEF	MH	0.24	0.30
tblVehicleEF	MH	0.13	0.04
tblVehicleEF	MH	0.01	0.01

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tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	2.6100e-004	3.1300e-004
tblVehicleEF	MH	0.06	0.02
tblVehicleEF	MH	3.2790e-003	3.3010e-003
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	2.4000e-004	2.8800e-004
tblVehicleEF	MH	0.64	32.73
tblVehicleEF	MH	0.05	8.70
tblVehicleEF	MH	0.23	0.00
tblVehicleEF	MH	0.06	0.08
tblVehicleEF	MH	0.01	0.20
tblVehicleEF	MH	0.09	0.11
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	1.7900e-004	2.2300e-004
tblVehicleEF	MH	0.64	32.73
tblVehicleEF	MH	0.05	8.70
tblVehicleEF	MH	0.23	0.00
tblVehicleEF	MH	0.08	0.11
tblVehicleEF	MH	0.01	0.20
tblVehicleEF	MH	0.10	0.12
tblVehicleEF	MHD	3.5790e-003	0.01
tblVehicleEF	MHD	1.6940e-003	9.6580e-003
tblVehicleEF	MHD	9.1320e-003	8.7730e-003
tblVehicleEF	MHD	0.39	0.67
tblVehicleEF	MHD	0.23	0.35
tblVehicleEF	MHD	1.07	1.07
tblVehicleEF	MHD	72.08	160.26
tblVehicleEF	MHD	1,080.76	1,229.18
tblVehicleEF	MHD	9.15	8.53

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tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.14	0.16
tblVehicleEF	MHD	7.2440e-003	6.0320e-003
tblVehicleEF	MHD	0.41	0.89
tblVehicleEF	MHD	1.45	1.11
tblVehicleEF	MHD	1.70	1.41
tblVehicleEF	MHD	3.6900e-004	2.1280e-003
tblVehicleEF	MHD	0.13	0.05
tblVehicleEF	MHD	7.0230e-003	0.01
tblVehicleEF	MHD	1.1500e-004	1.0700e-004
tblVehicleEF	MHD	3.5300e-004	2.0350e-003
tblVehicleEF	MHD	0.06	0.02
tblVehicleEF	MHD	6.7130e-003	0.01
tblVehicleEF	MHD	1.0600e-004	9.8000e-005
tblVehicleEF	MHD	3.8300e-004	0.03
tblVehicleEF	MHD	0.02	6.2600e-003
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	1.9800e-004	0.00
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	0.02	0.05
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	6.8400e-004	1.4900e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	9.1000e-005	8.4000e-005
tblVehicleEF	MHD	3.8300e-004	0.03
tblVehicleEF	MHD	0.02	6.2600e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	1.9800e-004	0.00
tblVehicleEF	MHD	0.02	0.05

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tblVehicleEF	MHD	0.02	0.05
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	OBUS	7.0640e-003	7.4580e-003
tblVehicleEF	OBUS	3.6240e-003	9.2750e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.58	0.51
tblVehicleEF	OBUS	0.43	0.49
tblVehicleEF	OBUS	1.84	1.96
tblVehicleEF	OBUS	92.66	85.71
tblVehicleEF	OBUS	1,326.08	1,388.86
tblVehicleEF	OBUS	15.18	15.49
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.13	0.16
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.38	0.37
tblVehicleEF	OBUS	1.47	1.01
tblVehicleEF	OBUS	1.09	0.98
tblVehicleEF	OBUS	1.2200e-004	4.2300e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	7.3930e-003	0.02
tblVehicleEF	OBUS	1.4500e-004	1.3400e-004
tblVehicleEF	OBUS	1.1700e-004	4.0500e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	7.0600e-003	0.02
tblVehicleEF	OBUS	1.3300e-004	1.2400e-004
tblVehicleEF	OBUS	1.0900e-003	0.07
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.05	0.04
tblVehicleEF	OBUS	4.8500e-004	0.00

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tblVehicleEF	OBUS	0.02	0.05
tblVehicleEF	OBUS	0.04	0.08
tblVehicleEF	OBUS	0.09	0.09
tblVehicleEF	OBUS	8.8000e-004	8.1100e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	1.5000e-004	1.5300e-004
tblVehicleEF	OBUS	1.0900e-003	0.07
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.06	0.05
tblVehicleEF	OBUS	4.8500e-004	0.00
tblVehicleEF	OBUS	0.03	0.06
tblVehicleEF	OBUS	0.04	0.08
tblVehicleEF	OBUS	0.10	0.10
tblVehicleEF	SBUS	0.05	0.07
tblVehicleEF	SBUS	6.0180e-003	0.09
tblVehicleEF	SBUS	4.9720e-003	4.8000e-003
tblVehicleEF	SBUS	2.27	1.65
tblVehicleEF	SBUS	0.49	0.88
tblVehicleEF	SBUS	0.72	0.66
tblVehicleEF	SBUS	346.78	189.38
tblVehicleEF	SBUS	1,049.23	1,027.72
tblVehicleEF	SBUS	4.12	3.73
tblVehicleEF	SBUS	0.05	0.03
tblVehicleEF	SBUS	0.13	0.13
tblVehicleEF	SBUS	4.7550e-003	4.2250e-003
tblVehicleEF	SBUS	3.44	1.39
tblVehicleEF	SBUS	4.65	2.57
tblVehicleEF	SBUS	0.86	0.48
tblVehicleEF	SBUS	3.6120e-003	1.3090e-003

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tblVehicleEF	SBUS	0.74	0.04
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	4.8000e-005	4.0000e-005
tblVehicleEF	SBUS	3.4560e-003	1.2520e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7190e-003	2.6500e-003
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	4.4000e-005	3.6000e-005
tblVehicleEF	SBUS	5.6700e-004	0.03
tblVehicleEF	SBUS	5.5090e-003	7.3010e-003
tblVehicleEF	SBUS	0.25	0.18
tblVehicleEF	SBUS	2.4700e-004	0.00
tblVehicleEF	SBUS	0.08	0.06
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	3.3010e-003	1.7230e-003
tblVehicleEF	SBUS	0.01	9.5530e-003
tblVehicleEF	SBUS	4.1000e-005	3.7000e-005
tblVehicleEF	SBUS	5.6700e-004	0.03
tblVehicleEF	SBUS	5.5090e-003	7.3010e-003
tblVehicleEF	SBUS	0.36	0.30
tblVehicleEF	SBUS	2.4700e-004	0.00
tblVehicleEF	SBUS	0.10	0.16
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	UBUS	1.35	0.35
tblVehicleEF	UBUS	1.5380e-003	3.7340e-003
tblVehicleEF	UBUS	10.12	4.17

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tblVehicleEF	UBUS	0.14	0.53
tblVehicleEF	UBUS	1,597.16	1,098.80
tblVehicleEF	UBUS	1.39	3.20
tblVehicleEF	UBUS	0.26	0.17
tblVehicleEF	UBUS	1.0770e-003	6.2180e-003
tblVehicleEF	UBUS	0.73	0.33
tblVehicleEF	UBUS	0.01	0.04
tblVehicleEF	UBUS	0.07	0.11
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	5.3280e-003	6.2290e-003
tblVehicleEF	UBUS	1.5000e-005	1.2000e-005
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	8.3320e-003	8.1710e-003
tblVehicleEF	UBUS	5.0960e-003	5.9560e-003
tblVehicleEF	UBUS	1.4000e-005	1.1000e-005
tblVehicleEF	UBUS	2.1000e-005	9.8940e-003
tblVehicleEF	UBUS	1.6100e-004	3.3030e-003
tblVehicleEF	UBUS	9.0000e-006	0.00
tblVehicleEF	UBUS	0.02	0.06
tblVehicleEF	UBUS	2.9000e-005	7.9870e-003
tblVehicleEF	UBUS	6.4070e-003	0.01
tblVehicleEF	UBUS	0.01	9.4250e-003
tblVehicleEF	UBUS	1.4000e-005	3.2000e-005
tblVehicleEF	UBUS	2.1000e-005	9.8940e-003
tblVehicleEF	UBUS	1.6100e-004	3.3030e-003
tblVehicleEF	UBUS	9.0000e-006	0.00
tblVehicleEF	UBUS	1.38	0.42
tblVehicleEF	UBUS	2.9000e-005	7.9870e-003
tblVehicleEF	UBUS	7.0150e-003	0.01

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tblVehicleTrips	ST_TR	1.90	1.76
tblVehicleTrips	SU_TR	1.11	1.03
tblVehicleTrips	WD_TR	11.26	10.41
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	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.7418	0.8877	0.8528	1.6000e-003	0.1312	0.0371	0.1683	0.0553	0.0344	0.0896	0.0000	138.9078	138.9078	0.0428	0.0000	139.9781
Maximum	**0.7418**	**0.8877**	**0.8528**	**1.6000e-003**	**0.1312**	**0.0371**	**0.1683**	**0.0553**	**0.0344**	**0.0896**	**0.0000**	**138.9078**	**138.9078**	**0.0428**	**0.0000**	**139.9781**

Mitigated Construction

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.6813	0.5550	1.0207	1.6000e-003	0.0590	7.0300e-003	0.0661	0.0249	7.0300e-003	0.0319	0.0000	138.9077	138.9077	0.0428	0.0000	139.9780
Maximum	**0.6813**	**0.5550**	**1.0207**	**1.6000e-003**	**0.0590**	**7.0300e-003**	**0.0661**	**0.0249**	**7.0300e-003**	**0.0319**	**0.0000**	**138.9077**	**138.9077**	**0.0428**	**0.0000**	**139.9780**

	ROG	**NOx**	**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	**8.15**	**37.47**	**-19.68**	**0.00**	**55.00**	**81.07**	**60.76**	**55.00**	**79.56**	**64.42**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	**Start Date**	**End Date**	**Maximum Unmitigated ROG + NOX (tons/quarter)**	**Maximum Mitigated ROG + NOX (tons/quarter)**
1	**2-8-2023**	**5-7-2023**	0.4991	0.1744
2	**5-8-2023**	**8-7-2023**	0.1443	0.1257
3	**8-8-2023**	**9-30-2023**	0.2548	0.2153
		Highest	0.4991	0.2153

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	0.5471	3.0000e-005	3.8500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.5000e-003	7.5000e-003	2.0000e-005	0.0000	7.99E-03
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	82.3156	82.3156	0.0153	1.8500e-003	83.2484
Mobile	0.5972	0.4454	4.0116	8.8200e-003	0.8106	6.2900e-003	0.8169	0.2022	5.8700e-003	0.2080	0.0000	814.6552	814.6552	0.0446	0.0384	827.2076

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Stationary	0.0194	0.0541	0.0494	9.0000e-005		2.8500e-003	2.8500e-003		2.8500e-003	2.8500e-003	0.0000	8.9868	8.9868	1.2600e-003	0.0000	9.0183
Waste						0.0000	0.0000		0.0000	0.0000	1.8797	0.0000	1.8797	0.1111	0.0000	4.6569
Water						0.0000	0.0000		0.0000	0.0000	21.1973	26.1748	47.3721	0.0778	0.0467	63.2296
Total	**1.1637**	**0.4996**	**4.0649**	**8.9100e-003**	**0.8106**	**9.1500e-003**	**0.8198**	**0.2022**	**8.7300e-003**	**0.2109**	**23.0770**	**932.1400**	**955.2169**	**0.2501**	**0.0869**	**987.3688**

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	0.5471	3.0000e-005	3.8500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.5000e-003	7.5000e-003	2.0000e-005	0.0000	7.9900e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	82.3156	82.3156	0.0153	1.8500e-003	83.2484
Mobile	0.5972	0.4454	4.0116	8.8200e-003	0.8106	6.2900e-003	0.8169	0.2022	5.8700e-003	0.2080	0.0000	814.6552	814.6552	0.0446	0.0384	827.2076
Stationary	0.0194	0.0541	0.0494	9.0000e-005		2.8500e-003	2.8500e-003		2.8500e-003	2.8500e-003	0.0000	8.9868	8.9868	1.2600e-003	0.0000	9.0183
Waste						0.0000	0.0000		0.0000	0.0000	1.8797	0.0000	1.8797	0.1111	0.0000	4.6569
Water						0.0000	0.0000		0.0000	0.0000	21.1973	26.1748	47.3721	0.0778	0.0467	63.2296
Total	**1.1637**	**0.4996**	**4.0649**	**8.9100e-003**	**0.8106**	**9.1500e-003**	**0.8198**	**0.2022**	**8.7300e-003**	**0.2109**	**23.0770**	**932.1400**	**955.2169**	**0.2501**	**0.0869**	**987.3688**

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

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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	2/8/2023	2/22/2023	5	11	
2	Site Preparation	Site Preparation	2/8/2023	2/28/2023	5	15	
3	Grading	Grading	2/8/2023	3/30/2023	5	37	
4	Trenching	Trenching	3/30/2023	7/7/2023	5	72	
5	Building Construction	Building Construction	7/11/2023	10/6/2023	5	64	
6	Paving	Paving	10/2/2023	11/6/2023	5	26	
7	Architectural Coating	Architectural Coating	10/4/2023	10/20/2023	5	13	

Acres of Grading (Site Preparation Phase): 16.31

Acres of Grading (Grading Phase): 53.88

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 182,775; Non-Residential Outdoor: 60,925; Striped Parking Area: 5,160

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	0.00	78	0.48
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Building Construction	Cranes	1	4.70	231	0.29
Demolition	Excavators	2	2.50	158	0.38
Grading	Excavators	3	3.90	158	0.38
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Generator Sets	0	0.00	84	0.74
Grading	Graders	4	4.40	187	0.41

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Paving	Pavers	1	1.20	130	0.42
Paving	Paving Equipment	1	3.10	132	0.36
Paving	Rollers	1	2.50	80	0.38
Demolition	Rubber Tired Dozers	1	1.60	247	0.40
Grading	Rubber Tired Dozers	3	1.90	247	0.40
Site Preparation	Rubber Tired Dozers	2	1.20	247	0.40
Grading	Scrapers	0	0.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	3	9.00	97	0.37
Grading	Tractors/Loaders/Backhoes	3	2.40	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	2	1.20	97	0.37
Building Construction	Welders	4	2.80	46	0.45
Demolition	Tractors/Loaders/Backhoes	1	1.60	97	0.37
Site Preparation	Graders	5	3.00	187	0.41
Grading	Concrete/Industrial Saws	3	0.30	81	0.73
Trenching	Tractors/Loaders/Backhoes	2	0.50	97	0.37
Trenching	Excavators	2	0.80	158	0.38
Building Construction	Aerial Lifts	4	4.00	63	0.31
Paving	Tractors/Loaders/Backhoes	1	4.30	97	0.37
Architectural Coating	Aerial Lifts	2	4.00	63	0.31

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	9	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	16	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	14	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	4	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

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Architectural Coating	2	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	4	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

	ROG	NOx	CO	SO2	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	1.5700e-003	0.0149	0.0171	3.0000e-005		7.0000e-004	7.0000e-004		6.4000e-004	6.4000e-004	0.0000	2.6858	2.6858	8.7000e-004	0.0000	2.7075
Total	**1.5700e-003**	**0.0149**	**0.0171**	**3.0000e-005**		**7.0000e-004**	**7.0000e-004**		**6.4000e-004**	**6.4000e-004**	**0.0000**	**2.6858**	**2.6858**	**8.7000e-004**	**0.0000**	**2.7075**

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	4.5000e-004	0.0118	0.0210	3.0000e-005		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	2.6858	2.6858	8.7000e-004	0.0000	2.7075
Total	**4.5000e-004**	**0.0118**	**0.0210**	**3.0000e-005**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**	**0.0000**	**2.6858**	**2.6858**	**8.7000e-004**	**0.0000**	**2.7075**

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

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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

	ROG	NOx	CO	SO2	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					0.0222	0.0000	0.0222	8.3800e-003	0.0000	8.3800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.2700e-003	0.0849	0.0358	1.2000e-004		3.0100e-003	3.0100e-003		2.7700e-003	2.7700e-003	0.0000	10.4792	10.4792	3.3900e-003	0.0000	10.5639
Total	**7.2700e-003**	**0.0849**	**0.0358**	**1.2000e-004**	**0.0222**	**3.0100e-003**	**0.0252**	**8.3800e-003**	**2.7700e-003**	**0.0112**	**0.0000**	**10.4792**	**10.4792**	**3.3900e-003**	**0.0000**	**10.5639**

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

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

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					
Fugitive Dust					9.9900e-003	0.0000	9.9900e-003	3.7700e-003	0.0000	3.7700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6100e-003	0.0131	0.0573	1.2000e-004		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004	0.0000	10.4792	10.4792	3.3900e-003	0.0000	10.5639
Total	**1.6100e-003**	**0.0131**	**0.0573**	**1.2000e-004**	**9.9900e-003**	**1.9000e-004**	**0.0102**	**3.7700e-003**	**1.9000e-004**	**3.9600e-003**	**0.0000**	**10.4792**	**10.4792**	**3.3900e-003**	**0.0000**	**10.5639**

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

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

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

	ROG	NOx	CO	SO2	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					0.1090	0.0000	0.1090	0.0469	0.0000	0.0469	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0330	0.3562	0.2427	5.9000e-004		0.0140	0.0140		0.0129	0.0129	0.0000	51.5004	51.5004	0.0164	0.0000	51.9091
Total	**0.0330**	**0.3562**	**0.2427**	**5.9000e-004**	**0.1090**	**0.0140**	**0.1229**	**0.0469**	**0.0129**	**0.0597**	**0.0000**	**51.5004**	**51.5004**	**0.0164**	**0.0000**	**51.9091**

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

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

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					
Fugitive Dust					0.0490	0.0000	0.0490	0.0211	0.0000	0.0211	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.2600e-003	0.1327	0.3338	5.9000e-004		9.5000e-004	9.5000e-004		9.5000e-004	9.5000e-004	0.0000	51.5003	51.5003	0.0164	0.0000	51.9090
Total	**8.2600e-003**	**0.1327**	**0.3338**	**5.9000e-004**	**0.0490**	**9.5000e-004**	**0.0500**	**0.0211**	**9.5000e-004**	**0.0220**	**0.0000**	**51.5003**	**51.5003**	**0.0164**	**0.0000**	**51.9090**

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

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

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

	ROG	NOx	CO	SO2	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	2.0400e-003	0.0181	0.0335	5.0000e-005		8.9000e-004	8.9000e-004		8.2000e-004	8.2000e-004	0.0000	4.4977	4.4977	1.4500e-003	0.0000	4.5341
Total	**2.0400e-003**	**0.0181**	**0.0335**	**5.0000e-005**		**8.9000e-004**	**8.9000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**4.4977**	**4.4977**	**1.4500e-003**	**0.0000**	**4.5341**

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

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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**	**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	7.7000e-004	0.0225	0.0388	5.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	4.4977	4.4977	1.4500e-003	0.0000	4.5341
Total	**7.7000e-004**	**0.0225**	**0.0388**	**5.0000e-005**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**4.4977**	**4.4977**	**1.4500e-003**	**0.0000**	**4.5341**

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**

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

3.6 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0415	0.3812	0.4751	7.4000e-004		0.0171	0.0171		0.0159	0.0159	0.0000	63.3431	63.3431	0.0187	0.0000	63.8101
Total	**0.0415**	**0.3812**	**0.4751**	**7.4000e-004**		**0.0171**	**0.0171**		**0.0159**	**0.0159**	**0.0000**	**63.3431**	**63.3431**	**0.0187**	**0.0000**	**63.8101**

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**

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0156	0.3417	0.5146	7.4000e-004		5.3900e-003	5.3900e-003		5.3900e-003	5.3900e-003	0.0000	63.3430	63.3430	0.0187	0.0000	63.8100
Total	**0.0156**	**0.3417**	**0.5146**	**7.4000e-004**		**5.3900e-003**	**5.3900e-003**		**5.3900e-003**	**5.3900e-003**	**0.0000**	**63.3430**	**63.3430**	**0.0187**	**0.0000**	**63.8100**

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 Paving - 2023

Unmitigated Construction On-Site

865 Embedded Way, San Jose - 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	2.9100e-003	0.0290	0.0416	6.0000e-005		1.4500e-003	1.4500e-003		1.3400e-003	1.3400e-003	0.0000	5.4484	5.4484	1.7600e-003	0.0000	5.4925
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.9100e-003**	**0.0290**	**0.0416**	**6.0000e-005**		**1.4500e-003**	**1.4500e-003**		**1.3400e-003**	**1.3400e-003**	**0.0000**	**5.4484**	**5.4484**	**1.7600e-003**	**0.0000**	**5.4925**

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

865 Embedded Way, San Jose - 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	1.0900e-003	0.0272	0.0469	6.0000e-005		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	5.4484	5.4484	1.7600e-003	0.0000	5.4925
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.0900e-003**	**0.0272**	**0.0469**	**6.0000e-005**		**1.0000e-004**	**1.0000e-004**		**1.0000e-004**	**1.0000e-004**	**0.0000**	**5.4484**	**5.4484**	**1.7600e-003**	**0.0000**	**5.4925**

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 Architectural Coating - 2023

Unmitigated Construction On-Site

865 Embedded Way, San Jose - 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					
Archit. Coating	0.6533					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.2000e-004	3.4500e-003	7.0600e-003	1.0000e-005		6.0000e-005	6.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.9534	0.9534	3.1000e-004	0.0000	0.9611
Total	**0.6535**	**3.4500e-003**	**7.0600e-003**	**1.0000e-005**		**6.0000e-005**	**6.0000e-005**		**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.9534**	**0.9534**	**3.1000e-004**	**0.0000**	**0.9611**

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

865 Embedded Way, San Jose - 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					
Archit. Coating	0.6533					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7000e-004	6.1000e-003	8.2400e-003	1.0000e-005		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004	0.0000	0.9534	0.9534	3.1000e-004	0.0000	0.9611
Total	**0.6536**	**6.1000e-003**	**8.2400e-003**	**1.0000e-005**		**2.5000e-004**	**2.5000e-004**		**2.5000e-004**	**2.5000e-004**	**0.0000**	**0.9534**	**0.9534**	**3.1000e-004**	**0.0000**	**0.9611**

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

865 Embedded Way, San Jose - Santa Clara County, Annual

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

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	0.5972	0.4454	4.0116	8.8200e-003	0.8106	6.2900e-003	0.8169	0.2022	5.8700e-003	0.2080	0.0000	814.6552	814.6552	0.0446	0.0384	827.2076
Unmitigated	0.5972	0.4454	4.0116	8.8200e-003	0.8106	6.2900e-003	0.8169	0.2022	5.8700e-003	0.2080	0.0000	814.6552	814.6552	0.0446	0.0384	827.2076

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Research & Development	1,268.46	214.46	125.51	2,392,483	2,392,483
Total	1,268.46	214.46	125.51	2,392,483	2,392,483

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
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Research & Development	9.50	7.30	7.30	33.00	48.00	19.00	82	15	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.531160	0.041583	0.227794	0.127091	0.023141	0.005641	0.009358	0.007307	0.001055	0.000417	0.022105	0.000682	0.002666
Research & Development	0.531160	0.041583	0.227794	0.127091	0.023141	0.005641	0.009358	0.007307	0.001055	0.000417	0.022105	0.000682	0.002666

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

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	82.3156	82.3156	0.0153	1.8500e-003	83.2484
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	82.3156	82.3156	0.0153	1.8500e-003	83.2484
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					
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

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Research & Development	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

	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					
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
Research & Development	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			
Parking Lot	30100	2.4303	4.5000e-004	5.0000e-005	2.4578
Research & Development	989422	79.8854	0.0148	1.8000e-003	80.7906

Total		**82.3156**	**0.0153**	**1.8500e-003**	**83.2484**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	30100	2.4303	4.5000e-004	5.0000e-005	2.4578
Research & Development	989422	79.8854	0.0148	1.8000e-003	80.7906
Total		**82.3156**	**0.0153**	**1.8500e-003**	**83.2484**

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	0.5471	3.0000e-005	3.8500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.5000e-003	7.5000e-003	2.0000e-005	0.0000	7.9900e-003

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Unmitigated	0.5471	3.0000e-005	3.8500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.5000e-003	7.5000e-003	2.0000e-005	0.0000	7.9900e-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	0.0653					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4814					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.6000e-004	3.0000e-005	3.8500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.5000e-003	7.5000e-003	2.0000e-005	0.0000	7.9900e-003
Total	**0.5471**	**3.0000e-005**	**3.8500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**7.5000e-003**	**7.5000e-003**	**2.0000e-005**	**0.0000**	**7.9900e-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	0.0653					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4814					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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

Landscaping	3.6000e-004	3.0000e-005	3.8500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.5000e-003	7.5000e-003	2.0000e-005	0.0000	7.9900e-003
Total	**0.5471**	**3.0000e-005**	**3.8500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**7.5000e-003**	**7.5000e-003**	**2.0000e-005**	**0.0000**	**7.9900e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	47.3721	0.0778	0.0467	63.2296
Unmitigated	47.3721	0.0778	0.0467	63.2296

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000

Research & Development	59.9129 / 0	47.3721	0.0778	0.0467	63.2296
Total		**47.3721**	**0.0778**	**0.0467**	**63.2296**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Research & Development	59.9129 / 0	47.3721	0.0778	0.0467	63.2296
Total		**47.3721**	**0.0778**	**0.0467**	**63.2296**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			

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

Mitigated	1.8797	0.1111	0.0000	4.6569
Unmitigated	1.8797	0.1111	0.0000	4.6569

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Research & Development	9.26	1.8797	0.1111	0.0000	4.6569
Total		**1.8797**	**0.1111**	**0.0000**	**4.6569**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Research & Development	9.26	1.8797	0.1111	0.0000	4.6569

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

Total		**1.8797**	**0.1111**	**0.0000**	**4.6569**

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
Fire Pump	1	0	50	472	0.73	Diesel

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					
Fire Pump - Diesel (300 - 600 HP)	0.0194	0.0541	0.0494	9.0000e-005		2.8500e-003	2.8500e-003		2.8500e-003	2.8500e-003	0.0000	8.9868	8.9868	1.2600e-003	0.0000	9.0183
Total	**0.0194**	**0.0541**	**0.0494**	**9.0000e-005**		**2.8500e-003**	**2.8500e-003**		**2.8500e-003**	**2.8500e-003**	**0.0000**	**8.9868**	**8.9868**	**1.2600e-003**	**0.0000**	**9.0183**

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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	0.0155	0.1972	0.2146	0.0015	0.0520	0.0124	0.0644	0.0078	0.0053	0.0131	145.7275	0.0103	0.0197	151.8451
Toxic Air Contaminants (0.5 Mile Trip Length)														
2023	0.0124	0.0488	0.0711	0.0001	0.0023	0.0005	0.0028	0.0003	0.0002	0.0006	10.8248	0.0022	0.0017	11.3961

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	110	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	1188	0	0
Site Preparation	23	0	345	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	3726	0	0
Grading	40	0	1,480	0	2,250	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	15984	0	45000
Trenching	10	0	720	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	7776	0	0
Building Construction	75	34	4,800	2,176	1,320	10.8	7.3	7.3	LD_Mix	HDT_Mix	HHDT	51840	15884.8	9636
Paving	10	0	260	0	240	10.8	7.3	7.3	LD_Mix	HDT_Mix	HHDT	2808	0	1752
Architectural Coating	15	0	195	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	2106	0	0

Number of Days Per Year					
2023	2/8/23	11/6/23	272	195	
			272	**195**	***Total Workdays***

Phase	**Start Date**	**End Date**	**Days/Week**	**Workdays**
Demolition	2/8/2023	2/22/2023	5	11
Site Preparation	2/8/2023	2/28/2023	5	15
Grading	2/8/2023	3/30/2023	5	37
Trenching	3/30/2023	7/7/2023	5	72
Building Construction	7/11/2023	10/6/2023	5	64
Paving	10/2/2023	11/6/2023	5	26
Architectural Coating	10/4/2023	10/20/2023	5	13

Category		Mix %	Adj	ROG_DIURN	ROG_HTSK	ROG_IDLEX	ROG_RESTL	ROG_RUNEX	ROG_RUNLS	ROG_STREX
Hauling	HHDT	100.0	1	0.000287604	8.55424E-05	0.332404817	0	0.01953334	0.00077057	5.28839E-07
	MHD	0.0	0	0.028424515	0.006961572	0.027529656	0	0.04434978	0.05660825	0.052337336
Vendor	HHDT	50.0	0.5	0.000143802	4.27712E-05	0.166202408	0	0.00976667	0.00038529	2.6442E-07
	MHD	50.0	0.5	0.014212257	0.003480786	0.013764828	0	0.02217489	0.02830413	0.026168668
			1	0.01435606	0.003523557	0.179967236	0	0.03194156	0.02868941	0.026168932
Worker	LDA	50.0	0.5	0.143306127	0.042683769	0	0	0.0045285	0.10768412	0.159592017
	LDT1	25.0	0.25	0.156677436	0.04332923	0	0	0.00778025	0.12516577	0.145126689
	LDT2	25.0	0.25	0.074138692	0.021036563	0	0	0.00307324	0.05534742	0.101569939
			1	0.374122256	0.107049562	0	0	0.015382	0.28819731	0.406288645

Category		Mix %	Adj	NOX_IDLEX	NOX_RUNEX	NOX_STREX	CO_IDLEX	CO_RUNEX	CO_STREX	SO2_IDLEX	SO2_RUNEX	SO2_STREX	Road Dust PM10	PM10_PMBW	PM10_PMTW	PM10_IDLEX	PM10_RUNEX	PM10_STREX
Hauling	HHDT	100.0	1	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
	MHD	0.0	0	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
Vendor	HHDT	50.0	0.5	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
	MHD	50.0	0.5	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
			1	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
Worker	LDA	50.0	0.5	0	0.021192179	0.122461753	0	0.35031163	1.546631	0	0.001247244	0.00032278		0.0036	0.004	0	0.000614	0.000990927
	LDT1	25.0	0.25	0	0.035722679	0.100614187	0	0.38639467	1.408382	0	0.000818289	0.000217331		0.002307	0.002	0	0.000514	0.000767762
	LDT2	25.0	0.25	0	0.019062039	0.088569484	0	0.22137906	0.96209	0	0.000853405	0.000219425		0.002219	0.002	0	0.000345	0.000540097
			1	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

Category		Mix %	Adj	Road Dust PM25	PM25_PMBW	PM25_PMTW	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
Category							19	22	23	8	9	10						
Hauling	HHDT	100.0	1		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	0.04499	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		0.014253	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		0.007957	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	0.04499	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		0.00126	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		0.000807	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		0.000777	0.0005	0	0.0003173	0.0004966	0	86.33608	22.19552	0	0.000769908	0.021709383	0	0.001616766	0.009562758
			1	0.04499	0.002844	0.002	0	0.0013563	0.0021137	0	295.28262	76.829375	0	0.003662524	0.084258998	0	0.006420266	0.034917777

CalEEMod EMFAC2021 Emission Factors Input Year 2024

Season	EmissionType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
A	CH4_IDLEX	0	0	0	0	0.005369	0.003158	0.013383	0.232934116	0.007458	0	0	0.074531	0
A	CH4_RUNEX	0.002053	0.006222	0.002818	0.00375	0.008195	0.006967	0.009658	0.121678903	0.009275	0.353982676	0.162609	0.091035	0.012488
A	CH4_STREX	0.06472	0.104817	0.081929	0.09875	0.022831	0.012442	0.008773	8.02769E-08	0.017671	0.00373411	0.181972	0.0048	0.026745
A	CO_IDLEX	0	0	0	0	0.196553	0.142433	0.671381	5.195559849	0.514566	0	0	1.654918	0
A	CO_RUNEX	0.649736	1.418728	0.829336	0.94329	0.900659	0.571321	0.346173	0.774886828	0.491534	4.169725719	12.6697	0.884386	1.294901
A	CO_STREX	2.891746	5.224818	3.623598	3.897928	2.161459	1.21759	1.07433	0.000626211	1.960551	0.531545824	8.002987	0.664389	2.491606
A	CO2_NBIO_IDLEX	0	0	0	0	8.718619	13.77168	160.2598	832.3166934	85.70845	0	0	189.3786	0
A	CO2_NBIO_RUNEX	245.0824	325.3768	336.518	405.8146	782.6209	827.3106	1229.181	1617.129696	1388.863	1098.799805	187.743	1027.722	1686.59
A	CO2_NBIO_STREX	63.50921	85.97601	86.38427	103.3242	17.83745	9.92491	8.529312	0.019573043	15.49228	3.203569186	48.37697	3.726088	22.54937
A	NOX_IDLEX	0	0	0	0	0.048387	0.092995	0.892859	4.075118036	0.365684	0	0	1.387931	0
A	NOX_RUNEX	0.037369	0.127832	0.068032	0.098516	0.66417	0.895916	1.112922	1.850604526	1.007061	0.328284112	0.571344	2.57268	1.5351
A	NOX_STREX	0.230953	0.379266	0.329632	0.414782	0.44074	0.241786	1.407896	2.731408381	0.979918	0.039644426	0.135477	0.480958	0.299202
A	PM10_IDLEX	0	0	0	0	0.000681	0.001371	0.002128	0.002182492	0.000423	0	0	0.001309	0
A	PM10_PMBW	0.007168	0.009226	0.008866	0.009	0.077823	0.090794	0.045399	0.08129752	0.049798	0.11066361	0.012	0.044858	0.044947
A	PM10_PMTW	0.008	0.008	0.008	0.008	0.009414	0.010658	0.012	0.035125425	0.012	0.032683644	0.004	0.0106	0.013206
A	PM10_RUNEX	0.001171	0.001927	0.001333	0.001373	0.014027	0.022761	0.012985	0.025474433	0.015841	0.006229362	0.001902	0.013303	0.03019
A	PM10_STREX	0.00191	0.002898	0.002108	0.002161	0.000227	0.000101	0.000107	6.09682E-07	0.000134	1.21066E-05	0.003456	3.95E-05	0.000313
A	PM25_IDLEX	0	0	0	0	0.000651	0.001311	0.002035	0.002082052	0.000405	0	0	0.001252	0
A	PM25_PMBW	0.002509	0.003229	0.003103	0.00315	0.027238	0.031778	0.01589	0.028454132	0.017429	0.038732263	0.0042	0.0157	0.015732
A	PM25_PMTW	0.002	0.002	0.002	0.002	0.002354	0.002664	0.003	0.008781356	0.003	0.008170911	0.001	0.00265	0.003301
A	PM25_RUNEX	0.001078	0.001774	0.001226	0.001266	0.01338	0.021758	0.012415	0.0243688	0.015147	0.005956092	0.001779	0.012712	0.028836
A	PM25_STREX	0.001756	0.002665	0.001938	0.001987	0.000209	9.28E-05	9.82E-05	5.6058E-07	0.000124	1.11315E-05	0.003248	3.63E-05	0.000288
A	ROG_DIURN	0.273594	0.595257	0.288173	0.350288	0.128573	0.066802	0.025795	0.000195977	0.069031	0.00989389	3.900294	0.027017	32.73442
A	ROG_HTSK	0.08102	0.164422	0.0806	0.094021	0.032798	0.017191	0.00626	5.82846E-05	0.0166	0.00330336	3.559276	0.007301	8.700008
A	ROG_IDLEX	0	0	0	0	0.021942	0.01599	0.026359	0.329789936	0.040067	0	0	0.181581	0
A	ROG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
A	ROG_RUNEX	0.007886	0.027617	0.0111	0.015872	0.087722	0.115408	0.038113	0.018605536	0.047576	0.063024567	1.062175	0.055863	0.083758
A	ROG_RUNLS	0.204737	0.46982	0.214357	0.266704	0.182065	0.092651	0.050964	0.000525006	0.075921	0.007986926	3.75283	0.017605	0.204308
A	ROG_STREX	0.295072	0.536464	0.379183	0.493019	0.113203	0.061169	0.048943	4.36152E-07	0.093584	0.013264046	1.345317	0.027327	0.113367
A	SO2_IDLEX	0	0	0	0	8.49E-05	0.000132	0.00149	0.007280347	0.000811	0	0	0.001723	0
A	SO2_RUNEX	0.002423	0.003217	0.003326	0.004009	0.007645	0.007972	0.011664	0.014635772	0.013275	0.009424712	0.001856	0.009553	0.01654
A	SO2_STREX	0.000628	0.00085	0.000854	0.001021	0.000176	9.81E-05	8.43E-05	1.93499E-07	0.000153	3.16705E-05	0.000478	3.68E-05	0.000223
A	TOG_DIURN	0.273594	0.595257	0.288173	0.350288	0.128573	0.066802	0.025795	0.000195977	0.069031	0.00989389	0.086215	0.027017	32.73442
A	TOG_HTSK	0.08102	0.164422	0.0806	0.094021	0.032798	0.017191	0.00626	5.82846E-05	0.0166	0.00330336	3.559276	0.007301	8.700008
A	TOG_IDLEX	0	0	0	0	0.031162	0.021623	0.043266	0.594148623	0.053137	0	0	0.296054	0
A	TOG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
A	TOG_RUNEX	0.011489	0.040276	0.016182	0.023096	0.108455	0.134423	0.053054	0.142671417	0.063874	0.424552446	1.276951	0.155502	0.11065
A	TOG_RUNLS	0.204737	0.46982	0.214357	0.266704	0.182065	0.092651	0.050964	0.000525006	0.075921	0.007986926	3.75283	0.017605	0.204308
A	TOG_STREX	0.323066	0.58736	0.415158	0.539792	0.123943	0.066973	0.053586	4.77531E-07	0.102462	0.014522461	1.462608	0.029919	0.124122
A	N2O_IDLEX	0	0	0	0	0.00064	0.00168	0.024689	0.134071724	0.012191	0	0	0.02511	0
A	N2O_RUNEX	0.004162	0.009375	0.006016	0.008341	0.04145	0.08248	0.15825	0.258076714	0.157784	0.166507004	0.039558	0.128269	0.069357
A	N2O_STREX	0.029881	0.038494	0.03679	0.03974	0.035265	0.019211	0.006032	1.94763E-05	0.015206	0.006218272	0.00802	0.004225	0.031398

CalEEMod EMFAC2021 Fleet Mix Input

Year 2024

FleetMixLandUseSubType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.53116	0.041583	0.227794	0.127091	0.023141	0.005641	0.009358	0.007307	0.001055	0.000417	0.022105	0.000682	0.002666
Research & Development	0.53116	0.041583	0.227794	0.127091	0.023141	0.005641	0.009358	0.007307	0.001055	0.000417	0.022105	0.000682	0.002666

Adjustment Factors	Vehicle Category	Fuel	Population	Pop Fract	VMT (miles/day)	VMT Fract	Trips/day	Trip Fract
	HHDT	GAS	2.58870796	1.95479E-05	115.1525769	0.0001088	51.79486882	0.000391
	HHDT	DSL	8486.69344	0.064085007	1001095.457	0.9456821	124748.3826	0.942004
	HHDT	ELEC	28.3303862	0.000213929	2794.260589	0.0026396	378.794564	0.00286
	HHDT	NG	794.400964	0.005998707	54591.27048	0.0515695	7249.716942	0.054744
			9312.0135		1058596.14		132428.689	
	LDA	GAS	600108.166	0.190572388	22290343.74	0.8713379	2786616.833	0.884928
	LDA	DSL	1750.02352	0.000555743	51573.47594	0.002016	7442.609511	0.002364
	LDA	ELEC	57627.4034	0.018300354	2472767.413	0.0966614	282732.9828	0.089786
	LDA	PIH	17457.0988	0.005543736	767059.2064	0.0299846	72185.10346	0.022923
			676942.692		25581743.84		3148977.529	
	LDT1	GAS	52693.3661	0.22315027	1706864.169	0.9932977	234793.4065	0.994323
	LDT1	DSL	23.4623252	9.93602E-05	343.9307557	0.0002001	66.44458855	0.000281
	LDT1	ELEC	211.002813	0.000893572	8008.645616	0.0046606	994.4346051	0.004211
	LDT1	PIH	67.6457784	0.000286472	3164.460326	0.0018415	279.7152939	0.001185
			52995.477		1718381.206		236134.001	
	LDT2	GAS	285585.435	0.210271162	10322758.41	0.9820916	1336438.482	0.983994
	LDT2	DSL	1015.45285	0.000747659	37944.25501	0.00361	4835.433637	0.00356
	LDT2	ELEC	1597.56671	0.001176258	55532.59168	0.0052833	8150.926864	0.006001
	LDT2	PIH	2116.57955	0.001558398	94757.7077	0.0090151	8752.056437	0.006444
			290315.034		10510992.96		1358176.899	
	LHDT1	GAS	19314.1424	0.046441179	722529.3133	0.6418809	287751.9438	0.691904
	LHDT1	DSL	10107.7368	0.024304222	398004.1011	0.353579	127142.6136	0.305717
	LHDT1	ELEC	70.8283556	0.000170308	5110.544281	0.0045401	989.4272741	0.002379
			29492.7076	0.070915709	1125643.959		415883.9847	
	LHDT2	GAS	2506.9057	0.026111	91452.57471	0.331033	37349.15959	0.389015
	LHDT2	DSL	4663.45548	0.048572823	183558.3761	0.6644305	58660.40334	0.610985
	LHDT2	ELEC	18.3325933	0.000190945	1253.286273	0.0045365	242.6680052	0.002528
			7188.69377	0.074874768	276264.2371		96009.56293	
	MCY	GAS	28171.5095	0.022104648	166022.3441	1	56343.01906	1
	MDV	GAS	156642.427	0.208531065	5468053.925	0.9650793	726101.0934	0.966626
	MDV	DSL	2400.61454	0.003195831	86292.68513	0.0152302	11318.82209	0.015068
	MDV	ELEC	1678.68445	0.002234758	58660.62986	0.0103533	8578.49571	0.01142
	MDV	PIH	1250.85709	0.00166521	52904.03132	0.0093373	5172.294058	0.006886
			161972.583		5665911.271		751170.7052	
	MH	GAS	2420.56984	7.121629885	22012.30271	0.6985681	242.1538069	0.712448
	MH	DSL	977.36061	2.875521464	9498.302477	0.3014319	97.73606104	0.287552
			3397.93045		31510.60519		339.8898679	
	MHDT	GAS	1414.55168	0.009216738	71600.35148	0.1399516	28302.34992	0.184409
	MHDT	DSL	10390.528	0.067701153	434043.5933	0.8483911	123938.9566	0.807544
	MHDT	ELEC	30.9160141	0.000201438	1660.353407	0.0032454	407.4535626	0.002655
	MHDT	NG	90.5944854	0.000590283	4303.5812	0.0084119	827.6228005	0.005393
			11926.5902		511607.8794		153476.3829	
	OBUS	GAS	443.146734	0.024493158	19894.31417	0.2414205	8866.47985	0.490059
	OBUS	DSL	893.137556	0.049364596	61949.05075	0.7517609	9141.625389	0.505267
	OBUS	ELEC	1.08748138	6.01062E-05	92.50104822	0.0011225	21.7583274	0.001203
	OBUS	NG	7.05736996	0.000390068	469.3876372	0.0056961	62.81059268	0.003472
			1344.42914		82405.25361		18092.67416	
	SBUS	GAS	172.694787	0.016022959	8584.865553	0.348885	690.7791473	0.064092
	SBUS	DSL	670.595844	0.062219191	15345.26177	0.6236244	9710.227827	0.900934
	SBUS	ELEC	2.06466629	0.000191564	64.35501341	0.0026154	23.64639413	0.002194
	SBUS	NG	24.3995047	0.002263834	612.0940704	0.0248752	353.3048277	0.03278
			869.754802		24606.57641		10777.9582	
	UBUS	GAS	46.0831322	0.021676301	4812.450683	0.0818022	184.3325287	0.086705
	UBUS	DSL	437.474468	0.205776552	48917.60551	0.8315035	1749.897872	0.823106
	UBUS	ELEC	5.34756545	0.031392036	235.0625504	0.0483152	21.3902618	0.125568
	UBUS	NG	42.5869588	0.020031792	4865.187143	0.0826987	170.347835	0.080127
			531.492124		58830.30589		2125.968497	

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_RUNE	NOx_IDLEX	NOx_STRE	PM2.5_RU	PM2.5_IDL	PM2.5_STF	PM2.5_PM	PM2.5_PM	PM10_RUI	PM10_IDL	PM10_STR	PM10_PM	PM10_PMI	CO2_RUNE	CO2_IDLEX	CO2_STRE	CH4_RUNE	CH4_IDLEX	CH4_STRE	N2O_RUNE	N2O_IDLE	N2O_STRE	ROG_RUNE	ROG_IDLE	ROG_STRE	ROG_HOTS	ROG_RUNL	ROG_DIUR	TOG_RUNE	TOG_IDLE	TOG_STRE	TOG_HOTS	TOG_RUNL	TOG_DIUR	NH3_RUNE	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	0.00877	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	0.215084	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	2.412728	37.08609	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	0.172781	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	0.184132	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	166022.3	166022.3	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	97.73606	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	0.210532	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	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	0.216021	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	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	0.148025	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	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	0.00888	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: 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_RUNE	NOx_IDLEX	NOx_STRE	PM2.5_RU	PM2.5_IDL	PM2.5_STF
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
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
Santa Clara	2023	HHDT	Aggregate	Aggregate	Electricity	6.70171	411.5054	0	411.5054	103.2044	0	0	0	0	0	0
Santa Clara	2023	HHDT	Aggregate	Aggregate	Natural Ga	753.7366	53295.97	53295.97	0	6914.034	1.208844	13.92832	0	0.001774	0.024237	0
Santa Clara	2023	LDA	Aggregate	Aggregate	Gasoline	601938.3	22370251	22370251	0	2795479	0.047412	0	0.27189	0.001217	0	0.001992
Santa Clara	2023	LDA	Aggregate	Aggregate	Diesel	1871.125	56220.8	56220.8	0	8000.531	0.238318	0	0	0.018559	0	0
Santa Clara	2023	LDA	Aggregate	Aggregate	Electricity	53751.15	2268185	0	2268185	265250.1	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
Santa Clara	2023	LDT1	Aggregate	Aggregate	Gasoline	53782.25	1744480	1744480	0	239737.9	0.143293	0	0.404336	0.00185	0	0.002837
Santa Clara	2023	LDT1	Aggregate	Aggregate	Diesel	26.04714	391.8698	391.8698	0	75.17737	1.659056	0	0	0.24041	0	0
Santa Clara	2023	LDT1	Aggregate	Aggregate	Electricity	194.8941	7068.184	0	7068.184	916.4832	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
Santa Clara	2023	LDT2	Aggregate	Aggregate	Gasoline	280180.4	10140967	10140967	0	1311796	0.077207	0	0.358346	0.001265	0	0.002003
Santa Clara	2023	LDT2	Aggregate	Aggregate	Diesel	978.4967	36936.87	36936.87	0	4673.401	0.046157	0	0	0.005431	0	0
Santa Clara	2023	LDT2	Aggregate	Aggregate	Electricity	1105.879	38931.7	0	38931.7	5663.051	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
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
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
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
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
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
Santa Clara	2023	MDV	Aggregate	Aggregate	Gasoline	153799.1	5358084	5358084	0	712433.9	0.11759	0	0.470106	0.001289	0	0.002144
Santa Clara	2023	MDV	Aggregate	Aggregate	Diesel	2374.918	86834.44	86834.44	0	11267.05	0.053096	0	0	0.00515	0	0
Santa Clara	2023	MDV	Aggregate	Aggregate	Electricity	1130.115	40073.7	0	40073.7	5799.833	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
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
Santa Clara	2023	MH	Aggregate	Aggregate	Diesel	959.1578	9344.849	9344.849	0	95.91578	4.269554	0	0	0.097907	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
Santa Clara	2023	MHDT	Aggregate	Aggregate	Diesel	10273.55	431550.4	431550.4	0	122418.7	1.337342	13.57242	1.624162	0.016518	0.035742	0
Santa Clara	2023	MHDT	Aggregate	Aggregate	Electricity	4.749835	101.8022	0	101.8022	59.6458	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
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
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
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
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
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
Santa Clara	2023	SBUS	Aggregate	Aggregate	Electricity	0.302373	3.510494	0	3.510494	4.378365	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
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
Santa Clara	2023	UBUS	Aggregate	Aggregate	Diesel	436.6681	48829.71	48829.71	0	1746.672	0.386256	0	0	0.007022	0	0
Santa Clara	2023	UBUS	Aggregate	Aggregate	Electricity	5.046757	199.0027	0	199.0027	20.18703	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

Vehicle Cat	Fuel	PM2.5_PM	PM2.5_PM	PM10_RUN	PM10_IDLE	PM10_STR	PM10_PM	PM10_PMI	CO2_RUNE	CO2_IDLEX	CO2_STRE	CH4_RUNE	CH4_IDLEX	CH4_STRE	N2O_RUNE	N2O_IDLE	N2O_STRE	ROG_RUNE	ROG_IDLE	ROG_STRE
HHDT	Gasoline	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
HHDT	Diesel	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
HHDT	Electricity	0.00874	0.013383	0	0	0	0.03496	0.038238	0	0	0	0	0	0	0	0	0	0	0	0
HHDT	Natural Ga	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
LDA	Gasoline	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
LDA	Diesel	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
LDA	Electricity	0.002	0.001532	0	0	0	0.008	0.004377	0	0	0	0	0	0	0	0	0	0	0	0
LDA	Plug-in Hyb	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
LDT1	Gasoline	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
LDT1	Diesel	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
LDT1	Electricity	0.002	0.00154	0	0	0	0.008	0.0044	0	0	0	0	0	0	0	0	0	0	0	0
LDT1	Plug-in Hyb	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
LDT2	Gasoline	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
LDT2	Diesel	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
LDT2	Electricity	0.002	0.001525	0	0	0	0.008	0.004357	0	0	0	0	0	0	0	0	0	0	0	0
LDT2	Plug-in Hyb	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
LHDT1	Gasoline	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
LHDT1	Diesel	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
LHDT2	Gasoline	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
LHDT2	Diesel	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
MCY	Gasoline	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
MDV	Gasoline	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
MDV	Diesel	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
MDV	Electricity	0.002	0.001524	0	0	0	0.008	0.004354	0	0	0	0	0	0	0	0	0	0	0	0
MDV	Plug-in Hyb	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
MH	Gasoline	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
MH	Diesel	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
MHDT	Gasoline	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
MHDT	Diesel	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
MHDT	Electricity	0.003	0.00799	0	0	0	0.012	0.022828	0	0	0	0	0	0	0	0	0	0	0	0
MHDT	Natural Ga	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
OBUS	Gasoline	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
OBUS	Diesel	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
OBUS	Natural Ga	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
SBUS	Gasoline	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
SBUS	Diesel	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
SBUS	Electricity	0.003	0.00786	0	0	0	0.012	0.022459	0	0	0	0	0	0	0	0	0	0	0	0
SBUS	Natural Ga	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
UBUS	Gasoline	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
UBUS	Diesel	0.0083	0.0385	0.00734	0	0	0.0332	0.11	1100.965	0	0	0.003215	0	0	0.173457	0	0	0.069208	0	0
UBUS	Electricity	0.009	0.01925	0	0	0	0.036	0.055	0	0	0	0	0	0	0	0	0	0	0	0
UBUS	Natural Ga	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

Vehicle Cat	Fuel	ROG_HOTS	ROG_RUNL	ROG_DIUR	TOG_RUNE	TOG_IDLEX	TOG_STRE	TOG_HOTS	TOG_RUNL	TOG_DIUR	NH3_RUNE	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNE	SOx_IDLEX	SOx_STREX
HHDT	Gasoline	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
HHDT	Diesel	0	0	0	0.019828	5.819801	0	0	0	0	0.214624	0.087393	74.20136	0	0.015689	0.115918	0
HHDT	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HHDT	Natural Ga	0	0	0	2.520799	38.25947	0	0	0	0	0.860105	13.78246	74.03965	0	0	0	0
LDA	Gasoline	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
LDA	Diesel	0	0	0	0.034627	0	0	0	0	0	0.0031	0.342459	0	0	0.002221	0	0
LDA	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LDA	Plug-in Hyb	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
LDT1	Gasoline	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
LDT1	Diesel	0	0	0	0.341362	0	0	0	0	0	0.0031	1.601395	0	0	0.003938	0	0
LDT1	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LDT1	Plug-in Hyb	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
LDT2	Gasoline	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
LDT2	Diesel	0	0	0	0.015919	0	0	0	0	0	0.0031	0.132099	0	0	0.002966	0	0
LDT2	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LDT2	Plug-in Hyb	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
LHDT1	Gasoline	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
LHDT1	Diesel	0	0	0	0.211352	0.124954	0	0	0	0	0.16551	0.518876	0.909745	0	0.006021	0.001259	0
LHDT2	Gasoline	0.046993	0.25097	2.676301	0.048222	0.615826	0.181319	0.046993	0.25097	2.676301	0.044967	0.961891	3.759407	3.119312	0.00986	0.001372	0.000254
LHDT2	Diesel	0	0	0	0.191767	0.124954	0	0	0	0	0.178982	0.44054	0.909745	0	0.007244	0.00201	0
MCY	Gasoline	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
MDV	Gasoline	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
MDV	Diesel	0	0	0	0.012975	0	0	0	0	0	0.0031	0.202592	0	0	0.003896	0	0
MDV	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV	Plug-in Hyb	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
MH	Gasoline	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
MH	Diesel	0	0	0	0.139813	0	0	0	0	0	0.150005	0.410284	0	0	0.010247	0	0
MHDT	Gasoline	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
MHDT	Diesel	0	0	0	0.042176	0.301431	0	0	0	0	0.209014	0.132571	7.583386	0	0.010905	0.021437	0
MHDT	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MHDT	Natural Ga	0	0	0	0.755281	17.95355	0	0	0	0	1.06	2.992708	33.64344	0	0	0	0
OBUS	Gasoline	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
OBUS	Diesel	0	0	0	0.048793	0.504126	0	0	0	0	0.215865	0.153454	7.510858	0	0.012145	0.014706	0
OBUS	Natural Ga	0	0	0	0.789994	4.471404	0	0	0	0	1.06	3.211954	6.724204	0	0	0	0
SBUS	Gasoline	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
SBUS	Diesel	0	0	0	0.06735	0.198106	0	0	0	0	0.144154	0.181489	4.581854	0	0.010876	0.021191	0
SBUS	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SBUS	Natural Ga	0	0	0	3.562424	15.7193	0	0	0	0	1.06	11.90284	20.11199	0	0	0	0
UBUS	Gasoline	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
UBUS	Diesel	0	0	0	0.078788	0	0	0	0	0	0.18785	0.079368	0	0	0.010432	0	0
UBUS	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UBUS	Natural Ga	0	0	0	4.333091	0	0	0	0	0	0.97	49.04231	0	0	0	0	0

Attachment 4: Project Construction and Operation Emissions and Health Risk Calculations

Attachment 4: Project Construction and Operation Emissions and Health Risk Calculations

865 Embedded Way - San Jose, CA

DPM Emissions and Modeling Emission Rates - Uncontrolled

Emissions Model Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	(lb/hr)	(g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2023	Construction	0.0376	DPM	75.3	0.03217	4.05E-03	24,259	**1.67E-07**

Modeled Operation Hours
hr/day = 9 (8am - 5pm Mon-Fri)
days/yr = 260
hours/year = 2340

PM2.5 Fugitive Dust Emissions for Modeling - Uncontrolled

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	(lb/yr)	(lb/hr)	(g/s)	Modeled Area (m^2)	PM2.5 Emission Rate $g/s/m^2$
2022	Construction	FUG	0.0556	111.3	0.04756	5.99E-03	24,259	**2.47E-07**

Modeled Operation Hours
hr/day = 9 (8am - 5pm Mon-Fri)
days/yr = 260
hours/year = 2340

865 Embedded Way-San Jose, CA
Construction Health Impacts Summary

Maximum Impacts at Residential Construction MEI Location - Uncontrolled

Emissions Year	Maximum Concentrations: Exhaust PM10/DPM ($\mu g/m^3$)	Maximum Concentrations: Fugitive PM2.5 ($\mu g/m^3$)	Cancer Risk (per million): Child	Cancer Risk (per million): Adult	Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu g/m^3$)
2023	0.0026	0.0042	0.47	0.01	0.001	0.01

865 Embedded Way-San Jose, CA - Uncontrolled Emissions
Maximum DPM Cancer Risk Calculations From Construction
Impacts at Off-Site Receptors-1.5 meter receptor height

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 - 9**	**2 - 16**	**16 - 30**
Parameter					
ASF =	10	10	3	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	631	572	261
A =	1	1	1	1	1
EF =	350	350	350	350	350
AT =	70	70	70	70	70
FAH =	1.00	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**		
	Exposure				**Age**	**Cancer**	**Modeled**		**Age**	**Cancer**		
Exposure	**Duration**		**DPM Conc (ug/m3)**		**Sensitivity**	**Risk**	**DPM Conc (ug/m3)**		**Sensitivity**	**Risk**	**Fugitive**	**Total**
Year	**(years)**	**Age**	**Year**	**Annual**	**Factor**	**(per million)**	**Year**	**Annual**	**Factor**	**(per million)**	**PM2.5**	**PM2.5**
0	0.25	-0.25 - 0*	2023	0.0026	10	0.04	2022	-	-	-		
1	1	0 - 1	2023	0.0026	10	0.43	2022	0.0026	1	0.01	0.0042	0.007
2	1	1 - 2		0.0000	10	0.00		0.0000	1	0.00		
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						**0.468**				**0.008**		

* Third trimester of pregnancy

865 Embedded Way, San Jose: Off-Site DPM & PM2.5 Emissions

Off-Site Truck Travel Exhaust Emissions

Emissions Source	Emission* Factor (g/mi)	Trucks per Day	Of-Site Truck Route (feet)	DPM/PM2.5 Emissions Daily (lb/day)	DPM/PM2.5 Emissions Annual (lb/year)
North Segment Hellyer Ave	0.01385	24	1635	0.0002	0.08
South Segment Hellyer Ave	0.01385	24	1170	0.0002	0.06
Embedded Way	0.01021	24	1541	0.0002	0.06

* EMFAC2021 HHDT Truck PM10 emission factor for travel at 45 mph on Hellyer and 35 mph on Embedded Way.

Off-Site Truck Travel Fugitive PM2.5 Emissions

Emissions Source	Emission Factor (g/mi)	Trucks per Day	Off-Site Truck Route (feet)	DPM/PM2.5 Emissions Daily (lb/day)	DPM/PM2.5 Emissions Annual (lb/year)
North Segment Hellyer Ave	0.03636	24	1635	0.0006	0.22
South Segment Hellyer Ave	0.03636	24	1170	0.0004	0.16
Embedded Way	0.03636	24	1541	0.0006	0.21

Truck Information

Truck Trips per day =	48
Total Trucks per day =	24
Operation Days =	365
Delivery Hours per Day=	24

Truck Fugitive PM2.5 Dust Emission Information (2024)

Tire Wear Emission Factor (g/veh-mi)[a] =	0.0022
Brake Wear Emission Factor (g/veh-mi)[a] =	0.0173
Fugitive Road Dust Emission Factor (g/veh-mi)[a] =	0.0168
Total PM2.5 Fugitive PM2.5 Emission Factor (g/veh-mi) =	0.0364

[a] Emission factors from CT-EMFAC2017

References

EPA 2015 - *Transportation Conformity Guidance for Quantitative Hot-spot Analyses in PM2.5 and PM10 nonattainment and maintenance Areas* , November 2015

865 Embedded Way, San Jose: Off-Site Modeling Emission Rates and Source Parameters

Off-SiteTruck Travel DPM/PM2.5 Exhaust Emissions Modeling Information

Emissions Period	Source Type	Average Hourly[a] DPM/PM2.5 Emissions (g/s)	Line Source Length (feet)	Plume Width (feet)	Plume Height (meters)	Release Height (meters)
North Segment Hellyer Ave	Line-Volume	1.19E-06	1635	32	6.8	3.4
South Segment Hellyer Ave	Line-Volume	8.53E-07	1170	32	6.8	3.4
Embedded Way	Line-Volume	8.28E-07	1541	44	6.8	3.4

a Average hourly emissions for modeling calculated based on annual emissions divided by 365 days per year, 24 hours per day.

Off-SiteTruck Travel Fugitive PM2.5 Emissions Modeling Information

Emissions Period	Source Type	Average Hourly[a] DPM/PM2.5 Emissions (g/s)	Line Source Length (feet)	Plume Width (feet)	Plume Height (meters)	Release Height (meters)
North Segment Hellyer Ave	Line-Volume	3.13E-06	1635	32	2.6	1.3
South Segment Hellyer Ave	Line-Volume	2.24E-06	1170	32	2.6	1.3
Embedded Way	Line-Volume	2.95E-06	1541	44	2.6	1.3

a Average hourly emissions for modeling calculated based on annual emissions divided by 365 days per year, 24 hours per day.

865 Embedded Way, San Jose: On-Site DPM & PM2.5 Emissions

On-Site Truck Travel Emissions

Emissions Source	Emission[a] Factor (g/mi)	On-Site Truck Trips per Day	On-Site Truck Route (feet)	DPM/PM2.5 Emissions Daily (lb/day)	DPM/PM2.5 Emissions Annual[b] (lb/year)
All Trucks	0.11742	48	1579	0.0037	1.36

a EMFAC2021 HHDT Truck PM10 emission factor for travel at 5 mph.

b Based on 365 days per year operation.

On-Site Truck Travel Fugitive PM2.5 Emissions - Hallyer Ave

Emissions Source	Emission Factor (g/mi)	Truck Trips per Day	Off-Site Truck Route (feet)	DPM/PM2.5 Emissions Daily (lb/day)	DPM/PM2.5 Emissions Annual (lb/year)
All Trucks	0.03636	48	1579	0.0012	0.42

Truck Information

Truck Trips per day =	48
Total Trucks per day =	24
Operation Days =	365
Delivery Hours per Day=	24

Truck Fugitive PM2.5 Dust Emission Information (2024)

Tire Wear Emission Factor (g/veh-mi)[a] =	0.0022
Brake Wear Emission Factor (g/veh-mi)[a] =	0.0173
Fugitive Road Dust Emission Factor (g/veh-mi)[a] =	0.0168
Total PM2.5 Fugitive PM2.5 Emission Factor (g/veh-mi) =	0.0364

[a] Emission factors from CT-EMFAC2017

Truck Idle Emissions

Emissions Source	Idle Emission Factor (g/hr)	On-Site Trucks per Day	Idle Time per Truck (min)	DPM/PM2.5 Emissions Daily (lb/day)	DPM/PM2.5 Emissions Annual[a] (lb/year)
All Trucks	0.58710	24	10	0.0052	1.56

a Based on 365 days per year operation.

Truck Idle DPM (PM10) Emission Information (2024)

EMFAC2021 Emission Factor @ 5 mph (g	0.11742
Truck Idle Emission Rate (g/hr) =	0.58710
Idle Time per Trip (min)	5
Idle Time per Truck (min)	10

Idle emission factor (g/hr) = EF @5 mph (g/mi) * 5 mph

References

EPA 2015 - *Transportation Conformity Guidance for Quantitative Hot-spot Analyses in PM2.5 and PM10 nonattainment and maintenance Areas* , November 2015

865 Embedded Way, San Jose: On-Site Modeling Emission Rates and Source Parameters

On-SiteTruck Travel DPM/PM2.5 Exhaust Emissions Modeling Information

Emissions Period	Source Type	Average Hourly[a] DPM/PM2.5 Emissions (g/s)	Line Source Length (feet)	Plume Width (feet)	Plume Height (meters)	Release Height (meters)
All Trucks	Line-Volume	1.95E-05	1579	12	6.8	3.4

a Average hourly emissions for modeling calculated based on annual emissions divided by 365 days per year, 24 hours per day.

On-SiteTruck Travel Fugitive PM2.5 Emissions Modeling Information

Emissions Period	Source Type	Average Hourly[a] DPM/PM2.5 Emissions (g/s)	Line Source Length (feet)	Plume Width (feet)	Plume Height (meters)	Release Height (meters)
All Trucks	Line-Volume	6.04E-06	1579	12	2.6	1.3

a Average hourly emissions for modeling calculated based on annual emissions divided by 365 days per year, 24 hours per day.

Truck Idle Modeling Information[a]

Emissions Source	Number of Emission Points	Average Hourly[b] DPM/PM2.5 Emissions (g/s)	Emissions per Source (g/s)	Height (m)	Diameter (m)	Exit Velocity (m/s)	Temp (K)
Truck Idle	6	2.24E-05	3.74E-06	3.84	0.1	51.71	366

a Point source parameters from SJVAPCD, Guidance for Air Dispersion Modeling, Draft 01/07 Rev 2.0.

b Average hourly emissions for modeling calculated based on annual emissions divided by 365 days per year, 24 hours per day.

865 Embedded Way, San Jose
Emergency Fire Pump Diesel Engine Impacts

DPM Emission Rates		
	Fire Pump DPM Emissions	
	Daily	Annual
Source Type	(lb/day)	(lb/year)
One 472 hp diesel fire pump	0.016	5.70
CalEEMod DPM Emissions	2.85E-03	tons/year

Modeling Information		
Model	AERMOD	
Source	Diesel Fire Pump Engine	
Source Type	Point	
Meteorological Data	2013-2017 San Jose Airport Meterological Data	
Point Source Stack Parameters		
Generator Engine Size (hp)	-	
Stack Height (ft)	37	estimated
Stack Diameter (ft)**	0.60	
Stack Exit Velocity (ft/sec)**	149	
Exhaust Gas Flowrate (CFM)*	2528	
Exhaust Temperature (˚F)**	872	
Emissions Rate (lb/hr)	0.00065	

* calculated
**BAAQMD default diesel engine parameters

865 Embedded Way - Project Operation - TACs & PM2.5
AERMOD Risk Modeling Parameters and
Maximum Concentrations at Project MEI Receptor
Residential Recepotrs - 1.5 Meter Receptor Heights

Emissions Year	2024
Receptor Information	
Number of Receptors	1
Receptor Height =	1.5 meter
Receptor distances =	at project MEI
Meteorological Conditions	
BAAQMD San Jose Airport Met Data	2013-2017
Land Use Classification	urban
Wind speed =	variable
Wind direction =	variable

MEI Maximum DPM Concentrations

Emission Source	Concentration (µg/m³) DPM
Truck Travel	0.00020
Truck Idle	0.00018
Fire Pump	0.0004
Total	**0.0008**

MEI Maximum PM2.5 Concentrations

Emission Source	Concentrations (µg/m³) Total PM2.5
Truck Travel	0.00029
Truck Idle	0.00018
Fire Pump	0.0004
Total	**0.0009**

865 Embedded Way, San Jose - Project Operation
DPM Cancer Risks From Project Operation Sources
Maximum DPM Cancer Risk at Project MEI Receptor
1.5 Meter Receptor Heights

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

Values

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

TAC	CPF
DPM	1.10E+00

	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
ED =	0.25	2	14	14
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

MEI Cancer Risk From Project Trucks (travel & idling)
1.5 meter receptor height (2024-2052)

Exposure Duration (years)	Age	Age Sensitivity Factor	DPM Annual Conc (ug/m3)	DPM Cancer Risk (per million)
0	-0.25 - 0*	10	0.00038	0.00
1	1 - 2	10	0.00038	0.06
14	3 - 16	3	0.00038	0.14
14	17 - 30	1	0.00038	0.02
Total Increased Cancer Risk				**0.215**

* Third trimester of pregnancy

MEI Cancer Risk From Fire Pump
1.5 meter receptor height (2024-2052)

Exposure Duration (years)	Age	Age Sensitivity Factor	DPM Annual Conc (ug/m3)	DPM Cancer Risk (per million)
0	-0.25 - 0*	10	0.00040	0.00
1	1 - 2	10	0.00040	0.07
14	3 - 16	3	0.00040	0.14
14	17 - 30	1	0.00040	0.02
Total Increased Cancer Risk				**0.227**

* Third trimester of pregnancy

Total MEI Cancer Risk From Project Operation
1.5 meter receptor height (2024-2052)

Exposure Duration (years)	Age	Age Sensitivity Factor	DPM Annual Conc (ug/m3)	DPM Cancer Risk (per million)
0	-0.25 - 0*	10	0.00078	0.00
1	1 - 2	10	0.00078	0.13
14	3 - 16	3	0.00078	0.28
14	17 - 30	1	0.00078	0.03
Total Increased Cancer Risk				**0.442**

* Third trimester of pregnancy

Attachment 5: Cumulative Risk Information and Calculations

CT-EMFAC2017 Emissions Factors for Santa Clara County 2023

File Name:	Embedded Way - Santa Clara (SF) - 2023 - Annual.EF
CT-EMFAC2017 Version:	1.0.2.27401
Run Date:	7/21/2022 13:27
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	45 mph	50 mph
PM2.5	0.009229	0.005981	0.004054	0.002896	0.002194	0.001765	0.001511	0.001375	0.001329	0.001357
TOG	0.195764	0.127928	0.086105	0.061055	0.046181	0.036838	0.030861	0.027137	0.025044	0.024259
Diesel PM	0.000904	0.000732	0.000563	0.000446	0.000382	0.000353	0.00035	0.00037	0.000411	0.000473

===

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=====================================

Hellyer Avenue Traffic Emissions and Health Risk Calculations

Analysis Year = ***2023***

Vehicle Type	2023 Caltrans Vehicles (veh/day)	2023 Vehicles (veh/day)
Total	**12,710**	**12,710**

Increase From 2023	1.00
Vehicles/Direction	**6,355**
Avg Vehicles/Hour/Direction	265

Traffic Data Year = ***2023***

Project Traffic Data - Background Plus Project ADT	AADT Total	Total Truck
Hellyer Avenue and Embedded Way	12,710	446
	Percent of Total Vehicles	3.51%

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

865 Embedded Way, San Jose, CA - Offsite Residential Roadway Modeling
Cumulative Operation - Hellyer Avenue
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_HEL	Hellyer Ave Northbound	NB	2	816.2	0.51	13.3	43.7	3.4	45	6,355
DPM_SB_HEL	Hellyer Ave Southbound	SB	2	848.5	0.53	13.3	43.7	3.4	45	6,355
									Total	12,710

Emission Factors - DPM

Speed Category	1	2	3	4
Travel Speed (mph)	45			
Emissions per Vehicle (g/VMT)	0.00041			

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and DPM Emissions - DPM_NB_HEL

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	3.91%	248	1.44E-05	9	6.50%	413	2.39E-05	17	5.58%	354	2.05E-05
2	2.59%	164	9.52E-06	10	7.36%	468	2.71E-05	18	3.28%	208	1.21E-05
3	2.88%	183	1.06E-05	11	6.33%	402	2.33E-05	19	2.36%	150	8.68E-06
4	3.34%	212	1.23E-05	12	6.84%	435	2.52E-05	20	0.92%	58	3.39E-06
5	2.19%	139	8.04E-06	13	6.15%	391	2.26E-05	21	2.99%	190	1.10E-05
6	3.39%	216	1.25E-05	14	6.15%	391	2.26E-05	22	4.14%	263	1.52E-05
7	5.98%	380	2.20E-05	15	5.23%	333	1.93E-05	23	2.47%	157	9.10E-06
8	4.66%	296	1.71E-05	16	3.91%	248	1.44E-05	24	0.86%	55	3.17E-06
								Total		6,355	

2023 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_SB_HEL

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.91%	248	1.50E-05	9	6.50%	413	2.49E-05	17	5.58%	354	2.13E-05
2	2.59%	164	9.90E-06	10	7.36%	468	2.82E-05	18	3.28%	208	1.25E-05
3	2.88%	183	1.10E-05	11	6.33%	402	2.42E-05	19	2.36%	150	9.02E-06
4	3.34%	212	1.28E-05	12	6.84%	435	2.62E-05	20	0.92%	58	3.52E-06
5	2.19%	139	8.36E-06	13	6.15%	391	2.35E-05	21	2.99%	190	1.14E-05
6	3.39%	216	1.30E-05	14	6.15%	391	2.35E-05	22	4.14%	263	1.58E-05
7	5.98%	380	2.29E-05	15	5.23%	333	2.00E-05	23	2.47%	157	9.46E-06
8	4.66%	296	1.78E-05	16	3.91%	248	1.50E-05	24	0.86%	55	3.30E-06
								Total		6,355	

865 Embedded Way, San Jose, CA - Offsite Residential Roadway Modeling
Cumulative Operation - Hellyer Avenue
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_HEL	Hellyer Ave Northbound	NB	2	816.2	0.51	13.3	44	1.3	45	6,355
PM25_SB_HEL	Hellyer Ave Southbound	SB	2	848.5	0.53	13.3	44	1.3	45	6,355
									Total	12,710

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	45			
Emissions per Vehicle (g/VMT)	0.001329			

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and PM2.5 Emissions - PM25_NB_HEL

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	73	1.37E-05	9	7.11%	452	8.46E-05	17	7.38%	469	8.79E-05
2	0.42%	27	4.97E-06	10	4.39%	279	5.23E-05	18	8.17%	519	9.72E-05
3	0.41%	26	4.85E-06	11	4.66%	296	5.55E-05	19	5.70%	362	6.78E-05
4	0.26%	17	3.13E-06	12	5.89%	374	7.01E-05	20	4.27%	272	5.09E-05
5	0.50%	32	5.96E-06	13	6.15%	391	7.32E-05	21	3.26%	207	3.88E-05
6	0.90%	57	1.08E-05	14	6.04%	384	7.18E-05	22	3.30%	210	3.92E-05
7	3.79%	241	4.51E-05	15	7.01%	446	8.34E-05	23	2.46%	156	2.93E-05
8	7.76%	493	9.24E-05	16	7.14%	453	8.49E-05	24	1.86%	118	2.22E-05
								Total		6,355	

2023 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM25_SB_HEL

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	73	1.42E-05	9	7.11%	452	8.80E-05	17	7.38%	469	9.13E-05
2	0.42%	27	5.16E-06	10	4.39%	279	5.43E-05	18	8.17%	519	1.01E-04
3	0.41%	26	5.04E-06	11	4.66%	296	5.77E-05	19	5.70%	362	7.05E-05
4	0.26%	17	3.26E-06	12	5.89%	374	7.28E-05	20	4.27%	272	5.29E-05
5	0.50%	32	6.19E-06	13	6.15%	391	7.61E-05	21	3.26%	207	4.03E-05
6	0.90%	57	1.12E-05	14	6.04%	384	7.47E-05	22	3.30%	210	4.08E-05
7	3.79%	241	4.69E-05	15	7.01%	446	8.67E-05	23	2.46%	156	3.04E-05
8	7.76%	493	9.60E-05	16	7.14%	453	8.83E-05	24	1.86%	118	2.31E-05
								Total		6,355	

865 Embedded Way, San Jose, CA - Offsite Residential Roadway Modeling
Cumulative Operation - Hellyer Avenue
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_HEL	Hellyer Ave Northbound	NB	2	816.2	0.51	13.3	44	1.3	45	6,355
TEXH_SB_HEL	Hellyer Ave Southbound	SB	2	848.5	0.53	13.3	44	1.3	45	6,355
									Total	12,710

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	45			
Emissions per Vehicle (g/VMT)	0.02504			

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_NB_HEL

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	73	2.58E-04	9	7.11%	452	1.59E-03	17	7.38%	469	1.66E-03
2	0.42%	27	9.36E-05	10	4.39%	279	9.85E-04	18	8.17%	519	1.83E-03
3	0.41%	26	9.14E-05	11	4.66%	296	1.05E-03	19	5.70%	362	1.28E-03
4	0.26%	17	5.90E-05	12	5.89%	374	1.32E-03	20	4.27%	272	9.58E-04
5	0.50%	32	1.12E-04	13	6.15%	391	1.38E-03	21	3.26%	207	7.31E-04
6	0.90%	57	2.03E-04	14	6.04%	384	1.35E-03	22	3.30%	210	7.40E-04
7	3.79%	241	8.50E-04	15	7.01%	446	1.57E-03	23	2.46%	156	5.51E-04
8	7.76%	493	1.74E-03	16	7.14%	453	1.60E-03	24	1.86%	118	4.18E-04
								Total		6,355	

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

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	73	2.68E-04	9	7.11%	452	1.66E-03	17	7.38%	469	1.72E-03
2	0.42%	27	9.73E-05	10	4.39%	279	1.02E-03	18	8.17%	519	1.90E-03
3	0.41%	26	9.50E-05	11	4.66%	296	1.09E-03	19	5.70%	362	1.33E-03
4	0.26%	17	6.13E-05	12	5.89%	374	1.37E-03	20	4.27%	272	9.96E-04
5	0.50%	32	1.17E-04	13	6.15%	391	1.43E-03	21	3.26%	207	7.60E-04
6	0.90%	57	2.11E-04	14	6.04%	384	1.41E-03	22	3.30%	210	7.69E-04
7	3.79%	241	8.84E-04	15	7.01%	446	1.63E-03	23	2.46%	156	5.73E-04
8	7.76%	493	1.81E-03	16	7.14%	453	1.66E-03	24	1.86%	118	4.34E-04
								Total		6,355	

865 Embedded Way, San Jose, CA - Offsite Residential Roadway Modeling
Cumulative Operation - Hellyer Avenue
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_HEL	Hellyer Ave Northbound	NB	2	816.2	0.51	13.3	44	1.3	45	6,355
TEVAP_SB_HEL	Hellyer Ave Southbound	SB	2	848.5	0.53	13.3	44	1.3	45	6,355
									Total	12,710

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	45			
Emissions per Vehicle per Hour (g/hour)	1.35761			
Emissions per Vehicle per Mile (g/VMT)	0.03017			

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_NB_HEL

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	73	3.11E-04	9	7.11%	452	1.92E-03	17	7.38%	469	1.99E-03
2	0.42%	27	1.13E-04	10	4.39%	279	1.19E-03	18	8.17%	519	2.21E-03
3	0.41%	26	1.10E-04	11	4.66%	296	1.26E-03	19	5.70%	362	1.54E-03
4	0.26%	17	7.11E-05	12	5.89%	374	1.59E-03	20	4.27%	272	1.15E-03
5	0.50%	32	1.35E-04	13	6.15%	391	1.66E-03	21	3.26%	207	8.80E-04
6	0.90%	57	2.44E-04	14	6.04%	384	1.63E-03	22	3.30%	210	8.91E-04
7	3.79%	241	1.02E-03	15	7.01%	446	1.89E-03	23	2.46%	156	6.64E-04
8	7.76%	493	2.10E-03	16	7.14%	453	1.93E-03	24	1.86%	118	5.03E-04
								Total		6,355	

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

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	73	3.23E-04	9	7.11%	452	2.00E-03	17	7.38%	469	2.07E-03
2	0.42%	27	1.17E-04	10	4.39%	279	1.23E-03	18	8.17%	519	2.29E-03
3	0.41%	26	1.14E-04	11	4.66%	296	1.31E-03	19	5.70%	362	1.60E-03
4	0.26%	17	7.39E-05	12	5.89%	374	1.65E-03	20	4.27%	272	1.20E-03
5	0.50%	32	1.41E-04	13	6.15%	391	1.73E-03	21	3.26%	207	9.15E-04
6	0.90%	57	2.54E-04	14	6.04%	384	1.70E-03	22	3.30%	210	9.26E-04
7	3.79%	241	1.07E-03	15	7.01%	446	1.97E-03	23	2.46%	156	6.91E-04
8	7.76%	493	2.18E-03	16	7.14%	453	2.00E-03	24	1.86%	118	5.23E-04
								Total		6,355	

865 Embedded Way, San Jose, CA - Offsite Residential Roadway Modeling
Cumulative Operation - Hellyer Avenue
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_HEL	Hellyer Ave Northbound	NB	2	816.2	0.51	13.3	44	1.3	45	6,355
FUG_SB_HEL	Hellyer Ave Southbound	SB	2	848.5	0.53	13.3	44	1.3	45	6,355
									Total	12,710

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	45			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00211			
Brake Wear - Emissions per Vehicle (g/VMT)	0.01681			
Road Dust - Emissions per Vehicle (g/VMT)	0.01486			
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.03377			

Emisson Factors from CT-EMFAC2017

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

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	73	3.48E-04	9	7.11%	452	2.15E-03	17	7.38%	469	2.23E-03
2	0.42%	27	1.26E-04	10	4.39%	279	1.33E-03	18	8.17%	519	2.47E-03
3	0.41%	26	1.23E-04	11	4.66%	296	1.41E-03	19	5.70%	362	1.72E-03
4	0.26%	17	7.96E-05	12	5.89%	374	1.78E-03	20	4.27%	272	1.29E-03
5	0.50%	32	1.51E-04	13	6.15%	391	1.86E-03	21	3.26%	207	9.85E-04
6	0.90%	57	2.73E-04	14	6.04%	384	1.83E-03	22	3.30%	210	9.97E-04
7	3.79%	241	1.15E-03	15	7.01%	446	2.12E-03	23	2.46%	156	7.44E-04
8	7.76%	493	2.35E-03	16	7.14%	453	2.16E-03	24	1.86%	118	5.64E-04
								Total		6,355	

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

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	73	3.62E-04	9	7.11%	452	2.24E-03	17	7.38%	469	2.32E-03
2	0.42%	27	1.31E-04	10	4.39%	279	1.38E-03	18	8.17%	519	2.57E-03
3	0.41%	26	1.28E-04	11	4.66%	296	1.47E-03	19	5.70%	362	1.79E-03
4	0.26%	17	8.27E-05	12	5.89%	374	1.85E-03	20	4.27%	272	1.34E-03
5	0.50%	32	1.57E-04	13	6.15%	391	1.93E-03	21	3.26%	207	1.02E-03
6	0.90%	57	2.84E-04	14	6.04%	384	1.90E-03	22	3.30%	210	1.04E-03
7	3.79%	241	1.19E-03	15	7.01%	446	2.20E-03	23	2.46%	156	7.73E-04
8	7.76%	493	2.44E-03	16	7.14%	453	2.24E-03	24	1.86%	118	5.86E-04
								Total		6,355	

865 Embedded Way, San Jose, CA - Hellyer Ave Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
at Project MEI Receptor, 1.5m receptor height

Emission Year	2023
Receptor Information	Project MEI receptor
Number of Receptors	1
Receptor Height	1.5 meters
Receptor Distances	At Project MEI location

Meteorological Conditions	
BAQMD San Jose Airport Met Data	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Wind Direction	Variable

Project MEI Cancer Risk Maximum Concentrations

Meteorological	Concentration (µg/m3)		
Data Years	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0001	0.0023	0.0027

Project MEI PM2.5 Maximum Concentrations

Meteorological	PM2.5 Concentration (µg/m3)		
Data Years	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.0032	0.0030	0.0001

865 Embedded Way, San Jose, CA - Hellyer Ave Cancer Risk & PM2.5
Impacts at Project MEI - 1.5 meter receptor height
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-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-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	0.0001	0.0023	0.0027	0.001	0.000	0.0000	0.00
1	1	0 - 1	2023	10	0.0001	0.0023	0.0027	0.008	0.002	0.0001	0.01
2	1	1 - 2	2024	10	0.0001	0.0023	0.0027	0.008	0.002	0.0001	0.01
3	1	2 - 3	2025	3	0.0001	0.0023	0.0027	0.001	0.000	0.0000	0.00
4	1	3 - 4	2026	3	0.0001	0.0023	0.0027	0.001	0.000	0.0000	0.00
5	1	4 - 5	2027	3	0.0001	0.0023	0.0027	0.001	0.000	0.0000	0.00
6	1	5 - 6	2028	3	0.0001	0.0023	0.0027	0.001	0.000	0.0000	0.00
7	1	6 - 7	2029	3	0.0001	0.0023	0.0027	0.001	0.000	0.0000	0.00
8	1	7 - 8	2030	3	0.0001	0.0023	0.0027	0.001	0.000	0.0000	0.00
9	1	8 - 9	2031	3	0.0001	0.0023	0.0027	0.001	0.000	0.0000	0.00
10	1	9 - 10	2032	3	0.0001	0.0023	0.0027	0.001	0.000	0.0000	0.00
11	1	10 - 11	2033	3	0.0001	0.0023	0.0027	0.001	0.000	0.0000	0.00
12	1	11 - 12	2034	3	0.0001	0.0023	0.0027	0.001	0.000	0.0000	0.00
13	1	12 - 13	2035	3	0.0001	0.0023	0.0027	0.001	0.000	0.0000	0.00
14	1	13 - 14	2036	3	0.0001	0.0023	0.0027	0.001	0.000	0.0000	0.00
15	1	14 - 15	2037	3	0.0001	0.0023	0.0027	0.001	0.000	0.0000	0.00
16	1	15 - 16	2038	3	0.0001	0.0023	0.0027	0.001	0.000	0.0000	0.00
17	1	16-17	2039	1	0.0001	0.0023	0.0027	0.000	0.000	0.0000	0.00
18	1	17-18	2040	1	0.0001	0.0023	0.0027	0.000	0.000	0.0000	0.00
19	1	18-19	2041	1	0.0001	0.0023	0.0027	0.000	0.000	0.0000	0.00
20	1	19-20	2042	1	0.0001	0.0023	0.0027	0.000	0.000	0.0000	0.00
21	1	20-21	2043	1	0.0001	0.0023	0.0027	0.000	0.000	0.0000	0.00
22	1	21-22	2044	1	0.0001	0.0023	0.0027	0.000	0.000	0.0000	0.00
23	1	22-23	2045	1	0.0001	0.0023	0.0027	0.000	0.000	0.0000	0.00
24	1	23-24	2046	1	0.0001	0.0023	0.0027	0.000	0.000	0.0000	0.00
25	1	24-25	2047	1	0.0001	0.0023	0.0027	0.000	0.000	0.0000	0.00
26	1	25-26	2048	1	0.0001	0.0023	0.0027	0.000	0.000	0.0000	0.00
27	1	26-27	2049	1	0.0001	0.0023	0.0027	0.000	0.000	0.0000	0.00
28	1	27-28	2050	1	0.0001	0.0023	0.0027	0.000	0.000	0.0000	0.00
29	1	28-29	2051	1	0.0001	0.0023	0.0027	0.000	0.000	0.0000	0.00
30	1	29-30	2052	1	0.0001	0.0023	0.0027	0.000	0.000	0.0000	0.00
Total Increased Cancer Risk								0.04	0.010	0.001	**0.05**

* Third trimester of pregnancy

	Maximum	
Hazard Index	**Fugitive PM2.5**	**Total PM2.5**
0.00001	0.003	0.003

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	**7/21/2022**
Contact Name	Casey Divine
Affiliation	Illingworth & Rodkin, Inc.
Phone	707-794-0400 x103
Email	cdivine@illingworthrodkin.com
Project Name	865 Embedded Way
Address	865 Embedded Way
City	San Jose
County	Santa Clara
Type (residential, commercial, mixed use, industrial, etc.)	R&D
Project Size (# of units or building square feet)	121.85-ksf
Comments:	

For Air District assistance, the following steps must be completed:

1. Complete all the contact and project information requested in Table A complete 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 e section only.

6. Note that a small percentage of the stationary [...] 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

Project MEI (applies to the last four columns)

Distance from Receptor (feet) or MEI[1]	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	Distance Adjustment Multiplier	Adjusted Cancer Risk Estimate	Adjusted Hazard Risk	Adjusted PM2.5
750	201638	KBAY-KEZR Alpha Media LLC	5225 HELLYER AVE	0.15	-	-		Generators		2020 Dataset	0.07	0.01	#VALUE!	#VALUE!

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

Gasoline Dispensing Facility (GDF) Distance Multiplier Tool: This distance multiplier tool refines the screening values for cancer risk and chronic hazard index found in the District's Stationary Source Screening Analysis Tool for GDF's, to represent adjusted risk and hazard impacts that can be expected with farther distances from the source of emissions.

Diesel Internal Combustion (IC) Engine Distance Multiplier Tool: This distance multiplier tool refines the screening values for cancer risk and $PM_{2.5}$ concentrations found in the District's Stationary Source Screening Analysis Tool for permitted facilities which contain only diesel IC engines, to represent adjusted risk and hazard impacts that can be expected with farther distances from the source of emissions.

Generic Distance Multiplier Tool: This distance multiplier tool refines the screening values to represent adjusted risk and hazard impacts that can be expected with farther distances from the source of emissions.

Gas Station

Distance (meters)	Distance (feet)	Distance adjustment multiplier	Enter Risk or Hazard	Adjusted Risk or Hazard
0	0.0	1.000		0.0000
5	16.4	1.000		0.0000
10	32.8	1.000		0.0000
15	49.2	1.000		0.0000
20	65.6	1.000		0.0000
25	82.0	0.728		0.0000
30	98.4	0.559		0.0000
35	114.8	0.445		0.0000
40	131.2	0.365		0.0000
45	147.6	0.305		0.0000
50	164.0	0.260		0.0000
55	180.4	0.225		0.0000
60	196.9	0.197		0.0000
65	213.3	0.174		0.0000
70	229.7	0.155		0.0000
75	246.1	0.139		0.0000
80	262.5	0.126		0.0000
85	278.9	0.114		0.0000
90	295.3	0.104		0.0000
95	311.7	0.096		0.0000
100	328.1	0.088		0.0000
105	344.5	0.082		0.0000
110	360.9	0.076		0.0000
115	377.3	0.071		0.0000
120	393.7	0.066		0.0000
125	410.1	0.062		0.0000
130	426.5	0.058		0.0000
135	442.9	0.055		0.0000
140	459.3	0.052		0.0000
145	475.7	0.049		0.0000
150	492.1	0.046		0.0000
155	508.5	0.044		0.0000
160	524.9	0.042		0.0000
165	541.3	0.040		0.0000
170	557.7	0.038		0.0000
175	574.1	0.036		0.0000
180	590.6	0.034		0.0000
185	607.0	0.033		0.0000
190	623.4	0.031		0.0000
195	639.8	0.030		0.0000
200	656.2	0.029		0.0000
205	672.6	0.028		0.0000
210	689.0	0.027		0.0000
215	705.4	0.026		0.0000
220	721.8	0.025		0.0000
225	738.2	0.024		0.0000
230	754.6	0.023		0.0000
235	771.0	0.022		0.0000
240	787.4	0.022		0.0000
245	803.8	0.021		0.0000
250	820.2	0.020		0.0000
255	836.6	0.020		0.0000
260	853.0	0.019		0.0000
265	869.4	0.018		0.0000
270	885.8	0.018		0.0000
275	902.2	0.017		0.0000
280	918.6	0.017		0.0000
285	935.0	0.016		0.0000
290	951.4	0.016		0.0000
295	967.8	0.015		0.0000
300	984.3	0.015		0.0000

Diesel Backup Generator

Distance (meters)	Distance (feet)	Distance adjustment multiplier	Enter Risk or Hazard	Adjusted Risk or Hazard	Enter PM2.5 Concentration	Adjusted PM2.5 Concentration
0	0.0	1.000		0		0
5	16.4	1.000		0		0
10	32.8	1.000		0		0
15	49.2	1.000		0		0
20	65.6	1.000		0		0
25	82.0	0.85		0		0
30	98.4	0.73		0		0
35	114.8	0.64		0		0
40	131.2	0.58		0		0
50	164.0	0.5		0		0
60	196.9	0.41		0		0
70	229.7	0.31		0		0
80	262.5	0.28		0		0
90	295.3	0.25		0		0
100	328.1	0.22		0		0
110	360.9	0.18		0		0
120	393.7	0.16		0		0
130	426.5	0.15		0		0
140	459.3	0.14		0		0
150	492.1	0.12		0		0
160	524.9	0.1		0		0
180	590.6	0.09		0		0
200	656.2	0.08		0		0
220	721.8	0.07		0		0
240	787.4	0.06		0		0
260	853.0	0.05		0		0
280	918.6	0.04		0		0

Generic Case

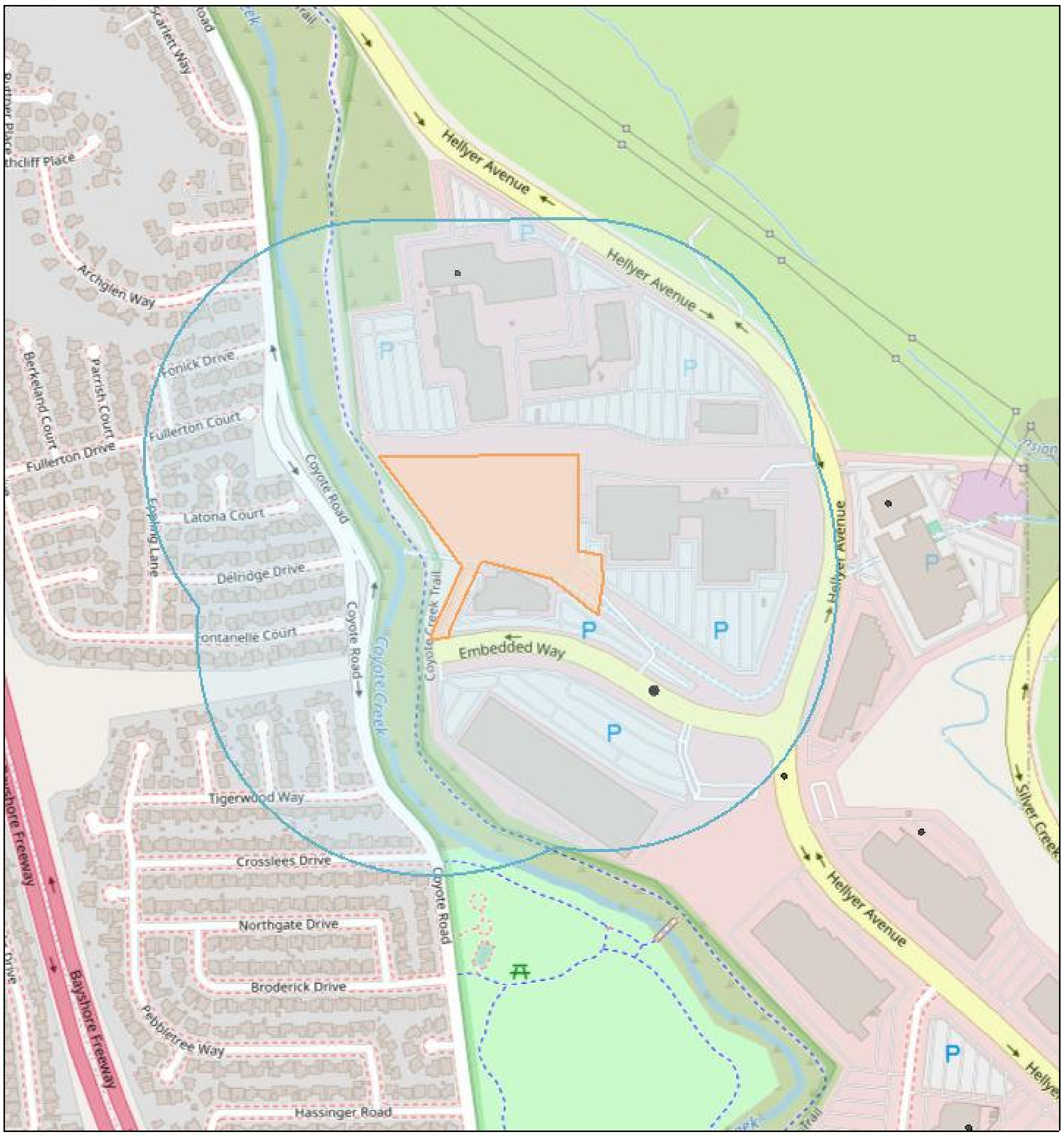
Distance (meters)	Distance (feet)	Multiplier
0	0.0	1.000
5	16.4	1.000
10	32.8	0.883
15	49.2	0.855
20	65.6	0.827
25	82.0	0.801
30	98.4	0.775
35	114.8	0.750
40	131.2	0.726
45	147.6	0.702
50	164.0	0.679
55	180.4	0.658
60	196.9	0.636
65	213.3	0.616
70	229.7	0.596
75	246.1	0.577
80	262.5	0.558
85	278.9	0.540
90	295.3	0.523
95	311.7	0.506
100	328.1	0.489
105	344.5	0.474
110	360.9	0.458
115	377.3	0.444
120	393.7	0.429
125	410.1	0.415
130	426.5	0.402
135	442.9	0.389
140	459.3	0.376
145	475.7	0.364
150	492.1	0.353
155	508.5	0.341
160	524.9	0.330
165	541.3	0.319
170	557.7	0.309
175	574.1	0.299
180	590.6	0.290
185	607.0	0.280
190	623.4	0.271
195	639.8	0.262
200	656.2	0.254
205	672.6	0.246
210	689.0	0.238
215	705.4	0.230
220	721.8	0.223
225	738.2	0.216
230	754.6	0.209
235	771.0	0.202
240	787.4	0.195
245	803.8	0.189
250	820.2	0.183
255	836.6	0.177
260	853.0	0.171
265	869.4	0.166
270	885.8	0.160
275	902.2	0.155
280	918.6	0.150
285	935.0	0.145
290	951.4	0.141
295	967.8	0.136
300	984.3	0.132

Screening Report

Area of Interest (AOI) Information

Area : 6,761,458.35 ft²

Jul 21 2022 14:37:45 Pacific Daylight Time



• Permitted Stationary Sources

1:9,028

0 0.05 0.1 0.2 mi

0 0.07 0.15 0.3 km

Summary

Name	Count	Area(ft²)	Length(ft)
Permitted Stationary Sources	1	N/A	N/A

Permitted Stationary Sources

#	FacID	FacName	Address	City	Street
1	201638	KBAY-KEZR Alpha Media LLC	5225 HELLYER AVE	SAN JOSE	CA

#	Zip	County	Latitude	Longitude	Details
1	95,138.00	Santa Clara	37.27	-121.80	Generator

#	NAICS	Sector	Sub_Sector	Industry	ChronicHI
1	515,112.00	Information	Broadcasting (except Internet)	Radio Stations	0.0000401

#	PM2_5	Cancer Risk {expression/expr0}	Chronic Hazard Index {expression/expr1}	PM2.5 {expression/expr2}	Count
1	0.0001880	0.149	0	0	1

NOTE: A larger buffer than 1000 feet may be warranted depending on proximity to significant sources.