ARBOR MIXED-USE PROJECT
255 W. JULIAN STREET
AIR QUALITY ASSESSMENT

San José, California

April 21, 2025

Prepared for:

Fiona Phung
Project Manager
David J. Powers & Associates, Inc.
1871 The Alameda, Suite 200
San José, CA 95126

Prepared by:

Casey Divine
James A. Reyff

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

I&R Project: #21-022

Introduction

The purpose of this report is to address air quality and health risk impacts associated with the proposed Arbor Mixed-Use Project located at 255 W. Julian Street in San José, California. The air quality impacts from this project would be associated with construction of the new buildings and infrastructure and operation of the project. Air pollutants associated with construction and operation of the project were predicted using appropriate computer models. In addition, the potential health risks associated with construction and operation of the project and the impact of existing toxic air contaminant (TAC) sources affecting the nearby and proposed sensitive receptors were evaluated. The analysis was conducted following guidance provided by the Bay Area Air Quality Management District (BAAQMD).[1]

Project Description

The approximately 1.8-acre site is located at 255 W. Julian Street in downtown San José. The site is currently developed with an office building and surface parking. The project proposes to retain the existing on-site office building, demolish the existing parking lot, and construct an approximately 683,640 square-foot (sf), 18-story mixed-use building. The proposed building would contain approximately 585 residential units totaling 485,420-sf on the second through 18th floors, as well as approximately 13,000-sf of ground-floor retail space. Parking containing 318 spaces would be provided within four levels of below-grade parking. The project would also include two 1,000-kilowatt (kW) emergency generators powered by 1,340 horsepower (HP) diesel engines located on the basement level B3 along the northern façade, a fire pump on the basement level B4, and one cooling tower consisting of five cells located on the first floor along the western façade. The project is within the San José Downtown Strategy 2040 Plan area.

An air quality assessment by *Illingworth & Rodkin, Inc.* was previously conducted in April 2021[2] for the original design of this project. Modifications to the project have since been proposed and therefore, the analysis has been updated to reflect the current design while applying the same models used for the original project analysis.

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 concentrations in the air basin 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 ozone concentrations. Controlling the emissions of these

[1] Bay Area Air Quality Management District, 2022 CEQA Guidelines, April 2023.
[2] Illingworth & Rodkin, Inc., *Arbor Offices 255 W. Julian Street Air Quality Assessment*, April 21, 2021. City of San José web site accessed March 20, 2025: https://www.sanjoseca.gov/home/showpublisheddocument/79235/637716334688770000

precursor pollutants is the focus of the Bay Area's attempts to reduce ambient ozone concentrations. The highest ozone concentrations in the Bay Area occur in the eastern and southern inland valleys that are downwind of air pollutant sources. High ozone concentrations aggravate respiratory and cardiovascular diseases, reduced lung function, and increase coughing and chest discomfort.

Particulate matter is another problematic air pollutant in the air basin. Particulate matter is assessed and measured in terms of respirable particulate matter or particles that have a diameter of 10 micrometers or less (PM_{10}) and fine particulate matter where particles have a diameter of 2.5 micrometers or less ($PM_{2.5}$). Elevated concentrations of PM_{10} and $PM_{2.5}$ are the result of both region-wide (or cumulative) emissions and localized emissions. High particulate matter concentrations 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 of TACs can result in adverse health effects, they 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 from diesel exhaust exposure 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 and incorporated in BAAQMD's current CEQA guidance.[3]

$PM_{2.5}$ emissions can include TACs. Due to the adverse health effects caused by $PM_{2.5}$ exposure even at low concentrations, BAAQMD developed assessing methods and health risk thresholds to address exposure to increased concentrations caused by project $PM_{2.5}$ emissions.[4]

Sensitive Receptors

There are groups of people more affected by air pollution than others. CARB has identified the following persons who are most likely to be affected by air pollution: children under 16, the elderly

[3] 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.
[4] BAAQMD, 2022 CEQA Air Quality Guidelines, Appendix A, p40.

over 65, athletes exercising outside, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, and elementary schools. For cancer risk assessments, infants and small 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 future residences to the north of the site and residences to the east of the project site across Terraine Street. There are additional sensitive receptors at farther distances. The project would introduce new sensitive receptors to the area.

Regulatory Setting

The Federal and California Clean Air Acts have established ambient air quality standards for different pollutants. National ambient air quality standards (NAAQS) were established by the Federal Clean Air Act of 1970 (amended in 1977 and 1990) for six "criteria" pollutants. These criteria pollutants now include carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), respirable particulate matter with a diameter less than 10 microns (PM_{10}), sulfur dioxide (SO_2), and lead (Pb). In 1997, The Environmental Protection Agency (EPA) added fine particulate matter ($PM_{2.5}$) as a criteria pollutant. The air pollutants for which standards have been established are considered the most prevalent air pollutants known to be hazardous to human health. California ambient air quality standards (CAAQS) include the NAAQS pollutants and also hydrogen sulfide, sulfates, vinyl chloride, and visibility reducing particles. These additional CAAQS pollutants tend to have unique sources and are not typically included in environmental air quality assessments. In addition, lead concentrations have decreased dramatically since it was removed from motor vehicle fuels. The Bay Area has attained the CO standard and monitoring data from the last 30 years show relatively low concentrations throughout the Bay Area. Therefore, CO is not an air quality issue for land use type projects such as this one.

Federal Regulations

The United States Environmental Protection Agency (EPA) sets nationwide emission standards for mobile sources, which include on-road (highway) motor vehicles such trucks, buses, and automobiles, and non-road (off-road) vehicles and equipment used in construction, agricultural, industrial, and mining activities (such as bulldozers and loaders). The EPA also sets nationwide fuel standards. California also has the ability to set motor vehicle emission standards and standards for fuel used in California, as long as they are the same or more stringent than the federal standards.

In the past decade the EPA has established a number of emission standards for on- and non-road heavy-duty diesel engines used in trucks and other equipment. This was done in part because diesel engines are a significant source of 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.[5]

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

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

State Regulations

To address the issue of diesel emissions in the state, CARB developed the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles.[6] In addition to requiring more stringent emission standards for new on-road and off-road mobile sources and stationary diesel-fueled engines to reduce particulate matter emissions by 90 percent, a significant component of the plan involves application of emission control strategies to existing diesel vehicles and equipment. Many of the measures of the Diesel Risk Reduction Plan have been approved and adopted, including the federal on-road and non-road diesel engine emission standards for new engines, as well as adoption of regulations for low sulfur fuel in California.

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

CARB has also adopted and implemented regulations to reduce DPM and NO_X emissions from in-use (existing) and new off-road heavy-duty diesel vehicles (e.g., loaders, tractors, bulldozers, backhoes, off-highway trucks, etc.). The regulations apply to diesel-powered off-road vehicles with engines 25 horsepower (hp) or greater. The regulations are intended to reduce particulate matter and NO_X exhaust emissions by requiring owners to turn over their fleet (replace older

[5] USEPA, 2000. *Regulatory Announcement, Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements*. EPA420-F-00-057. December.
[6] California Air Resources Board, 2000. Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. October.

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, significantly reduces emissions of DPM and NO_X.

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 National Ambient Air Quality Standards and California Ambient Air Quality Standards. 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.[7] 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 has been 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 has been used to develop emission reduction activities 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. Seven areas have been identified by BAAQMD as impacted communities. They include Eastern San Francisco, Richmond/San Pablo, Western Alameda, San José, Vallejo, Concord, and Pittsburgh/Antioch. The project site is in the San José area.

Overburdened communities are areas located (i) within a census tract identified by the California Communities Environmental Health Screening Tool (CalEnviroScreen), Version 4.0 implemented by OEHHA, as having an overall score at or above the 70th percentile, or (ii) within 1,000 feet of any such census tract.[8] The BAAQMD has identified several overburdened areas within its boundaries. However, the project site is not within an overburdened area as the Project site is scored at the 57th percentile on CalEnviroScreen.[9]

[7] See BAAQMD: https://www.baaqmd.gov/community-health/community-health-protection-program/community-air-risk-evaluation-care-program.
[8] See BAAQMD: https://www.baaqmd.gov/~/media/dotgov/files/rules/reg-2-permits/2021-amendments/documents/20210722_01_appendixd_mapsofoverburdenedcommunities-pdf.pdf?la=en.
[9] OEHAA, CalEnviroScreen 4.0 Maps https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40

Clean Air Plan

The BAAQMD is responsible for developing a Clean Air Plan which guides the region's air quality planning efforts to attain both the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS). The BAAQMD's *2017 Clean Air Plan* is the current Clean Air Plan which contains district-wide control measures to reduce ozone precursor emissions (i.e., ROG and NO_X), particulate matter (PM_{10} and $PM_{2.5}$) and greenhouse gas (GHG) emissions.

BAAQMD CEQA Air Quality Guidelines

In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA. In 2023, the BAAQMD revised the *California Environmental Quality Act* (*CEQA) Air Quality Guidelines* that include significance thresholds to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The current BAAQMD 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 include assessment methodologies for criteria air pollutants, air toxics, odors, and GHG emissions, as shown in Table 1.[10] Air quality impacts and health risks are considered potentially significant if they exceed these thresholds. Note that the DTS Plan Draft Environmental Impact Report (DEIR) evaluated emissions of criteria air pollutants (and their precursors) from planned development that includes the Proposed Project. Operational emissions from the Proposed Project are predicted in this assessment for informational purposes only.

The BAAQMD recommends all projects include a "basic" set of best management practices (BMPs) to manage fugitive dust and consider impacts from dust (i.e., fugitive PM_{10} and $PM_{2.5}$) to be less than significant if BMPs are implemented (listed below). BAAQMD strongly encourages enhanced BMPs for construction sites near schools, residential areas, other sensitive land uses, or if air quality impacts were found to be significant.

[10] Bay Area Air Quality Management District, 2023. *2022 CEQA Guidelines*. April.

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		*Evaluated in DTS Strategy DEIR*	
NO_X	54			
PM_{10}	82 (Exhaust)			
$PM_{2.5}$	54 (Exhaust)			
CO	Not Applicable			
Fugitive Dust	Construction Dust Ordinance or other Best Management Practices (BMPs)*		Not Applicable	
Health Risks and Hazards	**Single Sources/ Individual Project**		**Combined Sources (Cumulative from all sources within 1000-foot zone of influence)**	
Excess Cancer Risk	>10 in a million	OR Compliance with Qualified Community Risk Reduction Plan	>100 in a million	OR Compliance with Qualified Community Risk Reduction Plan
Hazard Index	>1.0		>10.0	
Incremental annual $PM_{2.5}$	>0.3 µg/m^3		>0.8 µg/m^3	

Note: ROG = reactive organic gases, NO_X = 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.
* BAAQMD strongly recommends implementing all feasible fugitive dust management practices especially when construction projects are located near sensitive communities, including schools, residential areas, or other sensitive land uses.

Source: Bay Area Air Quality Management District, 2022

BAAQMD Rules and Regulations

Combustion equipment associated with the proposed project includes new diesel engines to power generators and cooling towers that would establish new sources of particulate matter and gaseous emissions. Emissions would primarily result from the testing of the emergency backup generators and operation of the cooling towers. 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
  - Rule 6-3: Wood-Burning Devices
- Regulation 9 – Inorganic Gaseous Pollutants
  - Rule 9-1: Sulfur Dioxide
  - Rule 9-4: Nitrogen Oxides from Fan Type Residential Central Furnace
  - Rule 9-6: Nitrogen Oxides Emissions from Natural Gas-Fired Boilers and Water Heaters
  - 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.

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 generator engines.

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

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 stationary emergency standby diesel engines 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 requires that offsets be provided for a new or modified source that emits more than 10 tons per year of NOx or precursor organic compounds. It is not expected that emissions of any pollutant will exceed the offset thresholds.

Prohibitory Rules

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

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

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

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

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

BACT for Diesel Generator Engines

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

> I.C. Engine – Compression Ignition >50hp and <1.000hp: BAAQMD applies BACT 2 emission limits based on the ATCM for stationary emergency standby diesel engines larger than 50 brake-horsepower (BHP). NOx emission factor limit is subject to the CARB ACTM that ranges from 3.0 to 3.5 grams per horsepower hour (g/hp-hr). The PM (PM10 or PM2.5) limit is 0.15 g/hp-hr per CARB's ACTM.
>
> I.C. Engine – Compression Ignition >999hp: BAAQMD applies specific BACT emission limits for stationary emergency standby diesel engines equal or larger than 1,000 brake-horsepower (BHP). NOx emission factor limit is subject to the CARB ACTM that ranges

from 0.5 g/hp-hr. The PM (PM10 or PM2.5) limit is 0.02 g/hp-hr. POC (i.e., ROG) limits are 0.14 g/hp-hr.

Furnaces and Boilers and Water Heaters

In 2023, BAAQMD adopted the proposed amendments to Rules 9-4 and 9-6 that are intended to reduce emissions of NOx from residential and commercial water heaters. These amended rules will affect Bay Area households that use natural gas appliances by, essentially, prohibiting the installation of new natural gas-fired furnaces and water heaters. The rules require appliances that do not emit NOx. Currently, the only zero-NOx appliances available are electric appliances. Implementation begins in 2027, where only zero-NOx water heaters can be sold or installed, in 2029 where only zero-NOx furnaces can be sold or installed, and 2031 where only zero-NOx large commercial heaters can be sold or installed. Note that electric appliances would have zero emission of other criteria pollutants and zero emissions of direct GHG.

<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 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-10.3 Promote the expansion and improvement of public transportation services and facilities, where appropriate, to both encourage energy conservation and reduce air pollution.

MS-10.5 In order to reduce vehicle miles traveled and traffic congestion, require new development within 2,000 feet of an existing or planned transit station to encourage the use of public transit and minimize the dependence on the automobile through the application of site design guidelines and transit incentives.

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

MS-10.11 Enforce the City's wood-burning appliance ordinance to limit air pollutant emissions from residential and commercial buildings.

MS-10.13 As a part of City of San José Sustainable City efforts, educate the public about air polluting household consumer products and activities that generate air pollution. Increase public awareness about the alternative products and activities that reduce air pollutant emissions.

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-11.1 Require completion of air quality modeling for sensitive land uses such as new residential developments that are located near sources of pollution such as freeways and industrial uses. Require new residential development projects and projects categorized as sensitive receptors to incorporate effective mitigation into project designs or be located an adequate distance from sources of toxic air contaminants (TACs) to avoid significant risks to health and safety.

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-11.4 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 TACs and $PM_{2.5}$, 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.

MS-13.5 Prevent silt loading on roadways that generates particulate matter air pollution by prohibiting unpaved or unprotected access to public roadways from construction sites.

MS-13.6 Revise the grading ordinance and condition grading permits to require that graded areas be stabilized from the completion of grading to commencement of construction.

Downtown Strategy 2040 Plan

The San José Downtown Strategy (DTS) 2040 Plan[11] is an urban design plan that guides development activities planned within the Downtown area. This strategy would increase the amount of new commercial office by an additional three million sf (approximately 10,000 jobs with the new total being 14.2 million sf of commercial by the year 2040. The residential capacity would be increased up to 4,360 units. The amount of new retail development (1.4 million sf) and hotel room (3,600 rooms) capacities of the DTS 2000 would be maintained. The integrated Final Environmental Impact Report was published December 2018.

[11] City of San José, *Downtown Strategy 2040 FILE NO. PP15-102* , Web: https://www.sanjoseca.gov/your-government/departments/planning-building-code-enforcement/planning-division/environmental-planning/environmental-review/active-eirs/downtown-strategy-2040#:~:text=The%20proposed%20Downtown%20Strategy%202040,Plan%204%2DYear%20Review%20recommendations.

The DTS identified less-than-significant construction period emissions if development projects are in conformance with 2017 BAAQMD CEQA Guidelines, GP Policy MS-13.1, and current City requirements that include various levels of construction emissions control measures. All projects are required to implement the following control measures:

City requirements, all projects will be required to implement the following control measures:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- 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.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- 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.
- 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). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.
- 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.

Future projects developed under the DTS that incorporate these measures and are below the screening levels would not result in a significant impact related to construction emissions of regional criteria pollutants. Projects that exceed the screening levels would be required to complete additional project level analysis of construction-related emissions of criteria pollutants and may require additional measures to ensure that construction emissions would not exceed the threshold for average daily emissions.

Operational emissions of regional criteria air pollutants with measures included to reduce emissions under the DTS were identified as significant and unavoidable. To reduce operational emissions associated with vehicle travel, future development will be required to implement a transportation demand management (TDM) program, consistent with the Downtown Transportation Plan. The TDM programs may incorporate, but would not be limited to, the following Transportation Control Measures (TCMs):

- Rideshare Measures: Implement carpool/vanpool program (e.g., carpool ride matching for employees, assistance with vanpool formation, provision of vanpool vehicles, etc.)

- Transit Measures:
- Construct transit facilities such as bus turnouts/bus bulbs, benches, shelters, etc.
- Design and locate buildings to facilitate transit access (e.g., locate building entrances near transit stops, eliminate building setbacks, etc.)
- Services Measures:
- Provide on-site shops and services for employees, such as cafeteria, bank/ATM, dry cleaners, convenience market, etc.;
- Provide on-site childcare or contribute to off-site childcare within walking distance.
- Shuttle Measures:
- Establish mid-day shuttle service from work site to food service establishments/commercial areas;
- Provide shuttle service to transit stations/multimodal centers
- Parking Measures:
- Provide preferential parking (e.g., near building entrance, sheltered area, etc.) for carpool and vanpool vehicles;
- Implement parking fees for single occupancy vehicle commuters;
- Implement parking cash-out program for employees (i.e., non-driving employees receive transportation allowance equivalent to value of subsidized parking);
- Bicycle and Pedestrian Measures:
- Provide secure, weather-protected bicycle parking for employees;
- Provide safe, direct access for bicyclists to adjacent bicycle routes;
- Provide showers and lockers for employees bicycling or walking to work;
- Provide secure short-term bicycle parking for retail customers or non-commute trips;
- Provide direct, safe, attractive pedestrian access from Planning Area to transit stops and adjacent development;
- Other Measures:
- Implement compressed work week schedule (e.g., 4 days/40 hours, 9 days/80 hours);
- Implement home-based telecommuting program.

During project-level supplemental review of future individual development projects, the measures will be evaluated for consistency with the DTS 2040 and General Plan policies. All feasible and applicable measures will be required as part of project design or as conditions of approval.

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*.[12] 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, there are no consistency measures or thresholds provided in BAAQMD's CEQA guidance. The proposed project would not conflict with the latest Clean Air planning efforts since 1) project would have construction and operational emissions below the BAAQMD thresholds (see Impact 2 below), 2) the project would be considered urban infill, 3) the project would be located near employment centers, 4) the project would be located near transit with regional connections.

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

Construction Period Emissions

This analysis has been updated to reflect the current design of the proposed project while applying the same models used for the original project analysis. Therefore, the California Emissions

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

Estimator Model (CalEEMod) Version 2016.3.2 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.[13] The CalEEMod model output along with construction inputs are included in *Attachment 1* and EMFAC2021 vehicle emissions modeling outputs are included in *Attachment 2*.

CalEEMod Inputs

Land Use Inputs

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

Table 1. Summary of Project Construction Land Use Inputs

Project Land Uses	Size	Units	Square Feet	Acreage
Apartments High Rise	585	Dwelling Units	484,420	1.80
Strip Mall	13.00	1,000 Square Feet	13,000	
Enclosed Parking with Elevator	318	Parking Spaces	185,220	

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 quantities, average hours per day, total number of workdays, and schedule, were based on based on information provided by the applicant (included in *Attachment 1*). The construction schedule assumed that the earliest possible start date would be early January 2026, and the project would be built out 6 days a week over a period of approximately 32 months or 800 construction workdays. The earliest full year of operation was assumed to be 2029.

Construction Traffic Emissions

The CalEEMod Version 2016.3.2 model is based on the older version of the CARB EMFAC2014 motor vehicle emission factor model. This model has been superseded by the EMFAC2021 model; however, CalEEMod has not been updated to include EMFAC2021. Construction would produce traffic in the form of worker trips and truck traffic. The traffic-related emissions are based on worker and vendor trip estimates produced by CalEEMod and haul trips that were computed based on the estimate of demolition material to be exported, soil material imported and/or exported to the site, and the estimate of cement and asphalt truck trips. CalEEMod provides daily estimates of worker and vendor trips for each applicable phase. The total trips for those were computed by multiplying the daily trip rate by the number of days in that phase. Haul trips for demolition and grading were estimated from the provided demolition and grading volumes by assuming each truck

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

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 construction traffic information was combined with EMFAC2021 motor vehicle emissions factors. EMFAC2021 provides aggregate emission rates in grams per mile for each vehicle type. The vehicle mix for this study was based on CalEEMod defaults, where worker trips are assumed to be comprised of light-duty autos (EMFAC category LDA) and light duty trucks (EMFAC category LDT1 and LDT2). Vendor trips are comprised of delivery and large trucks (EMFAC category MHDT and HHDT) and haul trips, including cement trucks, are comprised of large trucks (EMFAC category HHDT). Travel distances are based on CalEEMod default lengths, which are 10.8 miles for worker travel, 7.3 miles for vendor trips and 20 miles for hauling (demolition material export and soil import/export). Since CalEEMod does not address cement or asphalt trucks, these were treated as vendor travel distances. Each trip was assumed to include an idle time of 5 minutes. Emissions associated with vehicle starts were also included. On-road emission rates from the years 2026-2028 for Santa Clara County were used. Table 3 provides the traffic inputs that were combined with the EMFAC2021 emission database to compute vehicle emissions.

Table 2. Construction Traffic Data Used for EMFAC2021 Model Runs

CalEEMod Run/Land Uses and Construction Phase	Trips by Trip Type			Notes
	Total Worker[1]	Total Vendor[1]	Total Haul[2]	
Vehicle mix[1]	72% LDA 6% LDT1 22% LDT2	38% MHDT 62% HHDT	100% HDDT	
Trip Length (miles)	10.8	7.3	20.0 (Demo/Soil) 7.3 (Cement/Asphalt)	CalEEMod default distance with 5-min truck idle time.
Demolition	60	-	118	53,190-sf of pavement demolition. Default worker trips.
Site Preparation	650	-	-	CalEEMod default worker trips.
Grading	2,520	-	22,688	180,000-cy of export and 1,500-cy of import volumes. CalEEMod default worker trips.
Trenching	300	-	1,400	700 cement truck round trips. CalEEMod default worker trips.
Building Superstructure / Exterior	191,140	36,100	3,510	1,755 cement truck round trips. CalEEMod default worker and vendor trips.
Building – Cores / Elevators	30,704	-	-	CalEEMod default worker trips.
Sitework	1,250	-	400	200 cement truck round trips. CalEEMod default worker trips.

Notes: [1] Based on 2026-2028 EMFAC2021 light-duty vehicle fleet mix for Santa Clara County.
[2] Includes demolition and grading trips estimated by CalEEMod based on amount of material to be removed. Cement and asphalt trips estimated based on plans 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 workdays during 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 3. Construction Period Emissions

Year	ROG	NOx	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
Construction Emissions Per Year (Tons)				
2026	0.20	1.39	0.09	0.05
2027	3.19	2.41	0.12	0.08
2028	0.74	0.95	0.06	0.03
Average Daily Construction Emissions Per Year (pounds/day)				
2026 (312 construction workdays)	1.26	8.91	0.57	0.32
2027 (313 construction workdays)	20.39	15.41	0.78	0.52
2028 (175 construction workdays)	8.42	10.87	0.63	0.38
BAAQMD Thresholds (pounds per day)	*54* lbs./day	*54* lbs./day	*82* lbs./day	*54* lbs./day
Exceed Threshold?	No	No	No	No

Construction activities, particularly during site preparation and grading, would temporarily generate fugitive dust in the form of PM_{10} and $PM_{2.5}$. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after it dries. The BAAQMD CEQA Air Quality Guidelines consider these impacts to be less than significant if best management practices are implemented to reduce these emissions. The DTS requires control measures to implement the standard BAAQMD CEQA Air Quality Guidelines best management practices to control dust and exhaust during construction. However, enhanced measures to control dust are required for this project's health risk impact. *Mitigation Measure AQ-1 would implement BAAQMD's standard and enhanced best management practices*.

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

Measures to reduce fugitive dust (i.e., $PM_{2.5}$) emissions from construction are recommended to 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 both basic and additional 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 enhanced best management practices:

1. All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe.
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 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. 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.
7. 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.
8. All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
9. Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity.
10. Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
11. The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.
12. All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
13. Site accesses to a distance of 100 feet from the paved road shall be treated with a 6 to 12 inch compacted layer of wood chips, mulch, or gravel.
14. Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.
15. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to two minutes. Clear signage shall be provided for construction workers at all access points.

Effectiveness of Mitigation Measure AQ-1

Mitigation Measure AQ-1 represents standard and enhanced mitigation measures that would achieve greater than an 80 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

The impact of operational emissions was addressed in the DTS DEIR and found to be significant and unavoidable for the entire plan. Emissions from the project were computed for informational purposes. Operational air emissions from the project would be generated primarily from autos driven by future residents, employees, and customers. 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.

CalEEMod Inputs

Land Uses

The project land uses were entered into CalEEMod as described above for the construction period modeling.

Model Year

Emissions associated with vehicle travel depend on the year of analysis because emission control technology requirements are phased-in over time. Therefore, the earlier the year analyzed in the model, the higher the emission rates utilized by CalEEMod. The earliest year of full operation would be 2029 if construction begins in 2026. Emissions associated with build-out later than 2029 would be lower.

Traffic Information

CalEEMod allows the user to enter specific vehicle trip generation rates. Therefore, the project-specific daily trip generation rate provided by the traffic consultant was entered into the model.[14] The project would produce approximately 3,364 daily trips. After accounting for the *Residential & Retail Reduction, Location-Based Reduction, and VMT-Based Reduction*, the project would produce 2,243 net daily trips. The daily trip generation was calculated using ITE trip generation rates, the size of the project land uses, 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.

EMFAC2021 Adjustment

The vehicle emission factors and fleet mix used in CalEEMod are based on EMFAC2014, which is an older CARB emission inventory for on road and off road mobile sources. Since the release of CalEEMod Version 2016.3.2, 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. Additionally, CARB has recently released EMFAC off-model adjustment factors to account for the Safer Affordable Efficient (SAFE) Vehicle Rule Part one.[15] The CalEEMod vehicle emission factors and fleet mix were updated with the emission rates and fleet mix from EMFAC2021, which were adjusted with the CARB EMFAC off-model adjustment factors. On road emission rates from 2026-2028 Santa Clara County were used (See *Attachment 2*). More details about the updates in emissions calculation methodologies and data are available in the EMFAC2021 Technical Support Document.[16]

---

[14] Email correspondence with Fiona Fung, David J. Powers & Associates, Inc., January 28, 2025. Attachment from Hexagon Transportation Consultants, Inc., *Arbor - Trip Generation and Volumes 01-28-25.xlsx.*

[15] California Air Resource Board, 2019. *EMFAC Off-Model Adjustment Factors to Account for the SAFE Vehicle Rule Part One.* November. Web: https://ww3.arb.ca.gov/msei/emfac_off_model_adjustment_factors_final_draft.pdf

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

Climate Smart San José

Climate Smart San José is a plan to reduce air pollution, save water, and create a stronger and healthier community. The City approved goals and milestones in February 2018 to ensure the City can substantially reduce GHG emissions through reaching the following goals and milestones:

- All new residential buildings will be Zero Net Carbon Emissions (ZNE) by 2020 and all new commercial buildings will be ZNE by 2030 (Note that ZNE buildings would be all electric with a carbon-free electricity source).
- San José Clean Energy (SJCE) will provide 100-percent carbon-free base power by 2021.
- One gigawatt of solar power will be installed in San José by 2040.
- 61 percent of passenger vehicles will be powered by electricity by 2030.

The California Energy Commission (CEC) updates the California Building Energy Efficiency Standards every three years, in alignment with the California Code of regulations. Title 24 Parts 6 and 11 of the California Building Energy Efficiency Standards and the California Green Building Standards Code (CALGreen) address the need for regulations to improve energy efficiency and combat climate change. The 2019 CAL Green standards include substantial changes intended to increase the energy efficiency of buildings. For example, the code encourages the installation of solar and heat pump water heaters in low-rise residential buildings. The 2019 California Code went before City Council in October 2019 for approval, with an effective date of January 1, 2020. As part of this action, the City adopted a "reach code" that requires development projects to exceed the minimum Building Energy Efficiency requirements.[17] The City's reach code applies only to new residential and non-residential construction in San José. It incentivizes all-electric construction, requires increased energy efficiency and electrification-readiness for those choosing to maintain the presence of natural gas. The code requires that non-residential construction include solar readiness. It also requires additional EV charging readiness and/or electric vehicle service equipment (EVSE) installation for all development types.

Energy

CalEEMod defaults for energy use were used, which include the 2016 Title 24 Building Standards. These defaults would be conservative for the project, which would need to meet the 2022 or 2025 Title 24 Building Standards. The 2022 and 2025 Building Standards would be more stringent than the 2016 standards. The electricity produced emission rate was modified in CalEEMod. An emission factor of 162 pounds of CO_2 per megawatt of electricity produced was entered into CalEEMod, which is based on San José Clean Energy's (SJCE) 2021 emissions rate.[18] It should be noted that per Climate Smart San José and San José's Greenhouse Gas Reduction Strategy, SJCE's goal is to provide 100-percent carbon-free electricity prior to 2030.[19]

[17] City of San José Transportation and Environmental Committee, *Building Reach Code for New Construction Memorandum,* August 2019.
[18] San José Clean Energy Website, Standard GreenSource service. Web: https://sanjosecleanenergy.org/commercial-rates/
[19] City of San José, 2020. "2030 Greenhouse Gas Reduction Strategy", August. Web: https://www.sanjoseca.gov/home/showpublisheddocument/63667/637347412207870000

Project Generators

The project proposes to include two stand-by emergency diesel generators located on the basement level B3 along the northern façade and a fire pump on the basement level B4. Details about the generators and fire pump had not been determined at the time of this study. Therefore, each generator was assumed to be 1,000-kilowatt (kW) powered by a 1,340 horsepower (HP) diesel engine and the fire pump was assumed to be powered by the stand-by generators and not have its own engine. These generators would be tested periodically and power the buildings in the event of a power failure. For modeling purposes, it was assumed that the generators would be operated primarily for testing and maintenance purposes. CARB and BAAQMD requirements limit these engine operations to 50 hours each per year of non-emergency operation. During testing periods, the engine would typically be run for less than one hour. The engine 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. These include emission limits similar to U.S. EPA Tier 4 engines. The generator emissions, including BACT engine requirements, were modeled using CalEEMod.

Project Cooling Tower

The project would include one cooling tower consisting of five cells. The cooling tower would be located within the first floor of the proposed building, along the western façade. Particulate matter emissions from evaporative cooling can occur and are a result of evaporation of liquid water entrained in the discharge air stream and carried out of the tower as "drift" droplets that contain dissolved solids in the water. Drift droplets that evaporate can produce small particulate matter (i.e., PM_{10} and $PM_{2.5}$) emissions. These emissions are generated when the drift droplets evaporate and leave the particulate matter formed by crystallization of dissolved solids. Since the cooling tower would not use process water (typically used in refineries), ROG emissions would be negligible.

PM_{10} and $PM_{2.5}$ emissions from evaporative cooling were calculated based on estimated uses of evaporative cooling for approximately half the year (4,380 hours per year), a water flow rate of 2,740 gallons per minute (gpm) combed for all cells, use of 0.005 percent mist eliminators, and a total dissolved solids (TDS) concentration of 50 parts per million (ppm) in the influent recycled water.[20] Five cycles of concentration of the TDS in the circulating water were assumed. Based on the draft calculations from the above assumptions and PM fractions based on the South Coast Air Quality Management District (SCAQMD),[21] the PM_{10} and $PM_{2.5}$ emissions were calculated and shown in Table 5. The cooling towers is not expected to produce emissions of volatile organic

[20] The applicant will be adding a reverse osmosis system to the cooling tower which would reduce the TDS in supplied water from 475 to 50 ppm.

[21] South Coast AQMD, *Final-Methodology to Calculate Particulate Matter (PM) 2.5 and PM2.5 Significance Thresholds, Appendix A*. October 2006. Web: http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/particulate-matter-(pm)-2.5-significance-thresholds-and-calculation-methodology/final_pm2_5methodology.pdf

compounds (VOCs) or other criteria pollutants.[22] Details of the cooling tower PM emissions calculations are provided in *Attachment 1*.

Wood-Burning Devices

CalEEMod default inputs assume new residential construction would include wood-burning fireplaces and stoves. The project would not include wood-burning devices, as these devices are prohibited by BAAQMD Regulation 6, Rule 3.[23] The applicant has also confirmed the building will be all electric. Therefore, the number of woodstoves and woodburning fireplaces in CalEEMod were set to zero.

Other Inputs

Default model assumptions for emissions associated with solid waste generation and water use were applied to the project. Wastewater treatment was estimated to be 100 percent 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 Emissions

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

Table 5. Operational Period Emissions

Scenario	ROG	NOx	PM_{10}	$PM_{2.5}$
2029 Annual Project Operational Emissions (*tons/year*)	3.58	1.16	1.68	0.46
Project Cooling Tower Emissions (*tons/year*)	-	-	0.01	0.01
Total Project Annual Emissions (*tons/year*)	3.58	1.16	1.69	0.47
BAAQMD Thresholds (tons /year)	*10 tons*	*10 tons*	*15 tons*	*10 tons*
Exceed Threshold?	*No*	*No*	*No*	*No*
2029 Daily Project Operational Emissions (*pounds/day*)[1]	19.61	6.38	9.27	2.57
BAAQMD Thresholds (pounds/day)	*54* lbs.	*54* lbs.	*82* lbs.	*54* lbs.
Exceed Threshold?	*No*	*No*	*No*	*No*
Notes: [1]Assumes 365-day operation.				

Impact AIR-3: Expose sensitive receptors to substantial pollutant concentrations?

Project impacts related to increased health risk can occur by generating emissions of TACs and air pollutants. This project would introduce new sources of TACs during construction (e.g., on-site construction and truck hauling emissions) and operation (e.g., stationary and mobile sources).

[22] South Coast AQMD, *Guidelines for Calculating Emissions from Cooling Towers*, November 2019. Web: https://www.aqmd.gov/docs/default-source/planning/annual-emission-reporting/guidelines-for-calculating-emissions-from-cooling-towers---november-2017-final.pdf?sfvrsn=12

[23] Bay Area Air Quality Management District, https://www.baaqmd.gov/~/media/dotgov/files/rules/regulation-6-rule-3/documents/20191120_r0603_final-pdf.pdf?la=en

Project construction activity would generate dust and equipment exhaust that would affect nearby sensitive receptors. The project would also include stationary sources (e.g., emergency generators, cooling tower) and would generate some traffic consisting of mostly light-duty gasoline-powered vehicles, which would produce TAC and air pollutant emissions.

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

Health Risk Methodology

Health risk impacts were addressed by predicting increased cancer risk, the increase in annual $PM_{2.5}$ concentrations, and by 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, project generators and cooling tower, 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,[24] 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(s) that is most impacted by the project's construction and operation.

The methodology for computing health risks impacts is contained in Appendix E of the BAAQMD CEQA Guidelines. TAC and $PM_{2.5}$ emissions are calculated, a dispersion model used to estimate ambient pollutant concentrations, and cancer risks and HI calculated using DPM concentrations.

Modeled Sensitive Receptors

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

[24] BAAQMD, 2022. *BAAQMD CEQA Air Quality Guidelines Appendix E*. April 2023.

Health Risk from Project Construction

The primary health risk impact issues associated with construction projects are cancer risks associated with diesel exhaust (i.e., DPM), which is a known TAC, and exposure to high ambient concentrations of dust (i.e., $PM_{2.5}$) 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 $PM_{2.5}$.[25] 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 estimated.

Construction Emissions

The CalEEMod model provided total uncontrolled annual PM_{10} exhaust emissions (assumed to be DPM) for the off-road construction equipment and for exhaust emissions from on-road vehicles. Total DPM emissions were estimated to be 0.11 tons (229 pounds) and uncontrolled fugitive dust emissions ($PM_{2.5}$) to be 0.10 tons (210 pounds) from all construction stages. 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 the emissions from on-road vehicles traveling at or near the site would occur at the construction site.

Dispersion Modeling

The U.S. EPA AERMOD dispersion model was used to predict DPM and $PM_{2.5}$ concentrations at sensitive receptors (i.e., residences) in the vicinity of the project construction area. The AERMOD dispersion model is a BAAQMD-recommended model for use in modeling analysis of these types of emission activities for CEQA projects.[26] Emission sources for the construction site were grouped into two categories: exhaust emissions of DPM and fugitive $PM_{2.5}$ dust emissions.

Construction Sources

Combustion equipment DPM exhaust emissions were modeled as an array of point sources to reflect construction equipment and trucks operating at the site. These sources included nine-foot release heights (construction equipment exhaust stack height) that were placed at 23 feet (7 meter) intervals throughout the construction site. This resulted in 115 individual point sources being used to represent mobile equipment DPM exhaust emissions in the construction area. The total DPM emissions were divided into each of the point sources that were spread throughout the project construction site. In addition, the following stack parameters were used: a vertical release, a stack diameter of 2.5 inches, an exhaust temperature of 918˚F, and an exit velocity of 309 feet per second. Point source plume rise is calculated by the AERMOD dispersion model. Emissions from vehicle travel on- and off-site were also distributed among the point sources throughout the site.

[25] DPM is identified by California as a toxic air contaminant due to the potential to cause cancer.
[26] BAAQMD, 2022. *BAAQMD CEQA Air Quality Guidelines Appendix E*. April 2023.

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.

AERMOD Inputs and Meteorological Data

Since there are a number of tall buildings adjacent to or in close proximity to the project site, the effects of building downwash on the construction equipment exhaust plumes were included in the modeling analysis. Figure 1 shows the buildings that were evaluated for potential downwash effects, the array of point sources used for the modeling, the project construction site, and the off-site receptors

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 between 7:00 a.m. to 10:00 p.m. Monday through Friday and 7:00 a.m. to 7:00 p.m. Saturday per the project applicant's construction schedule. Annual DPM and $PM_{2.5}$ concentrations from construction activities during the 2026-2028 period were computed by the model. DPM and $PM_{2.5}$ concentrations were computed at nearby sensitive receptor locations. Receptor heights of 5 feet (1.5 meters), 17 feet (5.2 meters), and 27 feet (8.2 meters) represent the breathing height on the first through third floors of nearby multi-family residences.[27]

Health Risks from Project Operation

Operation of the project would have long-term emissions from mobile sources (i.e., traffic) and stationary sources (i.e., generators and the cooling tower). While these emissions would not be as intensive at or near the site as construction activity, they would contribute to long-term effects to sensitive receptors.

Project Operational Traffic

An analysis was conducted of the impacts of TACs and $PM_{2.5}$ from local roadways increase in traffic due to the project. The project would generate 2,243 net daily trips.[28] A majority of these trips would be from light-duty, gasoline vehicles (i.e., passenger cars). To address the added health risks, the impact from this traffic was assessed using the CT-EMFAC2021 emissions model, AERMOD dispersion model and cancer risk calculations following the BAAQMD CEQA Guidelines Appendix E methodology.

[27] BAAQMD, 2022. *BAAQMD CEQA Air Quality Guidelines Appendix E*. April 2023.
[28] Email correspondence with Fiona Fung, David J. Powers & Associates, Inc., January 28, 2025. Attachment from Hexagon Transportation Consultants, Inc., *Arbor - Trip Generation and Volumes 01-28-25.xlsx*.

Traffic Emissions

This analysis involved the development of DPM, organic TACs, and $PM_{2.5}$ roadway emissions in the project area using the Caltrans version of the EMFAC2021 emission model, known as CT-EMFAC2021. CT-EMFAC2021 provides emission factors for mobile source criteria pollutants and TACs, including DPM. Emission processes modeled include running exhaust for DPM, $PM_{2.5}$ and total organic compounds (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 from re-entrained roadway dust were included in these emissions. DPM emissions are projected to decrease in the future and are reflected in the CT-EMFAC2021 emissions data. Inputs to the model include region (Santa Clara County), type of road (major/collector), truck percentage for non-state highways in Santa Clara County (3.51 percent),[29] traffic mix assigned by EMFAC2021 for the county, year of analysis (2029 – project operational year), and season (annual).

Project operation was assumed to begin in 2029 or thereafter. To calculate the increased cancer risk from increased traffic volumes due to the project traffic, the health risks were adjusted for exposure duration to account for the MEI being exposed to construction activities for the first three years of the 30-year period. The exposure duration from roadway traffic was adjusted for 27 years of exposure (2029-2055). In order to estimate TAC and $PM_{2.5}$ emissions over the exposure period for calculating increased cancer risks to exiting residents from project traffic, the CT-EMFAC2021 model was used to develop vehicle emission factors for the year 2029. Year 2029 emissions were conservatively assumed as being representative of future conditions over the period that cancer risks are evaluated (27 years) from the roadway traffic, since, as discussed above, overall vehicle emissions, and in particular diesel truck emissions will decrease in the future.

Traffic Dispersion Modeling Inputs

A conservative analysis was conducted where all project traffic emissions from on- and near-site travel were assumed to occur along Terraine Street. This roadway is closest to the nearby sensitive receptors. The project's trip generation of 2,243 net daily trips predicted by the traffic consultant was used to assess project traffic impacts.[30] The average hourly traffic distributions for Santa Clara County roadways were developed using the EMFAC model,[31] which were then applied to the trip volumes to obtain estimated hourly traffic volumes and emissions for the roadway. For all hours of the day, the average speed of 25 mph on Terraine Street was assumed for all vehicles based on posted speed limit signs on the roadway.

[29] 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

[30] Email correspondence with Fiona Fung, David J. Powers & Associates, Inc., January 28, 2025. Attachment from Hexagon Transportation Consultants, Inc., *Arbor - Trip Generation and Volumes 01-28-25.xlsx*.

[31] The Burden output from EMFAC2007, a previous version of CARB's EMFAC model, was used for this since the current web-based version of EMFAC2021 does not include Burden type output with hour by hour traffic volume information.

Dispersion Modeling

Operational traffic roadway travel emissions were modeled with the AERMOD model using line-area sources (a series of adjacent area sources along a line) to represent project traffic emissions on roadway. Five years (2013-2017) of hourly meteorological data from the San José Airport prepared for use with the AERMOD model by the BAAQMD, were used for the modeling. TAC and $PM_{2.5}$ concentrations for 2029 were calculated by the model at the same sensitive receptor locations with the same receptor heights of 5 feet (1.5 meters) and 27 feet (8.2 meters) used for the construction health risk modeling at the MEI location.

Figure 1 shows the project roadway segments modeled and residential MEI receptor location used in the modeling. Table 6 lists the project roadway risks and hazards at the location of the MEI. The emission rates and roadway calculations used in the project impact analysis are shown in *Attachment 3*.

Project Operational Stand-By Diesel Generators

The project proposes to include two stand-by emergency diesel generators located on the basement level B3 along the northern façade and a fire pump on the basement level B4 (see Figure 1). Details about the generators and fire pump had not been determined at the time of this study. Therefore, each generator was assumed to be 1,000-kW powered by a 1,340-HP diesel engine and the fire pump was assumed to run off the stand-by generators.

Operation of the diesel generators would be a source of TAC emissions. The generators would be operated for testing and maintenance purposes, with a maximum of 50 hours per year of non-emergency operation under normal conditions. During testing periods, the engine would typically run for less than one hour. The engine 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. These include emission limits similar to U.S. EPA Tier 4 engines. The generator emissions, including BACT engine requirements, were modeled using CalEEMod.

This diesel engine would be subject to CARB's Stationary Diesel Airborne Toxics Control Measure (ATCM) and require permits from the BAAQMD, since it will be equipped with an engine larger than 50-HP. BACT requirements would apply to the generator that would limit DPM emissions. As part of the BAAQMD permit requirements for toxics screening analysis, the engine emissions will have to meet BACT and pass the toxic risk screening level of less than ten in a million. The risk assessment would be prepared by BAAQMD. Depending on results, BAAQMD would set limits for DPM emissions (e.g., more restricted engine operation periods).

Dispersion Modeling

The same AERMOD dispersion model was used to compute the maximum annual DPM concentration at off-site sensitive receptors (i.e., nearby residences). Emissions of DPM were based on PM_{10} exhaust emissions predicted by CalEEMod for operation of the project generator.

The same receptors and breathing heights used in the construction dispersion modeling were used for the generator model. Additionally, the same building downwash and BAAQMD San José Airport meteorological data was used. Stack parameters (stack height, exhaust flow rate, and exhaust gas temperature) for modeling the generators was based on BAAQMD default parameters for emergency generators.[32] Annual average DPM and $PM_{2.5}$ concentrations were modeled assuming that generator testing could occur at any time of the day (24 hours per day, 365 days per year).

To calculate the increased cancer risk from the generators at the MEIs, the cancer risks were also adjusted for exposure duration to account for construction activities for the first three years, while the operational exposure duration was adjusted for the remaining 27 years of the 30-year exposure period. Table 6 lists the health risks from stand-by diesel generators at the location of residential MEIs. The emissions and health risk calculations for the proposed generators are included in *Attachment 3*.

Project Cooling Tower

Emissions from the project cooling tower (as discussed above) were used in the dispersion model to predict annual $PM_{2.5}$ concentrations. This cooling tower would consist of five cells located within the first floor of the proposed building, along the western façade (see Figure 1). The same receptors, breathing heights, and BAAQMD San Jose Airport meteorological data used in the previous AERMOD dispersion modeling were used for the cooling tower modeling. Volume source parameters for modeling the cooling tower were based on project-specific cooling tower parameters (i.e., length of side, release height, emission rate (flow rate, TDS, mist eliminator efficiency). Annual $PM_{2.5}$ concentrations were modeled assuming that cooling tower would operate for approximately half the year (12 hours per day, 365 days per year). Table 6 provides the modeled annual $PM_{2.5}$ concentrations from the cooling tower. The particulate matter emissions calculations for the proposed cooling tower is included in *Attachment 3*.

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

The maximum increased cancer risks were calculated using the modeled TAC concentrations combined with BAAQMD CEQA guidance for age sensitivity factors and exposure parameters. Age-sensitivity factors reflect the greater sensitivity of infants and small children to cancer causing TACs. Third trimester, infant, child, and adult exposures were assumed to occur at all residences during the entire construction period.

The Project health risk impacts are the combination of construction and operation sources. For this project, these sources include the on-site construction exposure for three years and operational exposure from project traffic, diesel-powered generators, and the cooling tower for 27 years. The project impact is computed by adding the construction cancer risk for an infant to the increased cancer risk for the project operational conditions over a 30-year period. The Project MEIs are identified as the sensitive receptor that are most impacted by the project's construction and

[32] The San Francisco Community Risk Reduction Plan: Technical Support Document, BAAQMD, San Francisco Dept. of Public Health, and San Francisco Planning Dept., December 2012

operational activities. The cancer risks from construction and operation of the project were summed together to get the total project cancer risk impact.

Non-cancer health hazards and maximum $PM_{2.5}$ concentrations were also calculated. The maximum modeled annual $PM_{2.5}$ concentration was calculated based on combined exhaust and fugitive concentrations. The maximum computed HI value was based on the ratio of the maximum DPM concentration modeled and the chronic inhalation DPM reference exposure level of 5 $\mu g/m^3$. Unlike the increased maximum cancer risk, the annual $PM_{2.5}$ concentration and HI risks are not additive but based on an annual maximum risk for the entirety of the project.

The maximum modeled annual DPM and $PM_{2.5}$ concentrations, which includes both the DPM and fugitive $PM_{2.5}$ concentrations, were identified at nearby sensitive receptors to find the MEI. Results of this assessment indicated that the project MEI was located at two different receptors (i.e., one for cancer risk and the other for $PM_{2.5}$ exposure). The cancer risk MEI was located on the third floor (27 feet above ground) of the residence to the southeast of the project site opposite Terraine Street. The annual $PM_{2.5}$ concentration MEI was located at the same receptor location as the cancer risk MEI but on the first floor (5 feet above ground). The location of the MEIs and nearby sensitive receptors are shown in Figure 1. Table 6 summarizes the maximum cancer risks, $PM_{2.5}$ concentrations, and health hazard indexes for project related construction and operational activities. *Attachment 3* to this report includes the emission calculations used for the project construction and operational modeling and the cancer risk calculations.

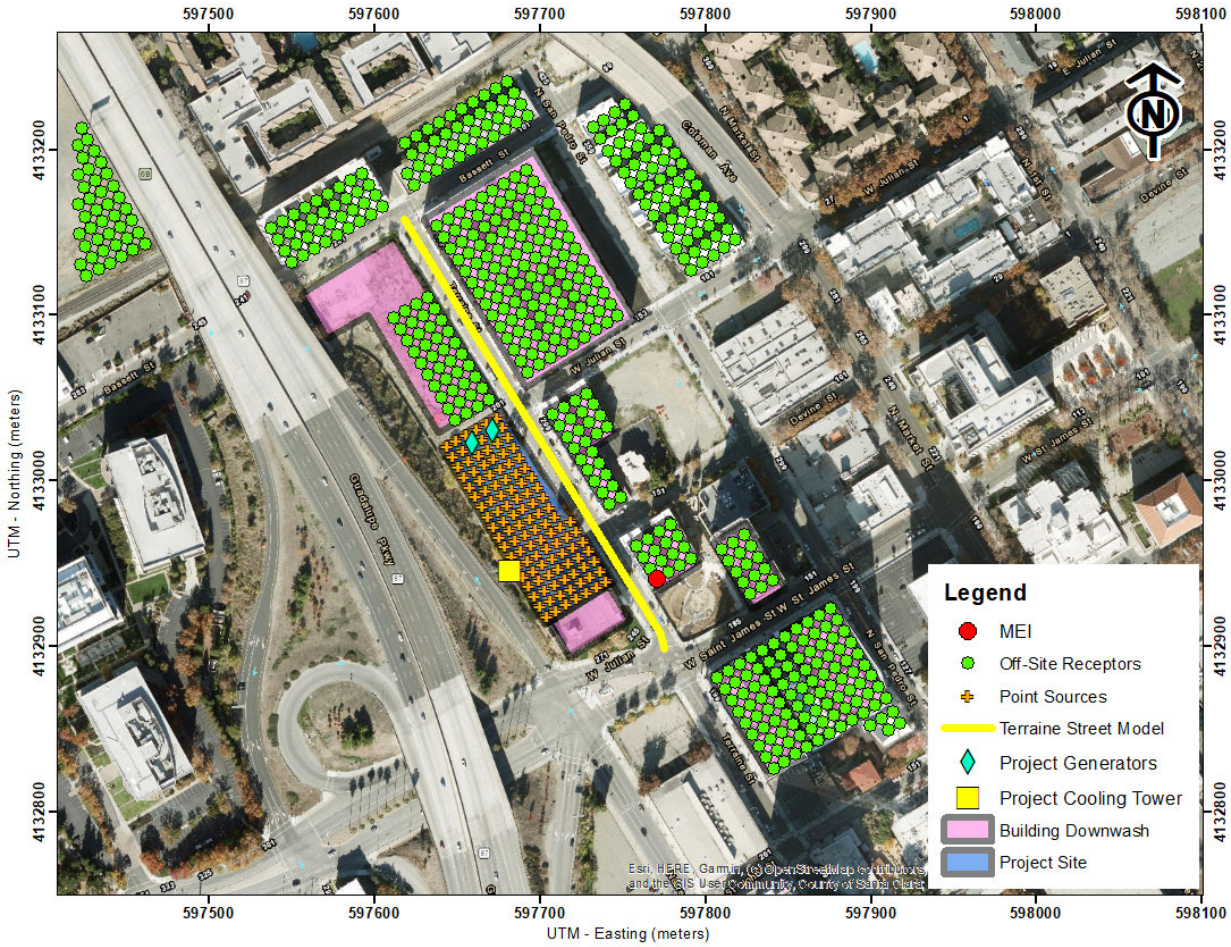
Project risk impacts are shown in Table 6. The unmitigated maximum cancer risks and annual $PM_{2.5}$ concentration from construction activities at the residential project MEI locations would exceed the single-source significance thresholds. However, with the incorporation of the *Mitigation Measure AQ-1 and AQ-2*, the mitigated risk and hazard values would no longer exceed the BAAQMD single-source significance thresholds. The unmitigated non-cancer hazards from construction and operation activities would be below the single-source significance threshold.

Table 6. Construction and Operation Risk Impacts at the Off-Site Project MEIs

Source		Cancer Risk* (per million)	Annual $PM_{2.5}$* ($\mu g/m^3$)	Hazard Index
Project Construction (Years 0-3)	Unmitigated	**35.23 (infant)**	**0.68**	0.03
	Mitigated**	4.30 (infant)	0.14	<0.01
Project Traffic Operation on Terraine Street (Years 3-30)		0.06	0.03	<0.01
Project Generators Operation, Two 1,000-kW, 1,340-HP (Years 3-30)		0.40	<0.01	<0.01
Project Cooling Tower (Years 3 – 30)		-	0.05	-
Total/Maximum Project Impact (Years 0-30)	Unmitigated	**35.69**	**0.68**	0.03
	Mitigated**	4.76	0.14	<0.01
BAAQMD Single-Source Threshold		***>10.0***	***>0.3***	***>1.0***
Exceed Threshold?	Unmitigated	***Yes***	***Yes***	*No*
	Mitigated	*No*	*No*	*No*

* Maximum cancer risk and maximum $PM_{2.5}$ concentration occur at same receptor on different floors.
** Construction equipment with Tier 4 Final engines, electric cranes, and enhanced BMPs as Mitigation Measures.

Figure 1. Locations of Project Construction Site, Modeled DPM Point Sources, Project Traffic, Project Generators and Cooling Tower, Buildings Evaluated for Downwash Effects, and Maximum TAC Location (MEIs)

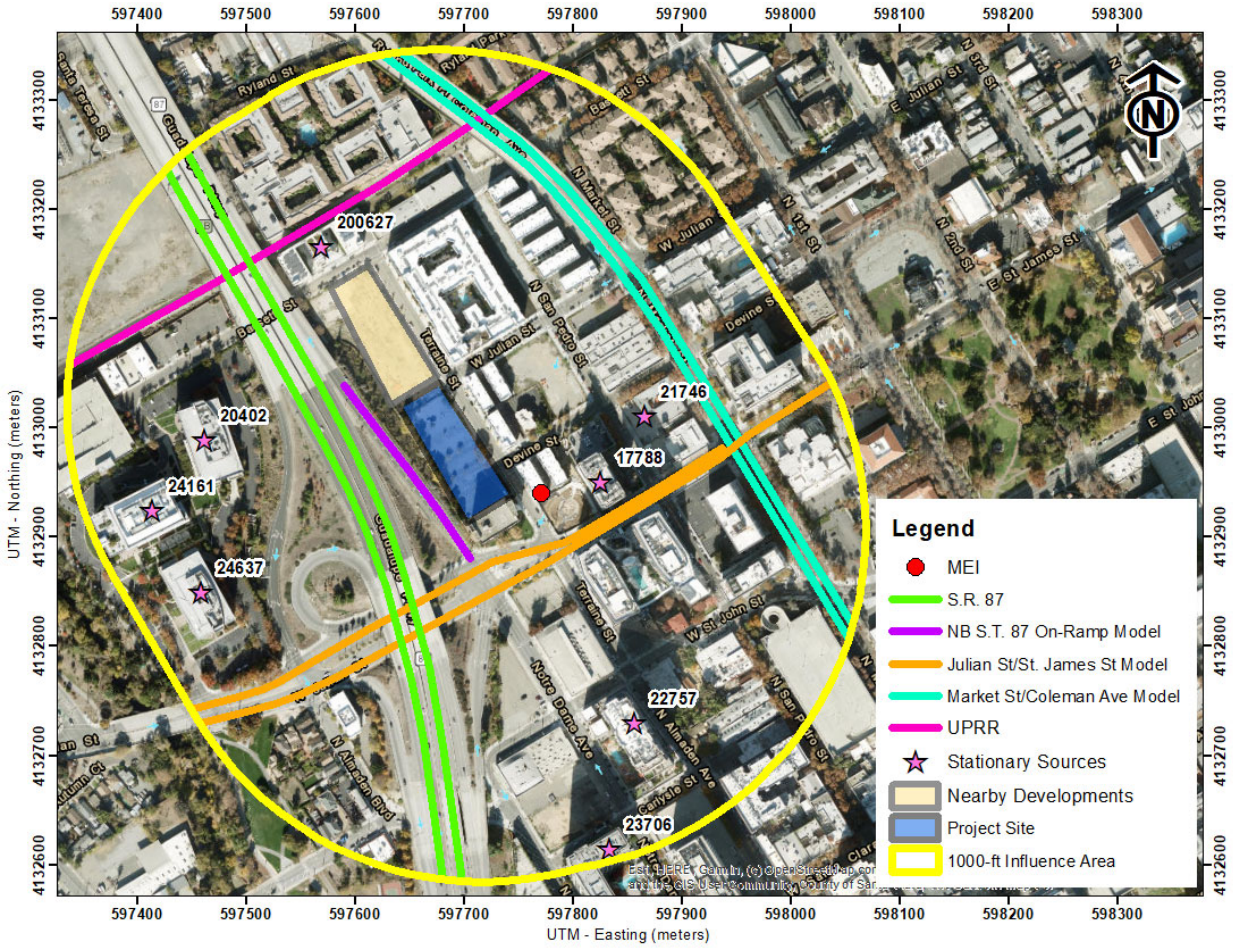


Cumulative Health Risks of all TAC Sources at the Off-Site Project MEIs

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 using BAAQMD's geographic information systems (GIS) screening maps identified the existing health risks from nearby roadways, rail lines, and stationary sources at the MEIs. Four nearby roadways, including State Route 87 (S.R. 87), the northbound on-ramp to S.R. 87, W. Julian Street/W. St James Street, and N. Market Street/Coleman Avenue, the Union Pacific Railroad (UPRR) which runs along a line north of the project site, and eight stationary sources were identified as potential of TACs sources affecting the project MEIs. In addition, there are nearby development projects whose construction could contribute to the cumulative risk. Figure 2 shows the location of the sources affecting the MEIs. Health risk impacts from these sources upon the MEIs are reported in Table 7. Details of the screening, modeling, and health risk calculations are included in *Attachment 4.*

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



Highways – S.R. 87

The project MEIs are located near S.R. 87. A refined analysis of the impacts of TACs and $PM_{2.5}$ to the MEI receptors is necessary to evaluate potential cancer risks and $PM_{2.5}$ concentrations from S.R. 87. A review of the traffic information reported by Caltrans indicates that S.R. 87 traffic includes 103,400 vehicles per day (based on an annual average)[33] that are about 3.7 percent trucks, of which 1.0 percent are considered diesel heavy duty trucks and 2.7 percent are medium duty trucks.[34]

Traffic Emissions Modeling

This analysis involved the development of DPM, organic TACs, and $PM_{2.5}$ emissions for traffic on S.R. 87 using the Caltrans version of the CARB EMFAC2021 emissions model, known as CT-EMFAC2021. CT-EMFAC2021 provides emission factors for mobile source criteria pollutants and TACs, including DPM. Emission processes modeled include running exhaust for DPM, $PM_{2.5}$

[33] Caltrans, *2022 Traffic Volumes: Annual Average Daily Traffic (AADT) For All Vehicles on California State Highways,* 2025. Web: https://dot.ca.gov/programs/traffic-operations/census.
[34] Caltrans, *2022 Truck Traffic: Annual Average Daily Truck Traffic For Truck Traffic on California State Highways, 2025.*

and total organic compounds (TOG), running evaporative losses for TOG, and tire and brake wear and fugitive road dust for $PM_{2.5}$. All $PM_{2.5}$ emissions from all vehicles were used, rather than just the $PM_{2.5}$ fraction from diesel powered vehicles, because all vehicle types (i.e., gasoline and diesel powered) produce $PM_{2.5}$. Additionally, $PM_{2.5}$ emissions from vehicle tire and brake wear from re-entrained roadway dust were included in these emissions. DPM emissions are projected to decrease in the future and are reflected in the CT-EMFAC2021 emissions data. Inputs to the model include region (Santa Clara County), type of road (freeway), traffic mix assigned by CT-EMFAC2021 for the county and adjusted for the local truck mix on S.R. 87, year of analysis (2026 – construction start year), and season (annual).

In order to estimate TAC and $PM_{2.5}$ emissions over the 30-year exposure period used for calculating the increased cancer risks for sensitive receptors at the MEI and project site, the CT-EMFAC2021 model was used to develop vehicle emission factors for the year 2026 (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-EMFAC2021. Year 2026 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.

Average daily traffic volumes and truck percentages were based on Caltrans data for S.R. 87. Traffic volumes were assumed to increase 1 percent per year, due to overall regional growth, for a total of 107,120 vehicles.. Hourly traffic distributions specific to these segments of S.R. 87 were obtained from Caltrans Performance Measurement System (PeMS). PeMS data is collected in real-time from nearly 40,000 individual detectors spanning the freeway system across all major metropolitan areas of California.[35] The fraction of traffic volume each hour was calculated and applied to the 2026 average daily traffic volumes estimate to estimate hourly traffic emission rates for S.R. 87.

For all hours of the day, other than during peak a.m. and p.m. periods, an average speed of 65 mph was assumed for all vehicles. Based on traffic data from the Santa Clara Valley Transportation Authority's 2018 Monitoring and Conformance Report, traffic speeds during the peak a.m. and p.m. periods were identified.[36] For a 2-hour period during the peak a.m. period, an average travel speed of 25 mph was used for northbound traffic and an average speed of 60 mph was used for southbound traffic. For the peak p.m. period, an average travel speed of 60 mph was used for northbound traffic and an average travel speed of 25 mph was used for southbound traffic.

This analysis involved the development of DPM, organic TACs, and $PM_{2.5}$ emissions for future traffic on S.R. 87 and using these emissions with an air quality dispersion model to calculate TAC and $PM_{2.5}$ concentrations at the project MEI receptor locations. Maximum increased lifetime cancer risks and annual $PM_{2.5}$ concentrations for the receptors were then computed using modeled TAC and $PM_{2.5}$ concentrations and BAAQMD methods and exposure parameters.

[35] https://dot.ca.gov/programs/traffic-operations/mpr/pems-source
[36] Santa Clara Valley Transportation Authority. *2018 CMP Monitoring and Conformance Report May 24, 2019. Web: https://www.vta.org/sites/default/files/2020-08/2018%20Monitoring%20Report.pdf*

Dispersion Modeling

Dispersion modeling of TAC and $PM_{2.5}$ emissions was conducted using the U.S. EPA AERMOD dispersion model, which is recommended by the BAAQMD for this type of analysis.[37] TAC and $PM_{2.5}$ emissions from traffic on S.R. 87 within about 1,000 feet of the project site was evaluated with the model. Emissions from vehicle traffic were modeled in AERMOD using a series of volume sources along a line (line volume sources), with line segments used to represent northbound and southbound travel lanes on S.R. 87. The same meteorological data and off-site sensitive receptors used in the previous dispersion modeling were used in the highway modeling. Other inputs to the model included road geometry and elevations, hourly traffic emissions, and receptor locations and heights. Roadway and receptor elevations were based on USGS National Elevation Data (NED) with a 10-meter resolution. Annual TAC and $PM_{2.5}$ concentrations for 2026 from traffic on S.R. 87 were calculated using the model. Concentrations were calculated at the project MEIs with receptor heights of 5 feet (1.5 meters) and 27 feet (8.2 meters) to represent the breathing heights on the first and third floors of nearby residence.

Computed Cancer and Non-Cancer Health Impacts

The cancer risk, $PM_{2.5}$ concentration, and HI impacts from S.R. 87 on the project MEIs 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 S.R. 87 traffic are provided in *Attachment 4.*

Local Roadways – Northbound S.R. 87 On-Ramp, W. Julian Street/W. St. James Street, and N. Market Street/Coleman Avenue

A refined analysis of potential health impacts from vehicle traffic on the Northbound S.R. 87 On-Ramp, W. Julian Street/W. St. James Street, and N. Market Street/Coleman Avenue was conducted, similar to the highway analysis above. The refined analysis involved predicting emissions for the traffic volume and mix of vehicle types on the roadways near the project site and using an atmospheric dispersion model to predict exposure to TACs. The associated cancer risks are then computed based on the modeled exposures.

Emission Rates

Local roadway inputs to the CT-EMFAC2021 model include region (Santa Clara County), type of road (major/collector), truck percentage for non-state highways in Santa Clara County (3.51 percent),[38] traffic mix assigned by CT-EMFAC2021 for the county, year of analysis (2026 – construction start year), and season (annual).

The average daily traffic (ADT) for Northbound S.R. 87 On-Ramp, W. Julian Street/W. St. James

[37] BAAQMD, 2022. *BAAQMD CEQA Air Quality Guidelines Appendix E*. April 2023.
[38] 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

Street, and N. Market Street/Coleman Avenue were based on AM and PM peak-hour background plus project traffic volumes for the nearby roadways provided by the project's traffic consultant.[39] Assuming a 1 percent per year increase due to overall regional growth, the predicted ADT on Northbound S.R. 87 On-Ramp would be 16,362 vehicles, the ADT on W. Julian Street/W. St. James Street would be 14,508 vehicles, and the ADT on N. Market Street/Coleman Avenue would be 20,971 vehicles. Average hourly traffic distributions for Santa Clara County roadways were developed using the EMFAC model,[40] which were applied to the ADT volumes to obtain estimated hourly traffic volumes and emissions for the roadway. For all hours of the day, an average speed of 25 mph was assumed for all vehicles based on posted speed limit signs on these roadways.

Dispersion Modeling

Dispersion modeling of TAC and $PM_{2.5}$ emissions was conducted using the EPA AERMOD air quality dispersion model. TAC and $PM_{2.5}$ emissions from traffic on Northbound S.R. 87 On-Ramp, W. Julian Street/W. St. James Street, and N. Market Street/Coleman Avenue within 1,000 feet of the project site were evaluated. Vehicle traffic on the roadways were modeled using line-area sources (a series of adjacent area sources along a line), with line segments used for the travel directions on Northbound S.R. 87 On-Ramp, W. Julian Street/W. St. James Street, and N. Market Street/Coleman Avenue. The same meteorological data and off-site sensitive receptors used in the highway dispersion modeling were used in the roadway modeling. Other inputs to the model included road geometry and elevations, hourly traffic emissions, and receptor locations.

Figure 2 shows the roadway segments modeled and residential MEI receptor location used in the modeling. Table 7 lists the risks and hazards from the roadways. The emission rates and roadway calculations used in the analysis are shown in *Attachment 4*.

Railroad – UPRR

The project site is located approximately 600 feet south of a UPRR line used for freight service, which generates TAC and $PM_{2.5}$ emissions from diesel locomotives. There are about seven freight trains that use this rail line on a daily basis.[41] Cancer risk, $PM_{2.5}$ concentrations, and HI associated with trains on the nearby railways were estimated using BAAQMD screening values provided via GIS data files (i.e., raster files).[42] BAAQMD raster files provide screening-level cancer risk, $PM_{2.5}$ concentrations, and HI for railways within the Bay Area and were produced using AERMOD and 20x20-meter emissions grid. The raster file uses 2021 train schedules and 2020 fuel consumption rates for rail activities and includes Appendix E of the Air District's CEQA Air Quality Guidance for risk assessment assumptions. These estimates represent conservative risks reflective of 2022 conditions and are meant to provide a conservative estimate of future conditions. The estimates do

[39] Email correspondence with Fiona Fung, David J. Powers & Associates, Inc., January 28, 2025. Attachment from Hexagon Transportation Consultants, Inc., *Arbor - Trip Generation and Volumes 01-28-25.xlsx*.
[40] The Burden output from EMFAC2007, a previous version of CARB's EMFAC model, was used for this since the current web-based version of EMFAC2021 does not include Burden type output with hour by hour traffic volume information.
[41] U.S. Department of Transportation, Federal Railroad Administration, U.S. DOT Crossing Inventory Form for crossing 750136G, accessed March 7, 2025. Web: https://safetydata.fra.dot.gov/OfficeofSafety/PublicSite/Crossing/XingLocResults.aspx?state=06&countycity=3340,&railroad=&reportinglevel=ALL&radionm=City&street=1st%20street&xingtype=3&xingstatus=1&xingpos=1
[42] BAAQMD, *Health Risk Screening and Modeling*, 2022. Web: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/ceqa-tools/health-risk-screening-and-modeling

not reflect the planned electrification of Caltrain beginning in fall of 2024.[43] These screening values are considered higher than values that would be obtained with refined modeling methods. The raster data are based on region-wide emissions rather than just those that occur within 1,000 feet of the project. More information regarding the assumptions used to develop the screening layers can be found in Sections 6 and 7 in Appendix E of BAAQMD's 2022 CEQA guidance.[44] Screening-level cancer risk, $PM_{2.5}$ concentration, and HI for the cumulative railway impacts at the project MEIs are listed in Table 7 and shown in *Attachment 4*.

BAAQMD Permitted Stationary Sources

Permitted stationary sources of air pollution near the project site were identified using BAAQMD's *Permitted Stationary Sources 2022* GIS map website.[45] This mapping tool identifies the location of nearby stationary sources and their estimated risk and hazard impacts, including emissions and adjustments to account for OEHHA guidance. Eight sources were identified using this tool; all diesel-powered generators. The BAAQMD GIS website provided screening risks and hazards for the diesel generator, therefore a stationary source information request was not submitted. The screening risk and hazard levels provided by BAAQMD for the stationary source was adjusted for distance using BAAQMD's *Distance Adjustment Multiplier Tool for Diesel Internal Combustion Engines.* Health risk impacts from the stationary source upon the MEIs are reported in Table 7.

Construction Risk Impacts from Nearby Developments

From the City's website,[46] three planned or approved project[47] is located within 1,000 feet of the proposed project. The developments that have been approved include the Carlysle at 51 Notre Dame Ave (File Number H18-025), the Westbank Terraine at 323 Terraine Street (File Number SP21-045), and Aviato at 199 Bassett Street (File Number SP17-023, SPA17-023). The mitigated construction risks and hazard impact values for the Westbank Terraine development was available from its technical reports conducted by *Illingworth & Rodin, Inc*.[48] The construction schedules for Carlysle and Aviato projects are unknown at this time, so these developments were not included in the cumulative analysis. For the purpose of this analysis, it was conservatively assumed the entire construction period from the proposed project would overlap with the nearby Westbank Terraine construction schedule. This approach likely provides an overestimate of the health risk and hazard levels because it assumes that maximum impacts from the nearby development occurs concurrently with the proposed project at the proposed project's MEIs. The mitigated construction risks reported in that air quality assessment were included in the cumulative risks Table 7.

Summary of Cumulative Risks at the Project MEI

Table 7 reports both the project and cumulative health risk impacts at the sensitive receptors most

[43] Caltrain Electrified Service Plan. URL: https://www.caltrain.com/projects/electrification/project-benefits/caltrain-electrified-service-plan
[44] BAAQMD, 2022. *BAAQMD CEQA Air Quality Guidelines Appendix E*. April 2023.
[45] BAAQMD, Web: https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=845658c19eae4594b9f4b805fb9d89a3
[46] City of San Jose, Private / Key Economic Development Projects Map, Web: https://gis.sanjoseca.gov/maps/devprojects/
[47] Developments under planning review are not included in the cumulative analysis since it is speculative to include construction emissions from projects that may or may not be approved.
[48] Illingworth & Rodkin, Inc., *Terraine Site Mixed-Use Project Air Quality Assessment,* November 10, 2023.

affected by project construction and operation (i.e., the project MEIs). The project would have an exceedance with respect to health risk caused by project construction and operation activities, since the maximum unmitigated cancer risk and $PM_{2.5}$ concentration exceeds the BAAQMD single-source thresholds. The combined unmitigated annual $PM_{2.5}$ concentration would also exceed the BAAQMD cumulative-source threshold. With the implementation of *Mitigation Measure AQ-1 and AQ-2*, the project's cancer risk and $PM_{2.5}$ concentration would be reduced below the single-source thresholds and the and $PM_{2.5}$ concentration would be reduced below the cumulative-source thresholds. The HI, unmitigated and mitigated, does not exceed its cumulative threshold.

Table 7. Cumulative Health Risk Impacts at the Location of the Project MEIs

Source		Maximum Cancer Risk* (per million)	$PM_{2.5}$ Concentration* ($\mu g/m^3$)	Hazard Index
Project Impacts				
Total/Maximum Project Impact	Unmitigated	**35.69**	**0.68**	0.03
	Mitigated	4.76	0.14	<0.01
BAAQMD Single-Source Threshold		***>10.0***	***>0.3***	***>1.0***
Exceed Threshold?	Unmitigated	***Yes***	***Yes***	*No*
	Mitigated	*No*	*No*	*No*
Cumulative Sources				
S.R. 87, ADT 107,120		2.97	0.11	<0.01
NB S.R. 87 On-Ramp, ADT 16,362		0.29	0.03	<0.01
W. Julian St / W. St. James St, ADT 14,508		0.52	0.06	<0.01
N. Market St / Coleman Ave, ADT 20,971		0.22	0.01	<0.01
Cumulative Railways – BAAQMD GIS Screening Data		9.27	0.01	<0.01
FreeSlate Inc. (Facility ID #20402, Generator), MEIs at 900 feet		0.05	-	-
San Jose Fire Dept FS #1 (Facility ID #21746, Generator), MEIs at 400 feet		0.02	-	-
City Heights At Pellier Park (Facility ID #17788, Generator), MEIs at 140 feet		3.05	0.01	-
The Sobrato Organization (Facility ID #24637, Generator), MEIs at 980 feet		0.04	-	-
AXIS HOA (Facility ID #23706, Generator), MEIs at 1,000 feet		1.29	<0.01	<0.01
Centerra Apartments (Facility ID #22757, Generator), MEIs at 650 feet		0.01	-	-
The Sobrato Organization (Facility ID #24161, Generator), MEIs at 1,000 feet		0.03	-	-
First Community Housing (Facility ID #200627, Generator), MEIs at 915 feet		0.56	<0.01	-
Nearby Development – Westbank Terraine Mitigated Construction Risks		<8.34	<0.11	<0.01
Combined Sources	Unmitigated	<62.35	**<1.04**	<0.11
	Mitigated	<31.42	0.50	<0.09
BAAQMD Cumulative Source Threshold		***100***	***0.8***	***10.0***
Exceed Threshold?	Unmitigated	*No*	***Yes***	*No*
	Mitigated	*No*	*No*	*No*

* Maximum cancer risk and maximum $PM_{2.5}$ concentration occur at same receptor on different floors.

Mitigation Measure AQ-2: Use construction equipment that has low diesel particulate matter exhaust emissions.

Implement a feasible plan to reduce DPM emissions by 75 percent such that increased cancer risk and annual $PM_{2.5}$ concentrations from construction would be reduced below TAC significance levels. An option is as follows:

1. All construction equipment larger than 25 horsepower used at the site for more than two continuous days or 20 hours total shall meet U.S. EPA Tier 4 Final emission standards for particulate matter (PM_{10} and $PM_{2.5}$),

2. Stationary cranes shall be powered by electricity.

Effectiveness of Mitigation Measure AQ-1 and AQ-2

CalEEMod was used to compute emissions associated with this mitigation measure assuming that all equipment met U.S. EPA Tier 4 Final engines standards, stationary cranes were electrified, and basic and enhanced BAAQMD BMPs for dust control were included. With these implemented, the project's construction cancer risk levels (assuming infant exposure) and annual $PM_{2.5}$ concentrations would be reduced to 4.76 per million and 0.14 $\mu g/m^3$, respectively. This would reduce the cumulative $PM_{2.5}$ concentration risk to less than less than 0.50 $\mu g/m^3$. As a result, the project's construction risks would be reduced below the BAAQMD single- and cumulative source thresholds.

Non-CEQA: On-Site Health Risk Assessment of TAC Sources - New Project Receptors

The City's General Plan Policy MS-11.1 requires new residential development projects and projects categorized as sensitive receptors to incorporate effective mitigation into project designs to avoid significant risks to health and safety. BAAQMD's recommended thresholds for health risks and hazards, shown in Table 1, are used to evaluate on-site exposure.

In addition to evaluating health impacts from project construction, a health risk assessment was completed to assess the impact that the operational emissions from the proposed project and the existing TAC sources would have on the new proposed sensitive receptors (residents) that the project would introduce. The same TAC sources identified above were used in this health risk assessment.[49] Note that this analysis assumed the proposed building would include ventilation intakes with air filtration (similar to MERV13), as would be required by the CAL Green standards for high-rise residential buildings.

Figure 3 shows the on-site sensitive receptors in relation to the nearby TAC sources. On-site health risk results are listed in Table 8. *Attachment 4* includes the screening information used for TAC source impacts upon the proposed on-site sensitive receptors.

[49] We note that to the extent this analysis considers *existing* air quality issues in relation to the impact on *future residents* of the Project, it does so for informational purposes only pursuant to the judicial decisions in *CBIA v. BAAQMD* (2015) 62 Cal.4th 369, 386 and *Ballona Wetlands Land Trust v. City of Los Angeles* (2011) 201 Cal.App.4th 455, 473, which confirm that the impacts of the environment on a project are excluded from CEQA unless the project itself "exacerbates" such impacts.

Project Generators and Cooling Tower

Project residents would occupy the building once construction is completed. The generators supporting the building would be intermittently operational while the cooling tower would be operational approximately half the year, having localized impacts to the Project.

The generator and cooling tower analysis for the project residents was conducted in the same manner as described above for the project impacts to off-site receptors. The project set of receptors were placed within the affected residential area and were spaced every 23 feet (7 meters). Project impacts were modeled at receptor heights of 23 feet (7 meters), 35 feet (10.7 meters) and 47 feet (14.3 meters) representing the second through fourth residential levels of the proposed building. Maximum increased cancer risks for each source were calculated for the residents at the project site using the maximum modeled TAC concentrations. A 30-year exposure period was used in calculating cancer risks assuming the residents would include infants and adults were assumed to be in the new units for 24 hours per day for 350 days per year.

The maximum generator risk impacts on the project site occurred on the third residential level (35 feet above ground) at a receptor along the northern façade of the building closest to the generators. The maximum cooling tower risk impacts on the project site occurred on the second residential level (23 feet above ground) at the receptor in the southwest corner of the building. Generator and cooling tower health risk impacts at the maximum impacted on-site receptor are shown in Table 8. Details of the on-site generator and cooling tower emission calculations, dispersion modeling, and cancer risk calculations are contained in *Attachment 3.*

Highways and Local Roadways – S.R. 87, Northbound S.R. 87 On-Ramp, W. Julian Street/W. St. James Street, and N. Market Street/Coleman Avenue

The highway and roadway analysis for the new project residents was conducted in the same manner as described above for the off-site MEIs. However, the year 2029 (operational year) emission factors were conservatively assumed as being representative of future conditions, instead of 2026 (construction year). An analysis based on 2029 resulted in an increased ADT on S.R. 87 of 110,210 vehicles, on Northbound S.R. 87 On-Ramp of 16,838 vehicles, on W. Julian Street/W. St. James Street of 14,930 vehicles, and on N. Market Street/Coleman Avenue of 21,582 vehicles.

Modeling receptors were placed within the residential area and were spaced every 23 feet (7 meters). Project impacts were modeled at receptor heights of 23 feet (7 meters) and 35 feet (10.7 meters) representing the second and third residential levels of the proposed building. The portion of the roadways included in the modeling is shown in Figure 3 along with the project site and receptor locations where impacts were modeled.

Maximum increased cancer risks were calculated for the residents at the project site using the maximum modeled TAC concentrations. A 30-year exposure period was used in calculating cancer risks assuming the residents would include infants and adults were assumed to be in the new units for 24 hours per day for 350 days per year. The highest impacts from the combined highway and roadways occurred at a receptor on the second floor in the southwest corner of the building. Cancer risks associated with the roadways are greatest closest to the roadways and decrease with distance

from the roads. The highway and roadway impacts at the project site are shown in Table 8. Details of the emission calculations, dispersion modeling, and cancer risk calculations are contained in *Attachment 4.*

UPRR and BAAQMD Permitted Stationary Sources

The railway and stationary source screening analyses for the new project sensitive receptors was conducted in the same manner as described above for the cumulative analyses. Table 8 shows the screening health risk impacts for the UPRR and stationary sources on the project sensitive receptors.

Note again that the UPRR screening tool does not account for Caltrain electrification, nor do the screening risk impacts account for the building air intakes that have a MERV13 filtration system. Therefore, these screening values are considered substantially higher than values that would be obtained using refined modeling methods.

Construction Risk Impacts from Nearby Developments

Since the entirety of the nearby development construction period was assumed to overlap with the construction period of this project, it is not possible for construction impacts of the nearby development to affect the new proposed on-site sensitive receptors. Therefore, the construction risk impacts from nearby development was not included in the on-site analysis for this project.

Summary of Cumulative Health Risks at the Project Site

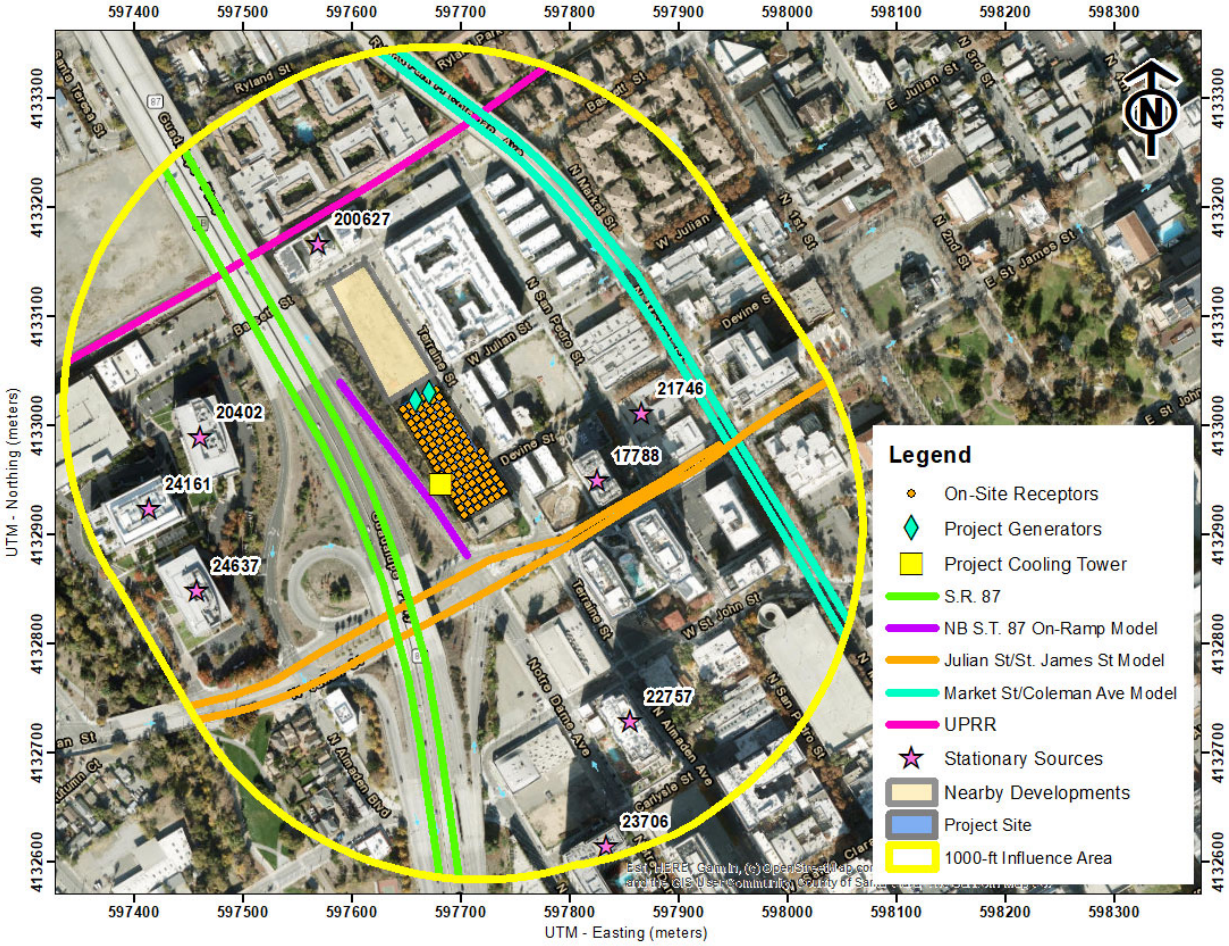
Health risk impacts from the existing TAC sources upon the project site are reported in Table 8. The risks from the singular TAC sources are compared against the BAAQMD single-source threshold. The risks from all the sources are then combined and compared against the BAAQMD cumulative-source threshold. As shown, none of the sources exceed the single-source or cumulative-source thresholds.

Table 7. Impacts from Combined Sources to Project Site Receptors

Source	Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Project Sources*			
Project Generators	7.86	0.03	<0.01
Project Cooling Tower	-	0.10	-
Cumulative Sources			
S.R. 87, ADT 110,210	7.12	0.25	<0.01
NB S.R. 87 On-Ramp, ADT 16,838	1.22	0.08	<0.01
W. Julian St / W. St. James St, ADT 14,930	0.59	0.03	<0.01
N. Market St / Coleman Ave, ADT 21,582	0.18	0.01	<0.01
Cumulative Railways – BAAQMD GIS Screening Data	<9.90	<0.01	<0.01
FreeSlate Inc. (Facility ID #20402, Generator), Project Site at 515 feet	0.13	-	-
San Jose Fire Dept FS #1 (Facility ID #21746, Generator), Project Site at 500 feet	0.01	-	-
City Heights At Pellier Park (Facility ID #17788, Generator), Project Site at 250 feet	1.47	<0.01	-
The Sobrato Organization (Facility ID #24637, Generator), Project Site at 730 feet	0.07	-	-
AXIS HOA (Facility ID #23706, Generator), Project Site at 1,000 feet	1.29	<0.01	<0.01
Centerra Apartments (Facility ID #22757, Generator), Project Site at 750 feet	0.01	-	-
The Sobrato Organization (Facility ID #24161, Generator), Project Site at 715 feet	0.05	-	-
First Community Housing (Facility ID #200627, Generator), Project Site at 500 feet	1.69	<0.01	-
BAAQMD Single-Source Threshold	***>10.0***	***>0.3***	***>1.0***
Exceed Threshold?	*No*	*No*	*No*
Cumulative Total	<31.59	<0.54	<0.07
BAAQMD Cumulative Source Threshold	***>100***	***>0.8***	***>10.0***
Exceed Threshold?	*No*	*No*	*No*

* Project traffic included in cumulative traffic sources.

Figure 3. Locations of Project Site, On-Site Residential Receptors, Project Sources, Nearby TAC and $PM_{2.5}$ Sources, and Maximum TAC Impacts



Supporting Documentation

Attachment 1 includes the CalEEMod output for project construction and operational criteria air pollutant. The operational output for existing uses is also included in this attachment. Also included are any modeling assumptions.

Attachment 2 includes the EMFAC2021 emissions modeling. The input files for these calculations are voluminous and are available upon request in digital format.

Attachment 3 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 4 includes the cumulative health risk calculations, modeling results, and calculations from sources affecting the project MEIs and project sensitive receptors.

Attachment 1: CalEEMod Input Assumptions and Outputs

Construction Criteria Air Pollutants						
Unmitigated	ROG	NOX	PM10 Exhaust	PM2.5 Exhaust	**CO2e**	
Year	Tons				MT	
Construction Equipment						
2026	0.07	0.62	0.03	0.02	124.56	
2027	3.07	1.68	0.06	0.06	349.72	
2028	0.67	0.56	0.02	0.02	113.40	
EMFAC						
2026	0.13	0.76	0.06	0.03	764.40	
2027	0.13	0.74	0.06	0.03	753.22	
2028	0.07	0.39	0.03	0.01	411.83	
Total Construction Emissions by Year						
2026	0.20	1.39	0.09	0.05	888.96	
2027	3.19	2.41	0.12	0.08	1102.94	
2028	0.74	0.95	0.06	0.03	525.24	
	Total Construction Emissions					
Tons	4.13	4.75	0.27	0.16	2517.13	
Pounds/Workdays	*Average Daily Emissions*				Workdays	
2026	1.26	8.91	0.57	0.32		**312**
2027	20.39	15.41	0.78	0.52		**313**
2028	8.42	10.87	0.63	0.38		**175**
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**		
	Total Construction Emissions					
Pounds	30.07	35.19	1.99	1.22	0.00	
Average	10.32	11.89	0.67	0.41	0.00	800
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					
CalEEMod (Project + Generators)	3.58	1.16	1.68	0.46		
Cooling Towers	-	-	0.01	0.01		
	Existing Use Emissions					
Total						
	Net Annual Operational Emissions					
Tons/year	3.58	1.16	1.69	0.47		
Threshold - Tons/year	**10.0**	**10.0**	**15.0**	**10.0**		
	Average Daily Emissions					
Pounds Per Day	19.61	6.38	9.27	2.57		
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**		

Category	**CO2e**			
	Project	Existing	Project 2030	Existing
Area	7.27			
Energy	543.72			
Mobile	1635.57			
Waste	142.20			
Water	46.12			
TOTAL	2374.87		0.00	0.00
Net GHG Emissions		2374.87		0.00
Service Population	1673.59			
Per Capita Emissions		1.42		0.00

	585	units
CA DOF 2023 =	2.86	pphh

Air Quality/Noise Construction Information Data Request

Project Name: 255 West Julian

Complete ALL Portions in Yellow

See Equipment Type TAB for type, horsepower and load factor

Project Size	585	Dwelling Units	1.8	total project acres disturbed	
	485,420	s.f. residential			
	13,000	s.f. retail			
		s.f. office/commercial			
		s.f. other, specify:			
	185,220	s.f. parking garage	318	spaces	
		s.f. parking lot		spaces	
Construction Hours:	7:00		10:00		
Monday-Friday	AM 7:00	to	PM 7:00 PM		
Saturday	AM				

Pile Driving? Y/N? - No pile on this project

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

IF YES (if BOTH separate values) --> Yes - the completed building will have a generator and fire pump

Kilowatts/Horsepower: TBD - Pending Engineering_____

Fuel Type: TBD - Pending Engineering_____

Location in project (Plans Desired if Available): See attached floor plans

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

Quantity	Description	HP	Load Factor	Hours/day	Total Work Days	Avg. Hours per day	HP Annual Hours	Comments
	Demolition	**Start Date:**	**1/3/2026**	**Total phase:**	**6**			**Overall Import/Export Volumes**
		End Date:	**1/10/2026**					
1	Concrete/Industrial Saws	81	0.73	4	6	4	1419	**Demolition Volume**
1	Excavators	158	0.38	8	3	4	1441	50,000 SF of AC Parking Lot (thickness 2"-3")
1	Rubber-Tired Dozers	247	0.4	5	3	2.5	1482	1,900 SF of Sidewalk (thickness 4")
1	Tractors/Loaders/Backhoes	97	0.37	4	3	2	431	1,190 LF of vertical curb, 430 LF of concrete & brick wall
								100 LF of valley gutter, 17LF of Fencing
								6 Light Poles & 20 trees
	Site Preparation	**Start Date:**	**1/4/2026**	**Total phase:**	**65**			
		End Date:	**4/4/2026**					
1	Graders	187	0.41	5	5	0.4	1917	
1	Rubber Tired Dozers	247	0.4	3	28	1.3	8299	
2	Tractors/Loaders/Backhoes	97	0.37	7	30	3.2	15074	
	Grading / Excavation	**Start Date:**	**4/5/2026**	**Total phase:**	**140**			
		End Date:	**10/17/2026**					**Soil Hauling Volume**
2	Excavators	158	0.38	7	100	5	84056	Export volume = 180,000 CY
1	Graders	187	0.41	2	30	0.4	4600	Import volume = 1,500 CY
1	Rubber Tired Dozers	247	0.4	4	95	2.7	37544	
2	Concrete/Industrial Saws	81	0.73	8	10	0.6	9461	
1	Tractors/Loaders/Backhoes	97	0.37	4	60	1.7	8614	
	Trenching/Foundation	**Start Date:**	**10/18/2026**	**Total phase:**	**30**			
		End Date:	**11/28/2026**					
1	Tractor/Loader/Backhoe	97	0.37	4	10	1.3	1436	
1	Excavators	158	0.38	7	15	3.5	6304	
2	Cranes	231	0.29	8	30	8	32155	
700	Cement and Mortar Mixers	9	0.56	8	2	0.5	56448	We will have cement truck, no onsite mixers
	Building - Superstructure/Exterior	**Start Date:**	**11/29/2026**	**Total phase:**	**380**			Cement Trucks = 24,550 CY/2,455 trips
		End Date:	**5/13/2028**					
2	Cranes	231	0.29	8	380	8	407299	Tower cranes will be electric
2	Forklifts	89	0.2	4	380	4	54112	Forklifts will be diesel
0	Generator Sets	84	0.74	0	0	0	0	No generators assumed onsite, Temporary power from PG&E
5	Aerial Lifts	63	0.31	7	380	7	259749	
1755	Cement and Mortar Mixers	9	0.56	8	25	0.5	1769040	We will have cement truck, no onsite mixers
	Building - Cores/Elevators	**Start Date:**	**1/17/2027**	**Total phase:**	**304**			
		End Date:	**3/15/2028**					
2	Industrial Saws	81	0.73	4	304	4	143804	
5	Aerial Lift	62	0.31	4	304	4	116858	
	Sitework	**Start Date:**	**5/14/2028**	**Total phase:**	**50**			No paving under sitework. New building will take up existing parking lot. Some minor misc paving anticipated a city street areas/patchwork
		Start Date:	**7/22/2028**					New sitework to consist of planters, walking paths, dining areas & landscape
200	Cement and Mortar Mixers	9	0.56	8	5	0.8	40320	We will have cement truck, no onsite mixers
8	Paving Equipment	132	0.36	8	1	0.2	3041	
1	Rollers	80	0.38	8	2	0.3	486	
1	Tractors/Loaders/Backhoes	97	0.37	8	10	1.6	2871	
	Finals/CX/Raindays	**Start Date:**	**3/18/2028**	**Total phase:**	**114**			
		Start Date:	**8/22/2028**					

Equipment types listed in "Equipment Types" worksheet tab.

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

It is assumed that water trucks would be used during grading

Add or subtract phases and equipment, as appropriate

Modify horepower or load factor, as appropriate

Complete one sheet for each project component

Traffic Consultant Trip Gen						CalEEMod Default						
Land Use		Size	Daily Trips	New Trips	Weekday Trip Gen	Weekday		Sat	Sun			
Apartmetns High Rise		585	2656	1743	***2.98***		4.2	4.98	3.65	2.979487	3.532821	2.589316
Residential & Redtail Reduction	15%		*-106*			*Rev*		***3.53***	***2.59***			
Location-Based Reduction	22%		*-561*									
VMT-Based Reduction	12%		*-246*									
Retail		13	708	500	***38.46***		44.32	42.04	20.43	38.46154	36.48292	17.72945
Residential & Redtail Reduction	15%		*-106*			*Rev*		***36.48***	***17.73***			
Location-Based Reduction	17%		*-102*									
			New Net Trips	2243								

ITE Vehicle Trip Generation Estimates - Arbor

	Reduction		VMT						Split			Trip			Split			Trip		
Land Use	%	Place Type	Existing	Project	Size	Rate	Trip	Rate	In	Out	In	Out	Total	Rate	In	Out	In	Out	Total
Proposed Land Uses																			
#222 - Multifamily Housing (High-Rise)					**585** Dwelling Units	4.540	2,656	0.270	26%	74%	41	117	158	0.320	62%	38%	116	71	187
Residential & Retail Reduction[3]	*15%*						*-106*				*-2*	*-3*	*-5*				*-6*	*-6*	*-12*
Location-Based Reduction[1]	*22%*	Urban High-Transit					*-561*				*-9*	*-25*	*-34*				*-24*	*-14*	*-38*
VMT-Based Reduction[2]	*12.38%*		9.29	8.14			*-246*				*-4*	*-11*	*-15*				*-11*	*-6*	*-17*
#822 - Strip Retail Plaza (<40k)					**13,000** Square Feet	54.450	708	2.360	60%	40%	19	12	31	6.590	50%	50%	43	43	86
Residential & Retail Reduction[3]	*15%*						*-106*				*-3*	*-2*	*-5*				*-6*	*-6*	*-12*
Location-Based Reduction[1]	*17%*	Urban High-Transit					*-102*				*-3*	*-2*	*-5*				*-6*	*-6*	*-12*
Baseline Vehicle Trips (Before Reductions)							*3,364*				*60*	*129*	*189*				*159*	*114*	*273*
Total Project Trips							**2,243**				**39**	**86**	**125**				**106**	**76**	**182**

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

[1] The place type for the project site 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-capita is equivalent to one percent reduction in peak-hour vehicle trips.

[3] The following trip reductions are prescribed by the VTA Transportation Impact Analysis Guidelines (October 2014).
Mixed-Used Development Project
with residential and retail components - 15% off the smaller trip generator

Arbor, 255 W. Julian Street, San Jose, CA
Evaporative Cooling Tower PM Emissions

No. of Cooling Towers	1
No. Cooling Tower Cells	5
Operating Hours per Year	4,380
Circulating Water Flow Rate per Cell (gpm)	548
Total Circulating Water Flow Rate (gpm)	2,740
Influent Water Total Dissolved Solids (TDS) Conc. (ppm)*	50
Circulating Water Cycles of Concentration*	5
Cooling Tower Circulating Water TDS (ppm)	250
Mist Eliminator Efficiency (%)	0.005
Total Cooling Tower Drift (gpm)	0.14
Dimensions of the cooling tower (L x W x H) (in).	88.2 x 47.2 x 99.2

Particulate Matter Emissions

	PM	**PM10**	**PM2.5**
Fraction of PM**	1.0	0.7	0.42
Hourly (lb/hr)	0.02	0.01	0.01
Average Daily (lb/day)	0.2	0.1	0.1
Annual lb/yr)	75	52.5	31.5
Annual (ton/yr)	0.04	0.03	0.02

* Maximum TDS value based on 2023 City of Sase Jose Water Quality Report.
Circulating water cycles of concentration assumed.

** South Coast AQMD, Final-Methodology to Calculate Particulate Matter (PM) 2.5 and PM2.5 Significance Thresholds, Appendix A.

Rev 2025 Arbor, San Jose

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	318.00	Space	0.00	185,220.00	0
Apartments High Rise	585.00	Dwelling Unit	1.80	485,420.00	1673
Strip Mall	13.00	1000sqft	0.00	13,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2029
Utility Company	User Defined				
CO2 Intensity (lb/MWhr)	162	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SJCE 2021 = 162 CO2 - GreenSource

Land Use - Provided land uses - site plans & construction worksheet

Construction Phase - Provided construction schedule

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Trips and VMT - 0 trips EMFAC2021, pavement demo = 53,190sf, Cement = 24,550cy -> treching = 700 cement trips, Building Ext = 1,755 cement trips, sitework = 200 cement trips
Grading - grading = 180,000-cy export, 1,500-cy import

Vehicle Trips - Traffic provided trip gen rates and reductions

Vehicle Emission Factors - EMFAC2021 Emission Factors Santa Clara County 2029

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves - no wood burning / no hearths

Energy Use -

Water And Wastewater - WWTP 100% Aerobic, no septic or lagoons

Construction Off-road Equipment Mitigation - Enhanced BMPs, Tier 4 final engines, electric cranes mitigation

Operational Off-Road Equipment -

Stationary Sources - Emergency Generators and Fire Pumps - Two, 1,000-kW, 1,340-hp standby diesel generators, 50 hrs/year

Stationary Sources - Emergency Generators and Fire Pumps EF - >1,000-hp generator requires BACT mitigation, NOx = 0.5, PM = 0.02

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	10.00	303.00
tblConstructionPhase	NumDays	200.00	380.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	NumDays	4.00	140.00
tblConstructionPhase	NumDays	10.00	50.00
tblConstructionPhase	NumDays	2.00	65.00
tblFireplaces	FireplaceDayYear	11.14	0.00
tblFireplaces	FireplaceHourDay	3.50	0.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	87.75	0.00
tblFireplaces	NumberNoFireplace	23.40	0.00
tblFireplaces	NumberWood	99.45	0.00
tblFleetMix	HHD	0.02	0.02
tblFleetMix	HHD	0.02	0.02
tblFleetMix	HHD	0.02	0.02

tblFleetMix	LDA	0.62	0.53
tblFleetMix	LDA	0.62	0.53
tblFleetMix	LDA	0.62	0.53
tblFleetMix	LDT1	0.03	0.03
tblFleetMix	LDT1	0.03	0.03
tblFleetMix	LDT1	0.03	0.03
tblFleetMix	LDT2	0.18	0.23
tblFleetMix	LDT2	0.18	0.23
tblFleetMix	LDT2	0.18	0.23
tblFleetMix	LHD1	0.01	0.03
tblFleetMix	LHD1	0.01	0.03
tblFleetMix	LHD1	0.01	0.03
tblFleetMix	LHD2	5.0500e-003	6.3710e-003
tblFleetMix	LHD2	5.0500e-003	6.3710e-003
tblFleetMix	LHD2	5.0500e-003	6.3710e-003
tblFleetMix	MCY	5.1390e-003	3.4860e-003
tblFleetMix	MCY	5.1390e-003	3.4860e-003
tblFleetMix	MCY	5.1390e-003	3.4860e-003
tblFleetMix	MDV	0.10	0.13
tblFleetMix	MDV	0.10	0.13
tblFleetMix	MDV	0.10	0.13
tblFleetMix	MH	6.5600e-004	6.2200e-004
tblFleetMix	MH	6.5600e-004	6.2200e-004
tblFleetMix	MH	6.5600e-004	6.2200e-004
tblFleetMix	MHD	0.01	0.01
tblFleetMix	MHD	0.01	0.01
tblFleetMix	MHD	0.01	0.01
tblFleetMix	OBUS	2.2140e-003	1.6830e-003
tblFleetMix	OBUS	2.2140e-003	1.6830e-003
tblFleetMix	OBUS	2.2140e-003	1.6830e-003

tblFleetMix	SBUS	6.4500e-004	5.3500e-004
tblFleetMix	SBUS	6.4500e-004	5.3500e-004
tblFleetMix	SBUS	6.4500e-004	5.3500e-004
tblFleetMix	UBUS	1.4750e-003	1.2300e-003
tblFleetMix	UBUS	1.4750e-003	1.2300e-003
tblFleetMix	UBUS	1.4750e-003	1.2300e-003
tblGrading	MaterialExported	0.00	180,000.00
tblGrading	MaterialImported	0.00	1,500.00
tblLandUse	LandUseSquareFeet	127,200.00	185,220.00
tblLandUse	LandUseSquareFeet	585,000.00	485,420.00
tblLandUse	LotAcreage	2.86	0.00
tblLandUse	LotAcreage	9.44	1.80
tblLandUse	LotAcreage	0.30	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	8.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	8.00	0.00

tblOffRoadEquipment	UsageHours	6.00	0.40
tblOffRoadEquipment	UsageHours	8.00	0.40
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.20
tblOffRoadEquipment	UsageHours	7.00	0.30
tblOffRoadEquipment	UsageHours	8.00	2.50
tblOffRoadEquipment	UsageHours	6.00	2.70
tblOffRoadEquipment	UsageHours	7.00	1.30
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	7.00	1.70
tblOffRoadEquipment	UsageHours	8.00	1.60
tblOffRoadEquipment	UsageHours	8.00	3.20
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0	0.033
tblProjectCharacteristics	CO2IntensityFactor	0	162
tblProjectCharacteristics	N2OIntensityFactor	0	0.004
tblStationaryGeneratorsPumpsEF	NOX_EF	4.56	0.50
tblStationaryGeneratorsPumpsEF	PM10_EF	0.15	0.02
tblStationaryGeneratorsPumpsEF	PM2_5_EF	0.15	0.02
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	1,340.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	2.00
tblTripsAndVMT	HaulingTripNumber	22,688.00	0.00
tblTripsAndVMT	VendorTripNumber	95.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	503.00	0.00

tblTripsAndVMT	WorkerTripNumber	101.00	0.00
tblTripsAndVMT	WorkerTripNumber	25.00	0.00
tblVehicleEF	HHD	0.28	0.21
tblVehicleEF	HHD	0.06	0.09
tblVehicleEF	HHD	0.06	0.00
tblVehicleEF	HHD	1.45	5.05
tblVehicleEF	HHD	0.94	0.66
tblVehicleEF	HHD	3.95	8.4600e-004
tblVehicleEF	HHD	4,072.60	738.66
tblVehicleEF	HHD	1,504.98	1,438.13
tblVehicleEF	HHD	12.18	0.01
tblVehicleEF	HHD	12.35	3.52
tblVehicleEF	HHD	1.63	1.50
tblVehicleEF	HHD	19.22	2.65
tblVehicleEF	HHD	4.1680e-003	1.8000e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	5.7340e-003	0.02
tblVehicleEF	HHD	1.3100e-004	0.00
tblVehicleEF	HHD	3.9880e-003	1.7160e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8520e-003	8.7850e-003
tblVehicleEF	HHD	5.4850e-003	0.02
tblVehicleEF	HHD	1.2000e-004	0.00
tblVehicleEF	HHD	9.9000e-005	5.1000e-005
tblVehicleEF	HHD	4.5950e-003	1.6000e-005
tblVehicleEF	HHD	0.38	0.31
tblVehicleEF	HHD	6.3000e-005	5.1000e-005
tblVehicleEF	HHD	0.08	0.01
tblVehicleEF	HHD	4.1400e-004	1.4600e-004

tblVehicleEF	HHD	0.07	0.00
tblVehicleEF	HHD	0.04	6.3880e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	1.8600e-004	0.00
tblVehicleEF	HHD	9.9000e-005	5.1000e-005
tblVehicleEF	HHD	4.5950e-003	1.6000e-005
tblVehicleEF	HHD	0.44	0.55
tblVehicleEF	HHD	6.3000e-005	5.1000e-005
tblVehicleEF	HHD	0.15	0.11
tblVehicleEF	HHD	4.1400e-004	1.4600e-004
tblVehicleEF	HHD	0.08	0.00
tblVehicleEF	LDA	2.0380e-003	1.3300e-003
tblVehicleEF	LDA	2.3480e-003	0.05
tblVehicleEF	LDA	0.35	0.51
tblVehicleEF	LDA	0.68	2.22
tblVehicleEF	LDA	186.31	230.51
tblVehicleEF	LDA	43.86	59.45
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.03	0.19
tblVehicleEF	LDA	0.04	7.0870e-003
tblVehicleEF	LDA	1.2360e-003	9.0700e-004
tblVehicleEF	LDA	1.9290e-003	1.5630e-003
tblVehicleEF	LDA	0.02	2.4800e-003
tblVehicleEF	LDA	1.1380e-003	8.3400e-004
tblVehicleEF	LDA	1.7740e-003	1.4370e-003
tblVehicleEF	LDA	0.02	0.23
tblVehicleEF	LDA	0.06	0.06
tblVehicleEF	LDA	0.02	0.23
tblVehicleEF	LDA	5.1060e-003	4.7040e-003
tblVehicleEF	LDA	0.03	0.18

tblVehicleEF	LDA	0.03	0.21
tblVehicleEF	LDA	1.8640e-003	2.1440e-003
tblVehicleEF	LDA	4.4900e-004	5.5300e-004
tblVehicleEF	LDA	0.02	0.23
tblVehicleEF	LDA	0.06	0.06
tblVehicleEF	LDA	0.02	0.23
tblVehicleEF	LDA	7.4270e-003	6.8580e-003
tblVehicleEF	LDA	0.03	0.18
tblVehicleEF	LDA	0.03	0.23
tblVehicleEF	LDT1	4.0970e-003	3.6410e-003
tblVehicleEF	LDT1	5.1740e-003	0.08
tblVehicleEF	LDT1	0.60	0.98
tblVehicleEF	LDT1	1.24	3.71
tblVehicleEF	LDT1	239.17	314.02
tblVehicleEF	LDT1	56.19	81.52
tblVehicleEF	LDT1	0.05	0.07
tblVehicleEF	LDT1	0.06	0.29
tblVehicleEF	LDT1	0.04	9.1610e-003
tblVehicleEF	LDT1	1.5670e-003	1.3780e-003
tblVehicleEF	LDT1	2.3160e-003	2.2050e-003
tblVehicleEF	LDT1	0.02	3.2070e-003
tblVehicleEF	LDT1	1.4410e-003	1.2670e-003
tblVehicleEF	LDT1	2.1290e-003	2.0270e-003
tblVehicleEF	LDT1	0.05	0.49
tblVehicleEF	LDT1	0.13	0.13
tblVehicleEF	LDT1	0.04	0.49
tblVehicleEF	LDT1	0.01	0.02
tblVehicleEF	LDT1	0.10	0.37
tblVehicleEF	LDT1	0.07	0.37
tblVehicleEF	LDT1	2.3970e-003	2.9210e-003

tblVehicleEF	LDT1	5.8300e-004	7.5800e-004
tblVehicleEF	LDT1	0.05	0.49
tblVehicleEF	LDT1	0.13	0.13
tblVehicleEF	LDT1	0.04	0.49
tblVehicleEF	LDT1	0.01	0.02
tblVehicleEF	LDT1	0.10	0.37
tblVehicleEF	LDT1	0.08	0.40
tblVehicleEF	LDT2	3.1920e-003	1.9790e-003
tblVehicleEF	LDT2	3.5040e-003	0.06
tblVehicleEF	LDT2	0.51	0.67
tblVehicleEF	LDT2	0.94	2.87
tblVehicleEF	LDT2	270.74	317.56
tblVehicleEF	LDT2	63.09	80.99
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	0.06	0.26
tblVehicleEF	LDT2	0.04	8.8430e-003
tblVehicleEF	LDT2	1.3880e-003	1.0640e-003
tblVehicleEF	LDT2	2.1170e-003	1.7460e-003
tblVehicleEF	LDT2	0.02	3.0950e-003
tblVehicleEF	LDT2	1.2770e-003	9.7900e-004
tblVehicleEF	LDT2	1.9460e-003	1.6060e-003
tblVehicleEF	LDT2	0.03	0.26
tblVehicleEF	LDT2	0.07	0.07
tblVehicleEF	LDT2	0.03	0.26
tblVehicleEF	LDT2	7.9240e-003	7.3460e-003
tblVehicleEF	LDT2	0.06	0.19
tblVehicleEF	LDT2	0.05	0.28
tblVehicleEF	LDT2	2.7110e-003	2.9530e-003
tblVehicleEF	LDT2	6.4600e-004	7.5300e-004
tblVehicleEF	LDT2	0.03	0.26

tblVehicleEF	LDT2	0.07	0.07
tblVehicleEF	LDT2	0.03	0.26
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.06	0.19
tblVehicleEF	LDT2	0.05	0.31
tblVehicleEF	LHD1	4.1410e-003	4.5080e-003
tblVehicleEF	LHD1	9.6710e-003	4.6270e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.14	0.19
tblVehicleEF	LHD1	0.67	0.60
tblVehicleEF	LHD1	1.79	2.10
tblVehicleEF	LHD1	8.94	8.00
tblVehicleEF	LHD1	646.63	688.12
tblVehicleEF	LHD1	27.62	16.32
tblVehicleEF	LHD1	0.07	0.04
tblVehicleEF	LHD1	0.59	0.35
tblVehicleEF	LHD1	0.72	0.34
tblVehicleEF	LHD1	8.0600e-004	6.7400e-004
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	9.3710e-003
tblVehicleEF	LHD1	0.01	9.8240e-003
tblVehicleEF	LHD1	7.0200e-004	1.4800e-004
tblVehicleEF	LHD1	7.7200e-004	6.4500e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5940e-003	2.3430e-003
tblVehicleEF	LHD1	0.01	9.3670e-003
tblVehicleEF	LHD1	6.4500e-004	1.3600e-004
tblVehicleEF	LHD1	1.9860e-003	0.10
tblVehicleEF	LHD1	0.08	0.02
tblVehicleEF	LHD1	0.01	0.02

tblVehicleEF	LHD1	1.0760e-003	0.10
tblVehicleEF	LHD1	0.10	0.06
tblVehicleEF	LHD1	0.27	0.13
tblVehicleEF	LHD1	0.16	0.08
tblVehicleEF	LHD1	8.9000e-005	7.8000e-005
tblVehicleEF	LHD1	6.3210e-003	6.7160e-003
tblVehicleEF	LHD1	3.0900e-004	1.6100e-004
tblVehicleEF	LHD1	1.9860e-003	0.10
tblVehicleEF	LHD1	0.08	0.02
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.0760e-003	0.10
tblVehicleEF	LHD1	0.12	0.07
tblVehicleEF	LHD1	0.27	0.13
tblVehicleEF	LHD1	0.18	0.09
tblVehicleEF	LHD2	2.6180e-003	2.5930e-003
tblVehicleEF	LHD2	5.4640e-003	4.7500e-003
tblVehicleEF	LHD2	3.5130e-003	9.1830e-003
tblVehicleEF	LHD2	0.12	0.14
tblVehicleEF	LHD2	0.46	0.40
tblVehicleEF	LHD2	0.90	1.12
tblVehicleEF	LHD2	13.67	13.42
tblVehicleEF	LHD2	678.66	735.39
tblVehicleEF	LHD2	22.03	8.72
tblVehicleEF	LHD2	0.07	0.08
tblVehicleEF	LHD2	0.26	0.54
tblVehicleEF	LHD2	0.28	0.19
tblVehicleEF	LHD2	1.0710e-003	1.4440e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	9.6870e-003	0.02

tblVehicleEF	LHD2	3.7400e-004	6.1000e-005
tblVehicleEF	LHD2	1.0240e-003	1.3820e-003
tblVehicleEF	LHD2	0.04	0.03
tblVehicleEF	LHD2	2.7060e-003	2.6460e-003
tblVehicleEF	LHD2	9.2450e-003	0.02
tblVehicleEF	LHD2	3.4400e-004	5.6000e-005
tblVehicleEF	LHD2	5.3700e-004	0.05
tblVehicleEF	LHD2	0.02	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.1700e-004	0.05
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.04	0.07
tblVehicleEF	LHD2	0.05	0.04
tblVehicleEF	LHD2	1.3300e-004	1.2800e-004
tblVehicleEF	LHD2	6.5940e-003	7.0760e-003
tblVehicleEF	LHD2	2.3600e-004	8.6000e-005
tblVehicleEF	LHD2	5.3700e-004	0.05
tblVehicleEF	LHD2	0.02	0.01
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	3.1700e-004	0.05
tblVehicleEF	LHD2	0.11	0.10
tblVehicleEF	LHD2	0.04	0.07
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	MCY	0.46	0.15
tblVehicleEF	MCY	0.16	0.16
tblVehicleEF	MCY	17.62	11.24
tblVehicleEF	MCY	10.32	7.85
tblVehicleEF	MCY	171.24	185.84
tblVehicleEF	MCY	43.13	43.62
tblVehicleEF	MCY	1.14	0.52

tblVehicleEF	MCY	0.32	0.11
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	2.1460e-003	1.9880e-003
tblVehicleEF	MCY	3.3780e-003	3.4410e-003
tblVehicleEF	MCY	5.0400e-003	4.2000e-003
tblVehicleEF	MCY	2.0020e-003	1.8560e-003
tblVehicleEF	MCY	3.1630e-003	3.2230e-003
tblVehicleEF	MCY	0.88	3.78
tblVehicleEF	MCY	0.62	3.56
tblVehicleEF	MCY	0.47	3.78
tblVehicleEF	MCY	2.13	0.91
tblVehicleEF	MCY	0.48	3.79
tblVehicleEF	MCY	2.12	1.16
tblVehicleEF	MCY	2.0640e-003	1.8370e-003
tblVehicleEF	MCY	6.6200e-004	4.3100e-004
tblVehicleEF	MCY	0.88	0.08
tblVehicleEF	MCY	0.62	3.56
tblVehicleEF	MCY	0.47	0.08
tblVehicleEF	MCY	2.67	1.11
tblVehicleEF	MCY	0.48	3.79
tblVehicleEF	MCY	2.31	1.27
tblVehicleEF	MDV	5.5000e-003	2.2500e-003
tblVehicleEF	MDV	7.9330e-003	0.07
tblVehicleEF	MDV	0.71	0.70
tblVehicleEF	MDV	1.62	2.94
tblVehicleEF	MDV	367.51	379.30
tblVehicleEF	MDV	84.52	96.02
tblVehicleEF	MDV	0.08	0.05
tblVehicleEF	MDV	0.12	0.29
tblVehicleEF	MDV	0.04	8.9040e-003

tblVehicleEF	MDV	1.4670e-003	1.0470e-003
tblVehicleEF	MDV	2.1720e-003	1.6970e-003
tblVehicleEF	MDV	0.02	3.1160e-003
tblVehicleEF	MDV	1.3510e-003	9.6500e-004
tblVehicleEF	MDV	1.9970e-003	1.5600e-003
tblVehicleEF	MDV	0.05	0.29
tblVehicleEF	MDV	0.13	0.07
tblVehicleEF	MDV	0.05	0.29
tblVehicleEF	MDV	0.01	8.8390e-003
tblVehicleEF	MDV	0.09	0.22
tblVehicleEF	MDV	0.11	0.32
tblVehicleEF	MDV	3.6760e-003	3.5260e-003
tblVehicleEF	MDV	8.7300e-004	8.9300e-004
tblVehicleEF	MDV	0.05	0.29
tblVehicleEF	MDV	0.13	0.07
tblVehicleEF	MDV	0.05	0.29
tblVehicleEF	MDV	0.02	0.01
tblVehicleEF	MDV	0.09	0.22
tblVehicleEF	MDV	0.12	0.35
tblVehicleEF	MH	0.01	6.8760e-003
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.64	0.49
tblVehicleEF	MH	3.95	2.00
tblVehicleEF	MH	1,187.29	1,660.07
tblVehicleEF	MH	57.03	20.47
tblVehicleEF	MH	0.89	1.32
tblVehicleEF	MH	0.65	0.30
tblVehicleEF	MH	0.13	0.04
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.01	0.02

tblVehicleEF	MH	9.1300e-004	2.4300e-004
tblVehicleEF	MH	0.06	0.02
tblVehicleEF	MH	3.2210e-003	3.3310e-003
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	8.4000e-004	2.2400e-004
tblVehicleEF	MH	0.50	22.47
tblVehicleEF	MH	0.04	5.49
tblVehicleEF	MH	0.19	22.47
tblVehicleEF	MH	0.04	0.05
tblVehicleEF	MH	0.01	0.13
tblVehicleEF	MH	0.23	0.09
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	6.3900e-004	2.0200e-004
tblVehicleEF	MH	0.50	22.47
tblVehicleEF	MH	0.04	5.49
tblVehicleEF	MH	0.19	22.47
tblVehicleEF	MH	0.06	0.07
tblVehicleEF	MH	0.01	0.13
tblVehicleEF	MH	0.26	0.10
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	2.8710e-003	9.5370e-003
tblVehicleEF	MHD	0.03	6.8930e-003
tblVehicleEF	MHD	0.37	0.64
tblVehicleEF	MHD	0.26	0.18
tblVehicleEF	MHD	3.91	0.77
tblVehicleEF	MHD	132.56	147.65
tblVehicleEF	MHD	1,170.12	1,114.37
tblVehicleEF	MHD	59.44	7.08
tblVehicleEF	MHD	0.34	0.67
tblVehicleEF	MHD	1.05	0.65

tblVehicleEF	MHD	10.04	1.28
tblVehicleEF	MHD	5.9000e-005	7.9800e-004
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	3.0300e-003	6.2380e-003
tblVehicleEF	MHD	8.2100e-004	8.6000e-005
tblVehicleEF	MHD	5.6000e-005	7.6300e-004
tblVehicleEF	MHD	0.06	0.02
tblVehicleEF	MHD	2.8920e-003	5.9600e-003
tblVehicleEF	MHD	7.5500e-004	7.9000e-005
tblVehicleEF	MHD	6.5900e-004	0.02
tblVehicleEF	MHD	0.03	3.8070e-003
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	3.8600e-004	0.02
tblVehicleEF	MHD	0.04	0.02
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	0.24	0.04
tblVehicleEF	MHD	1.2770e-003	1.3610e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	6.6300e-004	7.0000e-005
tblVehicleEF	MHD	6.5900e-004	0.02
tblVehicleEF	MHD	0.03	3.8070e-003
tblVehicleEF	MHD	0.03	0.04
tblVehicleEF	MHD	3.8600e-004	0.02
tblVehicleEF	MHD	0.05	0.03
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	0.26	0.04
tblVehicleEF	OBUS	0.01	7.5490e-003
tblVehicleEF	OBUS	4.3010e-003	0.01
tblVehicleEF	OBUS	0.02	0.01
tblVehicleEF	OBUS	0.24	0.55

tblVehicleEF	OBUS	0.32	0.31
tblVehicleEF	OBUS	4.16	1.54
tblVehicleEF	OBUS	111.44	89.92
tblVehicleEF	OBUS	1,275.89	1,270.35
tblVehicleEF	OBUS	65.07	12.57
tblVehicleEF	OBUS	0.25	0.34
tblVehicleEF	OBUS	0.89	0.85
tblVehicleEF	OBUS	2.75	0.96
tblVehicleEF	OBUS	2.2000e-005	3.3500e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	2.8900e-003	0.01
tblVehicleEF	OBUS	9.2700e-004	1.2200e-004
tblVehicleEF	OBUS	2.1000e-005	3.2100e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	2.7430e-003	0.01
tblVehicleEF	OBUS	8.5200e-004	1.1200e-004
tblVehicleEF	OBUS	1.1670e-003	0.07
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.03	0.04
tblVehicleEF	OBUS	5.2900e-004	0.07
tblVehicleEF	OBUS	0.04	0.03
tblVehicleEF	OBUS	0.03	0.08
tblVehicleEF	OBUS	0.26	0.07
tblVehicleEF	OBUS	1.0750e-003	8.4800e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	7.2400e-004	1.2400e-004
tblVehicleEF	OBUS	1.1670e-003	0.07
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	5.2900e-004	0.07

tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	0.03	0.08
tblVehicleEF	OBUS	0.29	0.08
tblVehicleEF	SBUS	0.81	0.08
tblVehicleEF	SBUS	8.9530e-003	0.09
tblVehicleEF	SBUS	0.06	5.1780e-003
tblVehicleEF	SBUS	8.77	1.81
tblVehicleEF	SBUS	0.56	0.75
tblVehicleEF	SBUS	7.85	0.68
tblVehicleEF	SBUS	1,034.78	184.37
tblVehicleEF	SBUS	1,014.13	962.50
tblVehicleEF	SBUS	61.18	3.93
tblVehicleEF	SBUS	4.86	1.11
tblVehicleEF	SBUS	1.94	1.74
tblVehicleEF	SBUS	10.92	0.52
tblVehicleEF	SBUS	2.7540e-003	8.3700e-004
tblVehicleEF	SBUS	0.74	0.04
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	9.8310e-003	9.3550e-003
tblVehicleEF	SBUS	1.0690e-003	4.5000e-005
tblVehicleEF	SBUS	2.6350e-003	8.0000e-004
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.5930e-003	2.6160e-003
tblVehicleEF	SBUS	9.3860e-003	8.9330e-003
tblVehicleEF	SBUS	9.8300e-004	4.2000e-005
tblVehicleEF	SBUS	3.6050e-003	0.04
tblVehicleEF	SBUS	0.03	8.6090e-003
tblVehicleEF	SBUS	1.04	0.20
tblVehicleEF	SBUS	1.7070e-003	0.04
tblVehicleEF	SBUS	0.07	0.04

tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.41	0.03
tblVehicleEF	SBUS	0.01	1.6660e-003
tblVehicleEF	SBUS	9.7970e-003	8.9340e-003
tblVehicleEF	SBUS	7.4700e-004	3.9000e-005
tblVehicleEF	SBUS	3.6050e-003	0.04
tblVehicleEF	SBUS	0.03	8.6090e-003
tblVehicleEF	SBUS	1.51	0.32
tblVehicleEF	SBUS	1.7070e-003	0.04
tblVehicleEF	SBUS	0.09	0.14
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.45	0.03
tblVehicleEF	UBUS	0.23	0.64
tblVehicleEF	UBUS	0.05	2.5600e-003
tblVehicleEF	UBUS	3.18	7.40
tblVehicleEF	UBUS	7.55	0.56
tblVehicleEF	UBUS	1,951.30	972.61
tblVehicleEF	UBUS	123.95	3.07
tblVehicleEF	UBUS	5.24	0.26
tblVehicleEF	UBUS	13.19	0.03
tblVehicleEF	UBUS	0.54	0.15
tblVehicleEF	UBUS	0.01	0.06
tblVehicleEF	UBUS	0.11	4.8360e-003
tblVehicleEF	UBUS	1.3530e-003	1.3000e-005
tblVehicleEF	UBUS	0.23	0.05
tblVehicleEF	UBUS	3.0000e-003	0.01
tblVehicleEF	UBUS	0.11	4.6230e-003
tblVehicleEF	UBUS	1.2440e-003	1.2000e-005
tblVehicleEF	UBUS	2.4710e-003	7.0140e-003
tblVehicleEF	UBUS	0.04	2.0940e-003

tblVehicleEF	UBUS	1.4320e-003	7.0140e-003
tblVehicleEF	UBUS	0.25	0.05
tblVehicleEF	UBUS	8.7950e-003	7.8600e-003
tblVehicleEF	UBUS	0.63	8.6260e-003
tblVehicleEF	UBUS	0.02	7.4090e-003
tblVehicleEF	UBUS	1.3770e-003	3.0000e-005
tblVehicleEF	UBUS	2.4710e-003	7.0140e-003
tblVehicleEF	UBUS	0.04	2.0940e-003
tblVehicleEF	UBUS	1.4320e-003	7.0140e-003
tblVehicleEF	UBUS	0.51	0.70
tblVehicleEF	UBUS	8.7950e-003	7.8600e-003
tblVehicleEF	UBUS	0.69	9.4440e-003
tblVehicleTrips	ST_TR	4.98	3.53
tblVehicleTrips	ST_TR	42.04	36.48
tblVehicleTrips	SU_TR	3.65	2.59
tblVehicleTrips	SU_TR	20.43	17.73
tblVehicleTrips	WD_TR	4.20	2.98
tblVehicleTrips	WD_TR	44.32	38.46
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	NumberCatalytic	11.70	0.00
tblWoodstoves	NumberNoncatalytic	11.70	0.00
tblWoodstoves	WoodstoveDayYear	14.12	0.00

tblWoodstoves	WoodstoveWoodMass	582.40	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					
2026	0.0658	0.6246	0.7133	1.4100e-003	0.1871	0.0266	0.2137	0.0975	0.0246	0.1221	0.0000	123.6003	123.6003	0.0382	0.0000	124.5555
2027	3.0671	1.677	2.0206	3.9700e-003	0.0000	0.0603	0.0603	0.0000	0.0564	0.0564	0.0000	347.3786	347.3786	0.0936	0.0000	349.7178
2028	0.6688	0.5569	0.6400	1.2900e-003	0.0000	0.0204	0.0204	0.0000	0.0190	0.0190	0.0000	112.5940	112.5940	0.0324	0.0000	113.4049
Maximum	**3.0671**	**1.6770**	**2.0206**	**3.9700e-003**	**0.1871**	**0.0603**	**0.2137**	**0.0975**	**0.0564**	**0.1221**	**0.0000**	**347.3786**	**347.3786**	**0.0936**	**0.0000**	**349.7178**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2026	0.0144	0.1024	0.7316	1.4100e-003	0.0730	1.7700e-003	0.0747	0.0190	1.7700e-003	0.0208	0.0000	96.2244	96.2244	0.0294	0.0000	96.9583
2027	2.9540	0.8783	1.7598	3.9700e-003	0.0000	3.8100e-003	3.8100e-003	0.0000	3.8100e-003	3.8100e-003	0.0000	215.0621	215.0621	0.0508	0.0000	216.3315
2028	0.6307	0.2718	0.5358	1.2900e-003	0.0000	1.1600e-003	1.1600e-003	0.0000	1.1600e-003	1.1600e-003	0.0000	64.4329	64.4329	0.0169	0.0000	64.8543
Maximum	**2.9540**	**0.8783**	**1.7598**	**3.9700e-003**	**0.0730**	**3.8100e-003**	**0.0747**	**0.0190**	**3.8100e-003**	**0.0208**	**0.0000**	**215.0621**	**215.0621**	**0.0508**	**0.0000**	**216.3315**

	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	**5.33**	**56.18**	**10.28**	**0.00**	**61.00**	**93.72**	**72.93**	**80.50**	**93.26**	**86.96**	**0.00**	**35.62**	**35.62**	**40.93**	**0.00**	**35.65**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-3-2026**	**4-2-2026**	0.0941	0.0103
2	**4-3-2026**	**7-2-2026**	0.1632	0.0233
3	**7-3-2026**	**10-2-2026**	0.1668	0.0239
4	**10-3-2026**	**1-2-2027**	0.2730	0.0617
5	**1-3-2027**	**4-2-2027**	1.0693	0.8489
6	**4-3-2027**	**7-2-2027**	1.2188	0.9901
7	**7-3-2027**	**10-2-2027**	1.2322	1.0010
8	**10-3-2027**	**1-2-2028**	1.2322	1.0010
9	**1-3-2028**	**4-2-2028**	1.0439	0.8226
10	**4-3-2028**	**7-2-2028**	0.1621	0.0664
11	**7-3-2028**	**9-30-2028**	0.0045	0.0007
		Highest	1.2322	1.0010

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	2.4415	0.0500	4.3426	2.3000e-004		0.0241	0.0241		0.0241	0.0241	0.0000	7.1013	7.1013	6.8100e-003	0.0000	7.2715
Energy	0.0274	0.2344	0.1004	1.5000e-003		0.0189	0.0189		0.0189	0.0189	0.0000	538.7825	538.7825	0.0597	0.0116	543.7247
Mobile	1.0003	0.8259	5.5998	0.0168	1.6233	0.0117	1.6350	0.4055	0.0109	0.4165	0.0000	1,633.7664	1,633.7664	0.0722	0.0000	1,635.5707
Stationary	0.1100	0.0539	0.2804	5.3000e-004		2.1600e-003	2.16E-03		2.1600e-003	2.1600e-003	0.0000	51.0268	51.0268	7.1500e-003	0.0000	51.2057

Waste						0.0000	0.0000		0.0000	0.0000	57.3957	0.0000	57.3957	3.3920	0.0000	142.1954
Water						0.0000	0.0000		0.0000	0.0000	13.8259	21.8696	35.6955	0.0520	0.0306	46.1174
Total	**3.5791**	**1.1642**	**10.3231**	**0.0190**	**1.6233**	**0.0569**	**1.6802**	**0.4055**	**0.0561**	**0.4616**	**71.2216**	**2,252.5466**	**2,323.7682**	**3.5898**	**0.0422**	**2,426.0853**

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	2.4415	0.0500	4.3426	2.3000e-004		0.0241	0.0241		0.0241	0.0241	0.0000	7.1013	7.1013	6.8100e-003	0.0000	7.2715
Energy	0.0274	0.2344	0.1004	1.5000e-003		0.0189	0.0189		0.0189	0.0189	0.0000	538.7825	538.7825	0.0597	0.0116	543.7247
Mobile	1.0003	0.8259	5.5998	0.0168	1.6233	0.0117	1.6350	0.4055	0.0109	0.4165	0.0000	1,633.7664	1,633.7664	0.0722	0.0000	1,635.5707
Stationary	0.1100	0.0539	0.2804	5.3000e-004		2.1600e-003	2.1600e-003		2.1600e-003	2.1600e-003	0.0000	51.0268	51.0268	7.1500e-003	0.0000	51.2057
Waste						0.0000	0.0000		0.0000	0.0000	57.3957	0.0000	57.3957	3.3920	0.0000	142.1954
Water						0.0000	0.0000		0.0000	0.0000	13.8259	21.8696	35.6955	0.0520	0.0306	46.1174
Total	**3.5791**	**1.1642**	**10.3231**	**0.0190**	**1.6233**	**0.0569**	**1.6802**	**0.4055**	**0.0561**	**0.4616**	**71.2216**	**2,252.5466**	**2,323.7682**	**3.5898**	**0.0422**	**2,426.0853**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description

1	Demolition	Demolition	1/3/2026	1/10/2026	5	5	
2	Site Preparation	Site Preparation	1/4/2026	4/4/2026	5	65	
3	Grading	Grading	4/5/2026	10/17/2026	5	140	
4	Trenching	Trenching	10/18/2026	11/28/2026	5	30	
5	Building Construction	Building Construction	11/29/2026	5/13/2028	5	380	
6	Building Cores/Elevators	Architectural Coating	1/17/2027	3/15/2028	5	303	
7	Siteword	Paving	5/14/2028	7/22/2028	5	50	

Acres of Grading (Site Preparation Phase): 1.63

Acres of Grading (Grading Phase): 3.5

Acres of Paving: 0

Residential Indoor: 982,976; Residential Outdoor: 327,659; Non-Residential Indoor: 19,500; Non-Residential Outdoor: 6,500; Striped

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	4.00	81	0.73
Demolition	Excavators	1	4.00	158	0.38
Demolition	Rubber Tired Dozers	1	2.50	247	0.40
Demolition	Tractors/Loaders/Backhoes	1	2.00	97	0.37
Site Preparation	Graders	1	0.40	187	0.41
Site Preparation	Rubber Tired Dozers	1	1.30	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	2	3.20	97	0.37
Grading	Concrete/Industrial Saws	2	0.60	81	0.73
Grading	Excavators	2	5.00	158	0.38
Grading	Graders	1	0.40	187	0.41
Grading	Rubber Tired Dozers	1	2.70	247	0.40
Grading	Tractors/Loaders/Backhoes	1	1.70	97	0.37
Trenching	Cranes	2	8.00	231	0.29
Trenching	Excavators	1	3.50	158	0.38
Trenching	Tractors/Loaders/Backhoes	1	1.30	97	0.37

Building Construction	Aerial Lifts	5	7.00	63	0.31
Building Construction	Cranes	2	8.00	231	0.29
Building Construction	Forklifts	2	4.00	89	0.20
Building Construction	Generator Sets	0	0.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Building Construction	Welders	0	0.00	46	0.45
Building Cores/Elevators	Aerial Lifts	5	4.00	63	0.31
Building Cores/Elevators	Air Compressors	0	0.00	78	0.48
Building Cores/Elevators	Concrete/Industrial Saws	2	4.00	81	0.73
Siteword	Cement and Mortar Mixers	0	0.00	9	0.56
Siteword	Pavers	0	0.00	130	0.42
Siteword	Paving Equipment	8	0.20	132	0.36
Siteword	Rollers	1	0.30	80	0.38
Siteword	Tractors/Loaders/Backhoes	1	1.60	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	7	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
Building Construction	9	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Cores/Elevators	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Siteword	10	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Alternative Fuel for Construction Equipment

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2026

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	1.1700e-003	0.0104	0.0124	2.0000e-005		4.5000e-004	4.5000e-004		4.2000e-004	4.2000e-004	0.0000	1.9968	1.9968	4.6000e-004	0.0000	2.0083
Total	**1.1700e-003**	**0.0104**	**0.0124**	**2.0000e-005**		**4.5000e-004**	**4.5000e-004**		**4.2000e-004**	**4.2000e-004**	**0.0000**	**1.9968**	**1.9968**	**4.6000e-004**	**0.0000**	**2.0083**

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	2.6000e-004	1.1400e-003	0.0142	2.0000e-005		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	1.9968	1.9968	4.6000e-004	0.0000	2.0083
Total	**2.6000e-004**	**1.1400e-003**	**0.0142**	**2.0000e-005**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**1.9968**	**1.9968**	**4.6000e-004**	**0.0000**	**2.0083**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2026

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					0.0327	0.0000	0.0327	0.0176	0.0000	0.0176	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.3600e-003	0.0754	0.0764	1.4000e-004		3.1200e-003	3.1200e-003		2.8700e-003	2.8700e-003	0.0000	12.0304	12.0304	3.8900e-003	0.0000	12.1277
Total	**7.3600e-003**	**0.0754**	**0.0764**	**1.4000e-004**	**0.0327**	**3.1200e-003**	**0.0358**	**0.0176**	**2.8700e-003**	**0.0205**	**0.0000**	**12.0304**	**12.0304**	**3.8900e-003**	**0.0000**	**12.1277**

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					
Fugitive Dust					0.0127	0.0000	0.0127	3.4300e-003	0.0000	3.4300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	1.6700e-003	7.2400e-003	0.0860	1.4000e-004		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	12.0304	12.0304	3.8900e-003	0.0000	12.1276
Total	**1.6700e-003**	**7.2400e-003**	**0.0860**	**1.4000e-004**	**0.0127**	**2.2000e-004**	**0.0130**	**3.4300e-003**	**2.2000e-004**	**3.6500e-003**	**0.0000**	**12.0304**	**12.0304**	**3.8900e-003**	**0.0000**	**12.1276**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2026

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					0.1544	0.0000	0.1544	0.0800	0.0000	0.0800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0361	0.3193	0.4330	7.9000e-004		0.0143	0.0143		0.0132	0.0132	0.0000	69.1941	69.1941	0.0208	0.0000	69.7141
Total	**0.0361**	**0.3193**	**0.4330**	**7.9000e-004**	**0.1544**	**0.0143**	**0.1687**	**0.0800**	**0.0132**	**0.0932**	**0.0000**	**69.1941**	**69.1941**	**0.0208**	**0.0000**	**69.7141**

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					
Fugitive Dust					0.0602	0.0000	0.0602	0.0156	0.0000	0.0156	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.5400e-003	0.0413	0.5192	7.9000e-004		1.2700e-003	1.2700e-003		1.2700e-003	1.2700e-003	0.0000	69.1940	69.1940	0.0208	0.0000	69.7140
Total	**9.5400e-003**	**0.0413**	**0.5192**	**7.9000e-004**	**0.0602**	**1.2700e-003**	**0.0615**	**0.0156**	**1.2700e-003**	**0.0169**	**0.0000**	**69.1940**	**69.1940**	**0.0208**	**0.0000**	**69.7140**

Mitigated Construction Off-Site

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

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Trenching - 2026

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	0.0108	0.1063	0.0789	2.1000e-004		4.5600e-003	4.5600e-003		4.2000e-003	4.2000e-003	0.0000	18.8554	18.8554	6.1000e-003	0.0000	19.0079
Total	**0.0108**	**0.1063**	**0.0789**	**2.1000e-004**		**4.5600e-003**	**4.5600e-003**		**4.2000e-003**	**4.2000e-003**	**0.0000**	**18.8554**	**18.8554**	**6.1000e-003**	**0.0000**	**19.0079**

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	5.1000e-004	2.2100e-003	0.0314	2.1000e-004		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	3.6466	3.6466	1.1800e-003	0.0000	3.6761
Total	**5.1000e-004**	**2.2100e-003**	**0.0314**	**2.1000e-004**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**	**0.0000**	**3.6466**	**3.6466**	**1.1800e-003**	**0.0000**	**3.6761**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Building Construction - 2026

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	0.0103	0.1132	0.1126	2.5000e-004		4.2300e-003	4.2300e-003		3.8900e-003	3.8900e-003	0.0000	21.5236	21.5236	6.9600e-003	0.0000	21.6977
Total	**0.0103**	**0.1132**	**0.1126**	**2.5000e-004**		**4.2300e-003**	**4.2300e-003**		**3.8900e-003**	**3.8900e-003**	**0.0000**	**21.5236**	**21.5236**	**6.9600e-003**	**0.0000**	**21.6977**

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	2.4000e-003	0.0505	0.0809	2.5000e-004		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	9.3566	9.3566	3.0300e-003	0.0000	9.4323
Total	**2.4000e-003**	**0.0505**	**0.0809**	**2.5000e-004**		**1.7000e-004**	**1.7000e-004**		**1.7000e-004**	**1.7000e-004**	**0.0000**	**9.3566**	**9.3566**	**3.0300e-003**	**0.0000**	**9.4323**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Building Construction - 2027

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	0.1124	1.2308	1.2241	2.6700e-003		0.0460	0.0460		0.0423	0.0423	0.0000	234.0695	234.0695	0.0757	0.0000	235.9621
Total	**0.1124**	**1.2308**	**1.2241**	**2.6700e-003**		**0.0460**	**0.0460**		**0.0423**	**0.0423**	**0.0000**	**234.0695**	**234.0695**	**0.0757**	**0.0000**	**235.9621**

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	0.0261	0.5495	0.8792	2.6700e-003		1.9000e-003	1.9000e-003		1.9000e-003	1.9000e-003	0.0000	101.7532	101.7532	0.0329	0.0000	102.5759
Total	**0.0261**	**0.5495**	**0.8792**	**2.6700e-003**		**1.9000e-003**	**1.9000e-003**		**1.9000e-003**	**1.9000e-003**	**0.0000**	**101.7532**	**101.7532**	**0.0329**	**0.0000**	**102.5759**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Building Construction - 2028

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	0.0409	0.4480	0.4455	9.7000e-004		0.0167	0.0167		0.0154	0.0154	0.0000	85.1977	85.1977	0.0276	0.0000	85.8866
Total	**0.0409**	**0.4480**	**0.4455**	**9.7000e-004**		**0.0167**	**0.0167**		**0.0154**	**0.0154**	**0.0000**	**85.1977**	**85.1977**	**0.0276**	**0.0000**	**85.8866**

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	9.4800e-003	0.2000	0.3200	9.7000e-004		6.9000e-004	6.9000e-004		6.9000e-004	6.9000e-004	0.0000	37.0366	37.0366	0.0120	0.0000	37.3361
Total	**9.4800e-003**	**0.2000**	**0.3200**	**9.7000e-004**		**6.9000e-004**	**6.9000e-004**		**6.9000e-004**	**6.9000e-004**	**0.0000**	**37.0366**	**37.0366**	**0.0120**	**0.0000**	**37.3361**

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 Building Cores/Elevators - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.9072					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0475	0.4463	0.7966	1.3100e-003		0.0144	0.0144		0.0142	0.0142	0.0000	113.3091	113.3091	0.0179	0.0000	113.7558
Total	**2.9547**	**0.4463**	**0.7966**	**1.3100e-003**		**0.0144**	**0.0144**		**0.0142**	**0.0142**	**0.0000**	**113.3091**	**113.3091**	**0.0179**	**0.0000**	**113.7558**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.9072					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0207	0.3288	0.8806	1.3100e-003		1.9000e-003	1.9000e-003		1.9000e-003	1.9000e-003	0.0000	113.3090	113.3090	0.0179	0.0000	113.7556
Total	**2.9279**	**0.3288**	**0.8806**	**1.3100e-003**		**1.9000e-003**	**1.9000e-003**		**1.9000e-003**	**1.9000e-003**	**0.0000**	**113.3090**	**113.3090**	**0.0179**	**0.0000**	**113.7556**

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 Building Cores/Elevators - 2028

Unmitigated Construction On-Site

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

Archit. Coating	0.6163					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0101	0.0946	0.1689	2.8000e-004		3.0500e-003	3.0500e-003		3.0000e-003	3.0000e-003	0.0000	24.0215	24.0215	3.7900e-003	0.0000	24.1162
Total	**0.6264**	**0.0946**	**0.1689**	**2.8000e-004**		**3.0500e-003**	**3.0500e-003**		**3.0000e-003**	**3.0000e-003**	**0.0000**	**24.0215**	**24.0215**	**3.7900e-003**	**0.0000**	**24.1162**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6163					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.4000e-003	0.0697	0.1867	2.8000e-004		4.0000e-004	4.0000e-004		4.0000e-004	4.0000e-004	0.0000	24.0215	24.0215	3.7900e-003	0.0000	24.1162
Total	**0.6207**	**0.0697**	**0.1867**	**2.8000e-004**		**4.0000e-004**	**4.0000e-004**		**4.0000e-004**	**4.0000e-004**	**0.0000**	**24.0215**	**24.0215**	**3.7900e-003**	**0.0000**	**24.1162**

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 Siteword - 2028

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	1.5200e-003	0.0144	0.0256	4.0000e-005		6.5000e-004	6.5000e-004		6.0000e-004	6.0000e-004	0.0000	3.3748	3.3748	1.0900e-003	0.0000	3.4021
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.5200e-003**	**0.0144**	**0.0256**	**4.0000e-005**		**6.5000e-004**	**6.5000e-004**		**6.0000e-004**	**6.0000e-004**	**0.0000**	**3.3748**	**3.3748**	**1.0900e-003**	**0.0000**	**3.4021**

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	4.7000e-004	2.0400e-003	0.0291	4.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	3.3748	3.3748	1.0900e-003	0.0000	3.4021
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.7000e-004**	**2.0400e-003**	**0.0291**	**4.0000e-005**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**3.3748**	**3.3748**	**1.0900e-003**	**0.0000**	**3.4021**

Mitigated Construction Off-Site

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

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.0003	0.8259	5.5998	0.0168	1.6233	0.0117	1.6350	0.4055	0.0109	0.4165	0.0000	1,633.7664	1,633.7664	0.0722	0.0000	1,635.5707
Unmitigated	1.0003	0.8259	5.5998	0.0168	1.6233	0.0117	1.6350	0.4055	0.0109	0.4165	0.0000	1,633.7664	1,633.7664	0.0722	0.0000	1,635.5707

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments High Rise	1,743.30	2,065.05	1515.15	4,057,221	4,057,221
Enclosed Parking with Elevator	0.00	0.00	0.00		
Strip Mall	499.98	474.24	230.49	705,034	705,034
Total	2,243.28	2,539.29	1,745.64	4,762,255	4,762,255

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

Apartments High Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments High Rise	0.533426	0.032225	0.232332	0.128159	0.025718	0.006371	0.011067	0.023148	0.001683	0.001230	0.003486	0.000535	0.000622
Enclosed Parking with Elevator	0.533426	0.032225	0.232332	0.128159	0.025718	0.006371	0.011067	0.023148	0.001683	0.001230	0.003486	0.000535	0.000622
Strip Mall	0.533426	0.032225	0.232332	0.128159	0.025718	0.006371	0.011067	0.023148	0.001683	0.001230	0.003486	0.000535	0.000622

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	267.4335	267.4335	0.0545	6.6000e-003	270.7632
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	267.4335	267.4335	0.0545	6.6000e-003	270.7632
NaturalGas Mitigated	0.0274	0.2344	0.1004	1.5000e-003		0.0189	0.0189		0.0189	0.0189	0.0000	271.3490	271.3490	5.2000e-003	4.9700e-003	272.9615
NaturalGas Unmitigated	0.0274	0.2344	0.1004	1.5000e-003		0.0189	0.0189		0.0189	0.0189	0.0000	271.3490	271.3490	5.2000e-003	4.9700e-003	272.9615

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					
Apartments High Rise	5.05408e+006	0.0273	0.2329	0.0991	1.4900e-003		0.0188	0.0188		0.0188	0.0188	0.0000	269.7049	269.7049	5.1700e-003	4.9400e-003	271.3076
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	30810	1.7000e-004	1.5100e-003	1.2700e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.6441	1.6441	3.0000e-005	3.0000e-005	1.6539
Total		**0.0274**	**0.2344**	**0.1004**	**1.5000e-003**		**0.0189**	**0.0189**		**0.0189**	**0.0189**	**0.0000**	**271.3490**	**271.3490**	**5.2000e-003**	**4.9700e-003**	**272.9615**

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					
Apartments High Rise	5.05408e+006	0.0273	0.2329	0.0991	1.4900e-003		0.0188	0.0188		0.0188	0.0188	0.0000	269.7049	269.7049	5.1700e-003	4.9400e-003	271.3076
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	30810	1.7000e-004	1.5100e-003	1.2700e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.6441	1.6441	3.0000e-005	3.0000e-005	1.6539
Total		**0.0274**	**0.2344**	**0.1004**	**1.5000e-003**		**0.0189**	**0.0189**		**0.0189**	**0.0189**	**0.0000**	**271.3490**	**271.3490**	**5.2000e-003**	**4.9700e-003**	**272.9615**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e

Land Use	kWh/yr	MT/yr			
Apartments High Rise	2.41508e+006	177.4652	0.0362	4.3800e-003	179.6747
Enclosed Parking with Elevator	1.08539e+006	79.7565	0.0163	1.9700e-003	80.7496
Strip Mall	138970	10.2118	2.0800e-003	2.5000e-004	10.3389
Total		**267.4335**	**0.0545**	**6.6000e-003**	**270.7632**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	2.41508e+006	177.4652	0.0362	4.3800e-003	179.6747
Enclosed Parking with Elevator	1.08539e+006	79.7565	0.0163	1.9700e-003	80.7496
Strip Mall	138970	10.2118	2.0800e-003	2.5000e-004	10.3389
Total		**267.4335**	**0.0545**	**6.6000e-003**	**270.7632**

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	2.4415	0.0500	4.3426	2.3000e-004		0.0241	0.0241		0.0241	0.0241	0.0000	7.1013	7.1013	6.8100e-003	0.0000	7.2715
Unmitigated	2.4415	0.0500	4.3426	2.3000e-004		0.0241	0.0241		0.0241	0.0241	0.0000	7.1013	7.1013	6.8100e-003	0.0000	7.2715

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	0.3524					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.9586					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1306	0.0500	4.3426	2.3000e-004		0.0241	0.0241		0.0241	0.0241	0.0000	7.1013	7.1013	6.8100e-003	0.0000	7.2715
Total	**2.4415**	**0.0500**	**4.3426**	**2.3000e-004**		**0.0241**	**0.0241**		**0.0241**	**0.0241**	**0.0000**	**7.1013**	**7.1013**	**6.8100e-003**	**0.0000**	**7.2715**

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	0.3524					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.9586					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.1306	0.0500	4.3426	2.3000e-004		0.0241	0.0241		0.0241	0.0241	0.0000	7.1013	7.1013	6.8100e-003	0.0000	7.2715
Total	**2.4415**	**0.0500**	**4.3426**	**2.3000e-004**		**0.0241**	**0.0241**		**0.0241**	**0.0241**	**0.0000**	**7.1013**	**7.1013**	**6.8100e-003**	**0.0000**	**7.2715**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	35.6955	0.0520	0.0306	46.1174
Unmitigated	35.6955	0.0520	0.0306	46.1174

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	38.1151 / 24.0291	34.8201	0.0508	0.0299	44.9852
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	0.962943 / 0.590191	0.8754	1.2800e-003	7.5000e-004	1.1321

Total		**35.6955**	**0.0520**	**0.0306**	**46.1174**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	38.1151 / 24.0291	34.8201	0.0508	0.0299	44.9852
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	0.962943 / 0.590191	0.8754	1.2800e-003	7.5000e-004	1.1321
Total		**35.6955**	**0.0520**	**0.0306**	**46.1174**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	57.3957	3.3920	0.0000	142.1954
Unmitigated	57.3957	3.3920	0.0000	142.1954

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	269.1	54.6249	3.2282	0.0000	135.3308
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	13.65	2.7708	0.1638	0.0000	6.8646
Total		**57.3957**	**3.3920**	**0.0000**	**142.1954**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	269.1	54.6249	3.2282	0.0000	135.3308
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	13.65	2.7708	0.1638	0.0000	6.8646
Total		**57.3957**	**3.3920**	**0.0000**	**142.1954**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	2	0	50	1340	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					
Emergency Generator - Diesel (750 - 9999 HP)	0.1100	0.0539	0.2804	5.3000e-004		2.1600e-003	2.1600e-003		2.1600e-003	2.1600e-003	0.0000	51.0268	51.0268	7.1500e-003	0.0000	51.2057
Total	**0.1100**	**0.0539**	**0.2804**	**5.3000e-004**		**2.1600e-003**	**2.1600e-003**		**2.1600e-003**	**2.1600e-003**	**0.0000**	**51.0268**	**51.0268**	**7.1500e-003**	**0.0000**	**51.2057**

11.0 Vegetation

Attachment 2: EMFAC2021 Emissions and CARB SAFE Off-Model Adjustment Factors

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														
2026	0.1310	0.7639	1.3158	0.0075	0.4138	0.0623	0.4762	0.0623	0.0254	0.0877	739.0628	0.0426	0.0815	764.4005
2027	0.1269	0.7367	1.2661	0.0074	0.4161	0.0625	0.4787	0.0626	0.0254	0.0880	728.3839	0.0407	0.0799	753.2232
2028	0.0682	0.3945	0.6794	0.0040	0.2326	0.0349	0.2674	0.0350	0.0141	0.0491	398.3310	0.0215	0.0435	411.8310
Toxic Air Contaminants (0.5 Mile Trip Length)														
2026	0.1175	0.2066	0.4428	0.0005	0.0187	0.0028	0.0215	0.0028	0.0013	0.0041	53.7433	0.0115	0.0085	56.5648
2027	0.1143	0.2023	0.4281	0.0005	0.0188	0.0028	0.0216	0.0028	0.0012	0.0041	52.9504	0.0111	0.0083	55.7131
2028	0.0617	0.1098	0.2307	0.0003	0.0105	0.0016	0.0121	0.0016	0.0007	0.0023	28.9590	0.0059	0.0045	30.4619

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	60	0	118	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	648	0	2360
Site Preparation	10	0	650	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	7020	0	0
Grading	18	0	2,520	0	22,688	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	27216	0	453760
Trenching	10	0	300	0	1,400	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	3240	0	28000
Building Exterior Construction	503	95	191,140	36,100	3,510	10.8	7.3	7.3	LD_Mix	HDT_Mix	HHDT	2064312	263530	25623
Building - Cores	101	0	30,704	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	331603.2	0	0
Site Work	25	0	1,250	0	400	10.8	7.3	7.3	LD_Mix	HDT_Mix	HHDT	13500	0	2920

Number of Days Per Year					
2026	1/3/26	12/31/26	363	312	
2027	1/1/27	12/31/27	365	313	
2028	1/1/28	7/22/28	204	175	
			932	**800**	***Total Workdays***

Phase	Start Date	End Date	Days/Week	Workdays
Demolition	1/3/2026	1/10/2026	6	6
Site Preparation	1/4/2026	4/4/2026	6	65
Grading	4/5/2026	10/17/2026	6	140
Trenching	10/18/2026	11/28/2026	6	30
Building Exterior Construction	11/29/2026	5/13/2028	6	380
Building - Cores	1/17/2027	3/15/2028	6	304
Site Work	5/14/2028	7/22/2028	6	50

CalEEMod EMFAC2021 Emission Factors Input — Year 2029

Season	EmissionType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
A	CH4_IDLEX	0	0	0	0	0.004508	0.002593	0.015383	0.206992918	0.007549	0	0	0.081111	0
A	CH4_RUNEX	0.00133	0.003641	0.001979	0.00225	0.004627	0.00475	0.009537	0.094166881	0.010603	0.635017364	0.145368	0.088367	0.006876
A	CH4_STREX	0.048139	0.07538	0.063101	0.068873	0.017479	0.009183	0.006893	5.20468E-08	0.014092	0.002560274	0.160622	0.005178	0.023392
A	CO_IDLEX	0	0	0	0	0.185619	0.13645	0.641722	5.046680356	0.549294	0	0	1.809343	0
A	CO_RUNEX	0.508098	0.975626	0.667577	0.695482	0.604179	0.404556	0.175215	0.657031566	0.314251	7.399892159	11.24409	0.753728	0.489937
A	CO_STREX	2.215927	3.710414	2.871165	2.94044	2.097653	1.122522	0.768783	0.00084636	1.543934	0.555742799	7.852658	0.67644	2.000999
A	CO2_NBIO_IDLEX	0	0	0	0	7.999297	13.41751	147.6453	738.6562403	89.92338	0	0	184.3734	0
A	CO2_NBIO_RUNEX	230.5131	314.0163	317.5625	379.2998	688.1173	735.3907	1114.373	1438.127796	1270.345	972.6129759	185.8416	962.5013	1660.071
A	CO2_NBIO_STREX	59.44694	81.51517	80.99348	96.01985	16.31883	8.719249	7.080527	0.010051542	12.56594	3.065026387	43.61908	3.927862	20.47109
A	NOX_IDLEX	0	0	0	0	0.038237	0.078457	0.670779	3.51737956	0.341975	0	0	1.114679	0
A	NOX_RUNEX	0.024543	0.074519	0.044205	0.053083	0.354429	0.54289	0.654275	1.503534639	0.850115	0.256809198	0.517318	1.742883	1.317196
A	NOX_STREX	0.185516	0.288361	0.256705	0.286102	0.344435	0.186619	1.275399	2.654112087	0.956009	0.027124086	0.107717	0.517956	0.298337
A	PM10_IDLEX	0	0	0	0	0.000674	0.001444	0.000798	0.001800167	0.000335	0	0	0.000837	0
A	PM10_PMBW	0.007087	0.009161	0.008843	0.008904	0.075285	0.087908	0.043957	0.082097173	0.05002	0.146382086	0.012	0.044093	0.044941
A	PM10_PMTW	0.008	0.008	0.008	0.008	0.009371	0.010583	0.012	0.035141981	0.012	0.05648319	0.004	0.010465	0.013326
A	PM10_RUNEX	0.000907	0.001378	0.001064	0.001047	0.009824	0.01764	0.006238	0.023773199	0.013237	0.00483578	0.001988	0.009355	0.024045
A	PM10_STREX	0.001563	0.002205	0.001746	0.001697	0.000148	6.13E-05	8.58E-05	1.62043E-07	0.000122	1.26121E-05	0.003441	4.53E-05	0.000243
A	PM25_IDLEX	0	0	0	0	0.000645	0.001382	0.000763	0.001715513	0.000321	0	0	0.0008	0
A	PM25_PMBW	0.00248	0.003207	0.003095	0.003116	0.02635	0.030768	0.015385	0.02873401	0.017507	0.05123373	0.0042	0.015432	0.015729
A	PM25_PMTW	0.002	0.002	0.002	0.002	0.002343	0.002646	0.003	0.008785495	0.003	0.014120797	0.001	0.002616	0.003331
A	PM25_RUNEX	0.000834	0.001267	0.000979	0.000965	0.009367	0.016863	0.00596	0.022741484	0.012655	0.004622615	0.001856	0.008933	0.022967
A	PM25_STREX	0.001437	0.002027	0.001606	0.00156	0.000136	5.64E-05	7.89E-05	1.48993E-07	0.000112	1.15963E-05	0.003223	4.16E-05	0.000224
A	ROG_DIURN	0.234409	0.488028	0.255988	0.289232	0.095189	0.051359	0.016404	5.14403E-05	0.071539	0.007014338	3.776823	0.036775	22.46552
A	ROG_HTSK	0.064125	0.127483	0.066543	0.072847	0.022799	0.011907	0.003807	1.63015E-05	0.014659	0.002094081	3.557716	0.008609	5.493368
A	ROG_IDLEX	0	0	0	0	0.018297	0.013949	0.021705	0.314877286	0.040186	0	0	0.196732	0
A	ROG_RESTL	0.234409	0.488028	0.255988	0.289232	0.095189	0.051359	0.016404	5.14403E-05	0.071539	0.007014338	3.776823	0.036775	22.46552
A	ROG_RUNEX	0.004704	0.015452	0.007346	0.008839	0.055889	0.087246	0.017394	0.014904005	0.034374	0.053280961	0.911484	0.043375	0.054908
A	ROG_RUNLS	0.176119	0.371512	0.191048	0.217255	0.134702	0.069255	0.031742	0.00014644	0.079758	0.007860125	3.791695	0.024241	0.13352
A	ROG_STREX	0.210031	0.365596	0.280586	0.323021	0.084152	0.043676	0.03618	2.82142E-07	0.074905	0.008625655	1.163493	0.029289	0.092852
A	SO2_IDLEX	0	0	0	0	7.78E-05	0.000128	0.001361	0.00638822	0.000848	0	0	0.001666	0
A	SO2_RUNEX	0.002144	0.002921	0.002953	0.003526	0.006716	0.007076	0.010549	0.012966883	0.012083	0.007408881	0.001837	0.008934	0.016264
A	SO2_STREX	0.000553	0.000758	0.000753	0.000893	0.000161	8.62E-05	7E-05	9.93696E-08	0.000124	3.03009E-05	0.000431	3.88E-05	0.000202
A	TOG_DIURN	0.234409	0.488028	0.255988	0.289232	0.095189	0.051359	0.016404	5.14403E-05	0.071539	0.007014338	0.083019	0.036775	22.46552
A	TOG_HTSK	0.064125	0.127483	0.066543	0.072847	0.022799	0.011907	0.003807	1.63015E-05	0.014659	0.002094081	3.557716	0.008609	5.493368
A	TOG_IDLEX	0	0	0	0	0.025838	0.018547	0.040034	0.551793218	0.05308	0	0	0.32128	0
A	TOG_RESTL	0.234409	0.488028	0.255988	0.289232	0.095189	0.051359	0.016404	5.14403E-05	0.071539	0.007014338	0.083019	0.036775	22.46552
A	TOG_RUNEX	0.006858	0.022547	0.010705	0.012862	0.067521	0.100495	0.029215	0.11094344	0.049511	0.696340475	1.114501	0.138562	0.068808
A	TOG_RUNLS	0.176119	0.371512	0.191048	0.217255	0.134702	0.069255	0.031742	0.00014644	0.079758	0.007860125	3.791695	0.024241	0.13352
A	TOG_STREX	0.229957	0.400282	0.307206	0.353667	0.092135	0.04782	0.039612	3.0891E-07	0.082012	0.009444007	1.26562	0.032068	0.101661

CalEEMod EMFAC2021 Fleet Mix Input

Year 2029

FleetMixLandUseSubType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments High Rise	0.533426	0.032225	0.232332	0.128159	0.025718	0.006371	0.011067	0.023148	0.001683	0.00123	0.003486	0.000535	0.000622
Enclosed Parking with Ele\	0.533426	0.032225	0.232332	0.128159	0.025718	0.006371	0.011067	0.023148	0.001683	0.00123	0.003486	0.000535	0.000622
Strip Mall	0.533426	0.032225	0.232332	0.128159	0.025718	0.006371	0.011067	0.023148	0.001683	0.00123	0.003486	0.000535	0.000622

Adjustment Factors for EMFAC2017 Gasoline Light Duty Vehicles						
Year	NOx Exhaust	TOG Evaporative	TOG Exhaust	PM Exhaust	CO Exhaust	CO2 Exhaust
NA	1	1	1	1	1	1
2021	1.0002	1.0001	1.0002	1.0009	1.0005	1.0023
2022	1.0004	1.0003	1.0004	1.0018	1.0014	1.0065
2023	1.0007	1.0006	1.0007	1.0032	1.0027	1.0126
2024	1.0012	1.0010	1.0011	1.0051	1.0044	1.0207
2025	1.0018	1.0016	1.0016	1.0074	1.0065	1.0309
2026	1.0023	1.0022	1.0020	1.0091	1.0083	1.0394
2027	1.0028	1.0028	1.0024	1.0105	1.0102	1.0475
2028	1.0034	1.0035	1.0028	1.0117	1.0120	1.0554
2029	1.0040	1.0042	1.0032	1.0129	1.0138	1.0629
2030	1.0047	1.0051	1.0037	1.0142	1.0156	1.0702
2031	1.0054	1.0061	1.0042	1.0155	1.0173	1.0770
2032	1.0061	1.0072	1.0047	1.0169	1.0189	1.0834
2033	1.0068	1.0083	1.0052	1.0182	1.0204	1.0893
2034	1.0075	1.0095	1.0058	1.0196	1.0218	1.0947
2035	1.0081	1.0108	1.0063	1.0210	1.0232	1.0997
2036	1.0088	1.0121	1.0069	1.0223	1.0244	1.1041
2037	1.0094	1.0134	1.0074	1.0236	1.0255	1.1080
2038	1.0099	1.0148	1.0079	1.0248	1.0265	1.1114
2039	1.0104	1.0161	1.0085	1.0259	1.0274	1.1143
2040	1.0109	1.0174	1.0090	1.0270	1.0281	1.1168
2041	1.0113	1.0186	1.0095	1.0279	1.0288	1.1189
2042	1.0116	1.0198	1.0099	1.0286	1.0294	1.1207
2043	1.0119	1.0207	1.0103	1.0293	1.0299	1.1221
2044	1.0122	1.0216	1.0106	1.0299	1.0303	1.1233
2045	1.0124	1.0225	1.0109	1.0303	1.0306	1.1243
2046	1.0125	1.0233	1.0111	1.0308	1.0309	1.1251
2047	1.0127	1.0240	1.0113	1.0311	1.0311	1.1258
2048	1.0128	1.0246	1.0115	1.0314	1.0313	1.1263
2049	1.0128	1.0252	1.0116	1.0316	1.0315	1.1268
2050	1.0129	1.0257	1.0117	1.0318	1.0316	1.1272
Enter Year: 2026	**1.0023**	**1.0022**	**1.002**	**1.0091**	**1.0083**	**1.0394**

*PM Exhaust off model factor is only applied to the PM Exhaust emissions not start/idle

The off-model adjustment factors need to be applied only to emissions from gasoline light duty vehicles (LDA, LDT1, LDT2 and MDV). Please note that the adjustment factors are by calendar year and includes all model years.

Enter NA in the date field if adjustments do not apply

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: Santa Clara
Calendar Year: 2026
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, 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	Energy Con	NOx_RUNEX	NOx_IDLEX	NOx_STREX	PM2.5_RU	PM2.5_IDL	PM2.5_STR	PM2.5_PM	PM10_RUN	PM10_IDLE	PM10_STR	PM10_PM	PM_PMBW	PM_PMTW	CO2_RUNEX	CO2_IDLEX	CO2_STREX	CH4_RUNEX	CH4_IDLEX	CH4_STREX	N2O_RUNEX	N2O_IDLEX	N2O_STREX	ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTSO	ROG_RUNLO	ROG_DIURN	TOG_RUNEX	TOG_IDLEX	TOG_STREX	TOG_HOTSO	TOG_RUNLO	TOG_DIURN	NH3_RUNEX	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNEX	SOx_IDLEX	SOx_STREX
Santa Clara	2026	HHDT	Aggregate	Aggregate	Gasoline	1.890208	133.7551	133.7551	0	37.81927	0	3.912832	0	0.833967	0.00242	0	0.001119	0.005	0.0327	0.002632	0	0.001218	0.02	0.093428	2030.337	0	50.00574	0.151681	0	0.000277	0.138602	0	0.029726	0.841165	0	0.001504	0.124256	1.119044	7.839877	1.227426	0	0.001647	0.124256	1.119044	7.839877	0.044272	33.21272	0	2.727013	0.020072	0	0.000494
Santa Clara	2026	HHDT	Aggregate	Aggregate	Diesel	8867.795	1016012	1016012	0	130549	0	1.761105	59.43678	2.955473	0.025195	0.027767	0	0.008774	0.027513	0.026334	0.029023	0	0.035095	0.07861	1583.151	11526.41	0	0.000725	0.23528	0	0.249426	1.815991	0	0.015602	5.065515	0	0	0	0	0.017762	5.766703	0	0	0	0	0	0.215914	0.07407	73.94194	0	0.014991	0.109148	0
Santa Clara	2026	HHDT	Aggregate	Aggregate	Electricity	110.5302	11535.57	0	11535.57	1443.078	6635933	0	0	0	0	0	0	0.008558	0.014729	0	0	0	0.034232	0.042083	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	2026	HHDT	Aggregate	Aggregate	Natural Ga	863.4608	56635.39	56635.39	0	7769.707	0	0.976371	12.77067	0.001645	0.025604	0	0.0099	0.049192	0.001789	0.027847	0	0.036	0.140547	1365.074	10446.87	0	2.127999	33.90059	0	0.278279	2.129663	0	0.043949	0.508241	0	0	0	0	2.18721	34.62523	0	0	0	0	0	0.835034	12.62839	75.02016	0	0	0	0
Santa Clara	2026	LDA	Aggregate	Aggregate	Gasoline	598860.8	22031466	22031466	0	2780456	0	0.034968	0	0.23463	0.001102	0	0.001828	0.002	0.002655	0.001199	0	0.001988	0.008	0.007585	264.4729	0	66.90161	0.001934	0	0.063951	0.004196	0	0.031426	0.007138	0	0.285908	0.083161	0.217573	1.338275	0.010415	0	0.313033	0.083161	0.217573	1.338275	0.036474	0.693808	0	2.884139	0.002615	0	0.000661
Santa Clara	2026	LDA	Aggregate	Aggregate	Diesel	1478.944	42434.32	42434.32	0	6277.405	0	0.163286	0	0	0.013397	0	0	0.002	0.002717	0.014003	0	0	0.008	0.007761	227.1102	0	0	0.001079	0	0	0	0	0	0.023239	0	0	0	0	0	0	0.026457	0	0	0	0	0	0.0031	0.307439	0	0	0.002152	0	0
Santa Clara	2026	LDA	Aggregate	Aggregate	Electricity	64495.24	2739705	0	2739705	312996.4	3.67E+08	0	0	0	0	0	0	0.002	0.001535	0	0	0	0.008	0.004385	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2026	LDA	Aggregate	Aggregate	Plug-in Hyb	20380.43	866414.1	412496.8	453917.3	84273.1	47572504	0.003124	0	0.11551	0.000542	0	0.001802	0.002	0.001386	0.000589	0	0.002068	0.008	0.00396	132.8862	0	63.21249	0.000421	0	0.042044	0.005552	0	0.020392	0.001351	0	0.173285	0.040391	0.037456	0.436203	0.019037	0.205558	0	0.173285	0.040391	0.037456	0.436203	0.019037	0.205558	0	1.339893	0.001114	0	0.000625
Santa Clara	2026	LDT1	Aggregate	Aggregate	Gasoline	50750.47	1625960	1625960	0	225981.5	0	0.104002	0	0.340042	0.001548	0	0.002421	0.002	0.003241	0.001684	0	0.002633	0.008	0.009261	315.7925	0	82.57769	0.005058	0	0.092241	0.008041	0	0.036412	0.022051	0	0.461638	0.148727	0.41724	2.377298	0.032177	0	0.505436	0.148727	0.41724	2.377298	0.036833	1.219346	0	4.549174	0.003122	0	0.000816
Santa Clara	2026	LDT1	Aggregate	Aggregate	Diesel	18.47771	256.5587	256.5587	0	50.46	0	1.626008	0	0	0.235786	0	0	0.002	0.003714	0.246448	0	0	0.008	0.010612	413.9887	0	0	0.013655	0	0	0.065224	0	0	0.293995	0	0	0	0	0	0	0.334693	0	0	0	0	0	0.0031	1.580267	0	0	0.003923	0	0
Santa Clara	2026	LDT1	Aggregate	Aggregate	Electricity	263.5822	10628.88	0	10628.88	1254.204	1423958	0	0	0	0	0	0	0.002	0.001536	0	0	0	0.008	0.004388	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2026	LDT1	Aggregate	Aggregate	Plug-in Hyb	130.6819	5898.082	2516.052	3382.03	540.3696	3544614	0.002799	0	0.11551	0.000332	0	0.001311	0.002	0.001397	0.000362	0	0.001426	0.008	0.003992	119.1447	0	66.70269	0.000375	0	0.041793	0.000489	0	0.020158	0.00121	0	0.173285	0.023415	0.020044	0.275174	0.001766	0	0.189725	0.023415	0.020044	0.275174	0.017917	0.184573	0	1.339893	0.001178	0	0.000659
Santa Clara	2026	LDT2	Aggregate	Aggregate	Gasoline	296178.9	10561285	10561285	0	1383934	0	0.057197	0	0.297788	0.00115	0	0.001868	0.002	0.003134	0.00125	0	0.002032	0.008	0.008953	324.5922	0	82.97969	0.002453	0	0.074444	0.005294	0	0.035027	0.009395	0	0.338458	0.076755	0.212879	1.330363	0.013709	0	0.370569	0.076755	0.212879	1.330363	0.037798	0.757265	0	3.299571	0.003209	0	0.00082
Santa Clara	2026	LDT2	Aggregate	Aggregate	Diesel	1079.589	39200.14	39200.14	0	5104.36	0	0.037108	0	0	0.004598	0	0	0.002	0.00313	0.004806	0	0	0.008	0.008943	295.0188	0	0	0.000595	0	0	0.046448	0	0	0.012807	0	0	0	0	0	0	0.01458	0	0	0	0	0	0.0031	0.12935	0	0	0.002795	0	0
Santa Clara	2026	LDT2	Aggregate	Aggregate	Electricity	2705.079	90693.22	0	90693.22	13682.37	12150229	0	0	0	0	0	0	0.002	0.001528	0	0	0	0.008	0.004365	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2026	LDT2	Aggregate	Aggregate	Plug-in Hyb	2986.353	127896.3	57308.29	70587.98	12348.57	7397927	0.00294	0	0.11551	0.000411	0	0.00154	0.002	0.001392	0.000447	0	0.001675	0.008	0.003978	125.1132	0	73.01955	0.000394	0	0.041776	0.000513	0	0.020142	0.001271	0	0.173285	0.025698	0.023308	0.30414	0.001855	0	0.189725	0.025698	0.023308	0.30414	0.018799	0.193694	0	1.339893	0.001237	0	0.000722
Santa Clara	2026	LHDT1	Aggregate	Aggregate	Gasoline	19567.35	734252.9	734252.9	0	291524.3	0	0.134825	0.034078	0.592259	0.00144	0	0.000258	0.002	0.0273	0.001567	0	0.00028	0.008	0.078	841.5517	116.9335	25.61185	0.00645	0.107779	0.030306	0.00767	0.002904	0.048837	0.03157	0.390607	0.14863	0.042429	0.244239	2.568634	0.046067	0.569973	0.162731	0.042429	0.244239	2.568634	0.044952	1.000325	3.761042	3.194844	0.00832	0.001156	0.000253
Santa Clara	2026	LHDT1	Aggregate	Aggregate	Diesel	10635.31	416619.3	416619.3	0	133778.8	0	1.219281	1.732484	0	0.030022	0.026603	0	0.003	0.0273	0.031379	0.027806	0	0.012	0.078	625.228	128.0664	0	0.006994	0.005098	0	0.098505	0.020177	0	0.150578	0.10976	0	0	0	0	0.171423	0.124954	0	0	0	0	0.184377	0.40172	0.909745	0	0.005924	0.001213	0
Santa Clara	2026	LHDT1	Aggregate	Aggregate	Electricity	378.0593	23974.57	0	23974.57	5260.738	5134294	0	0	0	0	0	0	0.002	0.01365	0	0	0	0.008	0.039	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2026	LHDT2	Aggregate	Aggregate	Gasoline	2513.651	91174.03	91174.03	0	37449.66	0	0.127191	0.033359	0.585158	0.001301	0	0.0002	0.002	0.03185	0.001415	0	0.000218	0.008	0.091	950.6797	135.3583	25.11699	0.00457	0.105616	0.029314	0.007823	0.002803	0.047205	0.020413	0.382638	0.142338	0.039798	0.221425	2.401547	0.029786	0.558345	0.155842	0.039798	0.221425	2.401547	0.04499	0.781956	3.768092	3.147796	0.009398	0.001338	0.000248
Santa Clara	2026	LHDT2	Aggregate	Aggregate	Diesel	4995.258	193100.7	193100.7	0	62834.06	0	1.030069	1.717944	0	0.028773	0.027014	0	0.003	0.03185	0.030074	0.028235	0	0.012	0.091	744.6842	205.1133	0	0.00672	0.005098	0	0.117325	0.032316	0	0.144681	0.10976	0	0	0	0	0.16471	0.124954	0	0	0	0	0.19232	0.367309	0.909745	0	0.007056	0.001944	0
Santa Clara	2026	LHDT2	Aggregate	Aggregate	Electricity	96.38373	5822.064	0	5822.064	1278.565	1228079	0	0	0	0	0	0	0.002	0.015925	0	0	0	0.008	0.0455	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2026	MCY	Aggregate	Aggregate	Gasoline	28797.04	167092.5	167092.5	0	57594.08	0	0.54585	0	0.123182	0.001818	0	0.003256	0.001	0.0042	0.001945	0	0.00347	0.004	0.012	186.8446	0	46.30646	0.154451	0	0.172746	0.038475	0	0.007381	0.991178	0	1.267526	3.558543	3.769688	3.854231	1.200425	0	1.378329	3.558543	3.769688	3.854231	0.008889	11.99329	0	7.931677	0.001847	0	0.000458
Santa Clara	2026	MDV	Aggregate	Aggregate	Gasoline	162557.9	5631323	5631323	0	753924.4	0	0.077249	0	0.361249	0.00113	0	0.001888	0.002	0.003182	0.001228	0	0.002053	0.008	0.00909	393.3359	0	100.833	0.003084	0	0.087398	0.006351	0	0.037495	0.012544	0	0.424623	0.087977	0.255029	1.559913	0.018304	0	0.464909	0.087977	0.255029	1.559913	0.037518	0.838043	0	3.531694	0.003889	0	0.000997
Santa Clara	2026	MDV	Aggregate	Aggregate	Diesel	2430.299	84111.54	84111.54	0	11337.22	0	0.040802	0	0	0.004381	0	0	0.002	0.003241	0.004579	0	0	0.008	0.009261	393.1682	0	0	0.000469	0	0	0.061944	0	0	0.010103	0	0	0	0	0	0	0.011502	0	0	0	0	0	0.0031	0.197458	0	0	0.003725	0	0
Santa Clara	2026	MDV	Aggregate	Aggregate	Electricity	2850.956	95858.35	0	95858.35	14435.41	12842204	0	0	0	0	0	0	0.002	0.001528	0	0	0	0.008	0.004365	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2026	MDV	Aggregate	Aggregate	Plug-in Hyb	1813.351	74577.72	33714.26	40863.46	7498.208	4282668	0.002966	0	0.11551	0.000463	0	0.001713	0.002	0.001392	0.000504	0	0.001863	0.008	0.003977	126.216	0	89.85239	0.000396	0	0.041612	0.000513	0	0.019989	0.001283	0	0.173285	0.029908	0.026996	0.337381	0.001872	0	0.189725	0.029908	0.026996	0.337381	0.018987	0.195367	0	1.339893	0.001248	0	0.000888
Santa Clara	2026	MH	Aggregate	Aggregate	Gasoline	2263.186	21108.38	21108.38	0	226.4092	0	0.335195	0	0.432131	0.001549	0	0.000374	0.003	0.015756	0.001685	0	0.000406	0.012	0.045017	1946.632	0	31.26805	0.012049	0	0.036404	0.022132	0	0.046519	0.050974	0	0.149854	10.64717	0.254614	4.131655	0.074381	0	0.164071	10.64717	0.254614	4.131655	0.044921	1.181993	0	3.275797	0.019244	0	0.000309
Santa Clara	2026	MH	Aggregate	Aggregate	Diesel	1010.774	9718.417	9718.417	0	101.0774	0	3.846579	0	0	0.08072	0	0	0.004	0.015675	0.084369	0	0	0.016	0.044785	1082.849	0	0	0.005293	0	0	0.170603	0	0	0.11395	0	0	0	0	0	0	0.129725	0	0	0	0	0	0.16529	0.373655	0	0	0.010261	0	0
Santa Clara	2026	MHDT	Aggregate	Aggregate	Gasoline	1410.726	72468.64	72468.64	0	28225.8	0	0.333028	0.083566	0.407845	0.001339	0	0.000499	0.003	0.015756	0.001457	0	0.000542	0.012	0.045017	1727.179	521.8124	44.55752	0.010627	0.263675	0.044579	0.017598	0.007127	0.032029	0.051634	1.01721	0.242322	0.028744	0.236552	2.400687	0.075345	1.48431	0.265312	0.028744	0.236552	2.400687	0.044997	1.050142	15.1686	5.262786	0.017075	0.005159	0.00044
Santa Clara	2026	MHDT	Aggregate	Aggregate	Diesel	10675.11	4354555.4	435455.4	0	127504.2	0	1.02886	11.86253	1.644141	0.010796	0.020382	0	0.003	0.015941	0.011284	0.021304	0	0.012	0.045545	1134.952	2210.329	0	0.001134	0.010419	0	0.178812	0.348238	0	0.024422	0.224312	0	0	0	0	0.027803	0.255363	0	0	0	0	0	0.213113	0.099563	7.520816	0	0.010747	0.02093	0
Santa Clara	2026	MHDT	Aggregate	Aggregate	Electricity	167.5841	8816.663	0	8816.663	2173.174	3044223	0	0	0	0	0	0	0.003	0.007951	0	0	0	0.012	0.022716	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2026	MHDT	Aggregate	Aggregate	Natural Ga	107.6314	4901.771	4901.771	0	1001.682	0	0.116472	6.407029	0	0.001266	0.018977	0	0.003	0.01601	0.001377	0.020639	0	0.012	0.045743	973.703	5277.958	0	0.755705	16.66564	0	0.198496	1.075946	0	0.010798	0.238119	0	0	0	0	0.771252	17.00851	0	0	0	0	0	1.06	2.995274	36.69576	0	0	0	0
Santa Clara	2026	OBUS	Aggregate	Aggregate	Gasoline	419.1997	18162.11	18162.11	0	8387.348	0	0.418185	0.062602	0.399155	0.00097	0	0.000258	0.003	0.01568	0.001055	0	0.000281	0.012	0.044799	1724.911	374.6239	31.08783	0.011431	0.195819	0.035179	0.020728	0.005108	0.030453	0.055331	0.746751	0.186435	0.035194	0.177337	3.200029	0.080739	1.089657	0.204123	0.035194	0.177337	3.200029	0.04499	1.215872	5.777453	3.882011	0.017053	0.003704	0.000307
Santa Clara	2026	OBUS	Aggregate	Aggregate	Diesel	949.0452	62674.48	62674.48	0	9750.025	0	1.092349	6.912226	1.518478	0.018173	0.007147	0	0.003	0.018049	0.018995	0.00747	0	0.012	0.05157	1245.043	1523.794	0	0.001766	0.020826	0	0.196157	0.240074	0	0.038011	0.448385	0	0	0	0	0.043273	0.510453	0	0	0	0	0	0.216379	0.139488	7.649271	0	0.01179	0.014429	0
Santa Clara	2026	OBUS	Aggregate	Aggregate	Electricity	4.484159	364.7881	0	364.7881	89.71906	132150.3	0	0	0	0	0	0	0.003	0.00784	0	0	0	0.012	0.022399	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2026	OBUS	Aggregate	Aggregate	Natural Ga	9.101244	599.9791	599.9791	0	81.00107	0	0.145347	1.518344	0	0.001276	0.004354	0	0.003	0.016148	0.001388	0.004735	0	0.012	0.046137	975.0003	1187.914	0	0.81456	4.001439	0	0.19876	0.242164	0	0.011638	0.057173	0	0	0	0	0.831318	4.083762	0	0	0	0	0	1.06	3.321042	8.378673	0	0	0	0
Santa Clara	2026	SBUS	Aggregate	Aggregate	Gasoline	183.7933	9054.551	9054.551	0	735.1732	0	0.474165	0.887577	0.73371	0.000873	0	0.00058	0.002	0.015721	0.00095	0	0.000631	0.008	0.044917	802.4349	2565.528	57.27504	0.01005	2.4667	0.074539	0.025921	0.082658	0.067212	0.048718	10.63718	0.423572	0.1241	0.322638	1.96833	0.07109	15.52175	0.463758	0.1241	0.322638	1.96833	0.045	1.246814	82.21455	10.07789	0.007933	0.025363	0.000566
Santa Clara	2026	SBUS	Aggregate	Aggregate	Diesel	674.9981	15210.89	15210.89	0	9773.973	0	3.406071	20.58167	0.509343	0.017715	0.016839	0	0.003	0.015721	0.018516	0.017601	0	0.012	0.044917	1135.538	2209.663	0	0.002498	0.007888	0	0.178905	0.348133	0	0.053781	0.169828	0	0	0	0	0.061225	0.193336	0	0	0	0	0	0.155771	0.169257	4.880858	0	0.010753	0.020924	0
Santa Clara	2026	SBUS	Aggregate	Aggregate	Electricity	7.587222	244.2395	0	244.2395	87.39442	84135.62	0	0	0	0	0	0	0.002	0.00568	0	0	0	0.01027	0.022459	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2026	SBUS	Aggregate	Aggregate	Natural Ga	26.16468	642.5523	642.5523	0	378.8645	0	0.532059	5.249897	0	0.003378	0.011858	0	0.003	0.015721	0.003674	0.012897	0	0.012	0.044917	1243.421	4080.833	0	3.338467	14.99739	0	0.25348	0.831904	0	0.0477	0.214283	0	0	0	0	3.407151	15.30593	0	0	0	0	0	1.06	11.18687	21.87624	0	0	0	0
Santa Clara	2026	UBUS	Aggregate	Aggregate	Gasoline	46.35522	4840.865	4840.865	0	185.4209	0	0.026897	0	0.439741	0.001143	0	0.000128	0.002	0.03185	0.001243	0	0.00014	0.008	0.091	925.6516	0	36.30949	0.001945	0	0.042807	0.004209	0	0.069602	0.005374	0	0.151507	0.043604	0.092107	0.471119	0.007841	0	0.165881	0.043604	0.092107	0.471119	0.045	0.590355	0	5.738214	0.009151	0	0.000359
Santa Clara	2026	UBUS	Aggregate	Aggregate	Diesel	396.77	44084.04	44084.04	0	1587.08	0	0.382074	0	0	0.006946	0	0	0.008221	0.0385	0.00726	0	0	0.032883	0.11	1110.339	0	0	0.003187	0	0	0.174934	0	0	0.068625	0	0	0	0	0	0.078125	0	0	0	0	0	0.22	0.078518	0	0	0.010521	0	0
Santa Clara	2026	UBUS	Aggregate	Aggregate	Electricity	28.65959	2995.558	0	2995.558	114.6384	1707590	0	0	0	0	0	0	0.008972	0.01925	0	0	0	0.035887	0.055	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2026	UBUS	Aggregate	Aggregate	Natural Ga	62.84535	7257.192	7257.192	0	251.3814	0	0.060787	0	0	0.000288	0	0	0.008445	0.0385	0.000301	0	0	0.033781	0.11	1320.935	0	0	4.332576	0	0	0.269281	0	0	0.061904	0	0	0	0	0	4.421712	0	0	0	0	0	0.97	50.5588	0	0	0	0	0

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: Santa Clara
Calendar Year: 2027
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, 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	Energy Con	NOx_RUNEX	NOx_IDLEX	NOx_STREX	PM2.5_RU	PM2.5_IDL	PM2.5_STR	PM2.5_PM	PM10_RUN	PM10_IDLE	PM10_STR	PM10_PM	PM2.5_PM	CO2_RUNEX	CO2_IDLEX	CO2_STREX	CH4_RUNEX	CH4_IDLEX	CH4_STREX	N2O_RUNEX	N2O_IDLEX	N2O_STREX	ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTSO	ROG_RUNLO	DIURN	TOG_RUNEX	TOG_IDLEX	TOG_STREX	TOG_HOTSO	TOG_RUNLO	TOG_DIURN	NH3_RUNEX	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNEX	SOx_IDLEX	SOx_STREX
Santa Clara	2027	HHDT	Aggregate	Aggregate	Gasoline	1.833105	147.0378	147.0378	0	0	36.67677	0	3.730042	0	0.773498	0.002199	0	0.001027	0.005	0.032692	0.002391	0	0.001117	0.02	0.093405	2000.505	0	49.66925	0.135639	0	0.000268	0.136273	0	0.02867	0.73131	0	0.001453	0.11326	1.019783	7.147336	1.067126	0	0.001591	0.11326	1.019783	7.147336	0.044505	30.82312	0	3.048179	0.019777	0	0.000491
Santa Clara	2027	HHDT	Aggregate	Aggregate	Diesel	9011.071	1021241	1021241	0	0	132754.8	0	1.704043	58.05742	2.958034	0.025062	0.026785	0	0.008776	0.027672	0.026195	0.027996	0	0.035105	0.079063	1556.123	11312.44	0	0.000701	0.234878	0	0.245168	1.782279	0	0.015102	5.056861	0	0	0	0	0	0.017193	5.756851	0	0	0	0	0.216828	0.070456	73.92424	0	0.014736	0.107122	0
Santa Clara	2027	HHDT	Aggregate	Aggregate	Electricity	177.8052	18594.17	0	18594.17	2312.242	10695327	0	0	0	0	0	0	0	0.008561	0.015051	0	0	0	0.034243	0.043002	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	2027	HHDT	Aggregate	Aggregate	Natural Ga	889.1692	57261.81	57261.81	0	0	7941.659	0	0.907136	12.38898	0	0.001615	0.025966	0	0.009	0.049992	0.001756	0.028241	0	0.036	0.142836	1353.997	10371.37	0	2.019211	32.72582	0	0.276021	2.114271	0	0.040872	0.488388	0	0	0	0	0	2.07445	33.4228	0	0	0	0	0.827361	12.24575	75.28309	0	0	0	0
Santa Clara	2027	LDA	Aggregate	Aggregate	Gasoline	599340.5	21995339	21995339	0	0	2782742	0	0.032349	0	0.225312	0.001054	0	0.001765	0.002	0.002654	0.001146	0	0.001919	0.008	0.007584	259.1184	0	65.42707	0.001782	0	0.060463	0.004024	0	0.030664	0.006466	0	0.267784	0.080009	0.214602	1.316821	0.037295	0.628802	0	0.29319	0.080009	0.214602	1.316821	0.009435	0	0.737589	0.002562	0	0.000647
Santa Clara	2027	LDA	Aggregate	Aggregate	Diesel	1347.748	38343.79	38343.79	0	0	5721.586	0	0.140881	0	0	0.011715	0	0	0.002	0.00272	0.012244	0	0	0.008	0.007772	224.1557	0	0	0.000974	0	0	0.035316	0	0	0.020977	0	0	0	0	0	0	0.023881	0	0	0	0	0	0.0031	0.295578	0	0	0.002124	0	0
Santa Clara	2027	LDA	Aggregate	Aggregate	Electricity	67294.12	2805164	0	2805164	324882.8	3.76E+08	0	0	0	0	0	0	0	0.002	0.001535	0	0	0	0.008	0.004387	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2027	LDA	Aggregate	Aggregate	Plug-in Hyb	21617.53	903738.3	422627.3	481111	89388.5	50422520	0.003069	0	0.11551	0.000505	0	0.001811	0.002	0.001389	0.000549	0	0.00197	0.008	0.00397	130.5222	0	62.41184	0.000412	0	0.041864	0.000538	0	0.020225	0.001327	0	0.173285	0.041139	0.041737	0.463414	0.018819	0.201885	0	0.189725	0.041139	0.041737	0.463414	0.018819	0.201885	0	1.339893	0.00129	0	0.000617
Santa Clara	2027	LDT1	Aggregate	Aggregate	Gasoline	49888.15	1593479	1593479	0	0	222126.9	0	0.093626	0	0.322281	0.001455	0	0.002295	0.002	0.003241	0.001582	0	0.002496	0.008	0.009259	310.2529	0	80.77512	0.004547	0	0.086445	0.007451	0	0.035413	0.019635	0	0.427723	0.140959	0.397237	2.286124	0.037251	1.12869	0	0.468303	0.140959	0.397237	2.286124	0.037251	1.12869	0	4.23978	0.003067	0	0.000799
Santa Clara	2027	LDT1	Aggregate	Aggregate	Diesel	6.227876	90.54084	90.54084	0	0	17.39549	0	1.298199	0	0	0.195794	0	0	0.002	0.003665	0.204647	0	0	0.008	0.010473	393.7358	0	0	0.011321	0	0	0.062033	0	0	0.243739	0	0	0	0	0	0	0.27748	0	0	0	0	0	0.0031	1.74279	0	0	0.003731	0	0
Santa Clara	2027	LDT1	Aggregate	Aggregate	Electricity	300.4983	12309.71	0	12309.71	1437.605	1649140	0	0	0	0	0	0	0	0.002	0.001535	0	0	0	0.008	0.004385	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2027	LDT1	Aggregate	Aggregate	Plug-in Hyb	168.315	7479.707	3153.075	4326.632	695.9826	453449.8	0.002766	0	0.11551	0.000305	0	0.001223	0.002	0.0014	0.000332	0	0.00133	0.008	0.003999	117.7296	0	65.96672	0.000369	0	0.041651	0.00048	0	0.020025	0.001196	0	0.173285	0.023215	0.020021	0.275602	0.017705	0.182352	0	0.189725	0.023215	0.020021	0.275602	0.017705	0.182352	0	1.339893	0.001164	0	0.000652
Santa Clara	2027	LDT2	Aggregate	Aggregate	Gasoline	301290.3	10685987	10685987	0	0	1406457	0	0.052589	0	0.283866	0.001098	0	0.001802	0.002	0.003137	0.001194	0	0.00196	0.008	0.008963	317.6853	0	81.08146	0.002292	0	0.07083	0.005044	0	0.034203	0.008665	0	0.319239	0.07425	0.209956	1.308636	0.038412	0.725393	0	0.349526	0.07425	0.209956	1.308636	0.038412	0.725393	0	3.150133	0.003141	0	0.000802
Santa Clara	2027	LDT2	Aggregate	Aggregate	Diesel	1103.123	39708.7	39708.7	0	0	5205.703	0	0.033914	0	0	0.004292	0	0	0.002	0.003135	0.004487	0	0	0.008	0.008958	289.2202	0	0	0.000577	0	0	0.045567	0	0	0.012423	0	0	0	0	0	0	0.014142	0	0	0	0	0	0.0031	0.127877	0	0	0.002741	0	0
Santa Clara	2027	LDT2	Aggregate	Aggregate	Electricity	3306.06	108939.5	0	108939.5	16647.44	14594701	0	0	0	0	0	0	0	0.002	0.001529	0	0	0	0.008	0.004368	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2027	LDT2	Aggregate	Aggregate	Plug-in Hyb	3429.213	144081.9	63603.3	80478.56	14179.8	8434502	0.002897	0	0.11551	0.000381	0	0.001453	0.002	0.001395	0.000414	0	0.001581	0.008	0.003987	123.2472	0	72.11439	0.000386	0	0.0416	0.000501	0	0.019977	0.001253	0	0.173285	0.025755	0.022981	0.300816	0.018524	0.190769	0	0.189725	0.025755	0.022981	0.300816	0.018524	0.190769	0	1.339893	0.001218	0	0.000713
Santa Clara	2027	LHDT1	Aggregate	Aggregate	Gasoline	19670.43	736983.5	736983.5	0	0	293060.1	0	0.118942	0.033105	0.571033	0.001405	0	0.000239	0.002	0.0273	0.001528	0	0.00026	0.008	0.078	829.449	115.9534	25.51381	0.005601	0.105399	0.029155	0.00682	0.002869	0.047788	0.026962	0.379506	0.142236	0.03999	0.233145	2.457411	0.039343	0.553775	0.15573	0.03999	0.233145	2.457411	0.044981	0.93654	3.763109	3.224747	0.0082	0.001146	0.000252
Santa Clara	2027	LHDT1	Aggregate	Aggregate	Diesel	10848.44	422662.3	422662.3	0	0	136459.7	0	1.08439	1.64968	0	0.028062	0.026509	0	0.003	0.0273	0.029331	0.027708	0	0.012	0.078	622.7952	126.7206	0	0.006587	0.005098	0	0.098122	0.019965	0	0.141815	0.10976	0	0	0	0	0	0.161447	0.124954	0	0	0	0	0.188998	0.373722	0.909745	0	0.005901	0.001201	0
Santa Clara	2027	LHDT1	Aggregate	Aggregate	Electricity	649.0881	39875.83	0	39875.83	9086.427	8540290	0	0	0	0	0	0	0	0.002	0.01365	0	0	0	0.008	0.039	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2027	LHDT2	Aggregate	Aggregate	Gasoline	2509.546	90648.2	90648.2	0	0	37388.49	0	0.111653	0.032331	0.561944	0.001268	0	0.000185	0.002	0.03185	0.00138	0	0.000201	0.008	0.091	938.4469	134.3401	24.9353	0.003988	0.102929	0.028094	0.007002	0.002754	0.046144	0.017533	0.370918	0.135504	0.037689	0.212342	2.320101	0.025584	0.541243	0.14836	0.037689	0.212342	2.320101	0.044994	0.742979	3.770326	3.155517	0.009278	0.001328	0.000247
Santa Clara	2027	LHDT2	Aggregate	Aggregate	Diesel	5135.734	196396.2	196396.2	0	0	64601.07	0	0.939745	1.642203	0	0.027496	0.027012	0	0.003	0.03185	0.028739	0.028234	0	0.012	0.091	739.7686	203.2066	0	0.006444	0.005098	0	0.116551	0.032015	0	0.13873	0.10976	0	0	0	0	0	0.157935	0.124954	0	0	0	0	0.195561	0.350532	0.909745	0	0.00701	0.001925	0
Santa Clara	2027	LHDT2	Aggregate	Aggregate	Electricity	164.9398	9665.772	0	9665.772	2187.868	2038834	0	0	0	0	0	0	0	0.002	0.015925	0	0	0	0.008	0.0455	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2027	MCY	Aggregate	Aggregate	Gasoline	29075.8	167761.7	167761.7	0	0	58151.6	0	0.535092	0	0.117492	0.00183	0	0.003236	0.001	0.0042	0.001959	0	0.003451	0.004	0.012	186.4654	0	45.31465	0.151026	0	0.168253	0.038022	0	0.007087	0.961131	0	1.228813	3.558844	3.781493	3.845178	1.168054	0	1.336388	3.558844	3.781493	3.845178	0.008923	11.71041	0	7.90164	0.001843	0	0.000448
Santa Clara	2027	MDV	Aggregate	Aggregate	Gasoline	165596	5720178	5720178	0	0	767968.9	0	0.06839	0	0.336026	0.001074	0	0.001805	0.002	0.003182	0.001168	0	0.001963	0.008	0.009092	384.7406	0	98.46097	0.002795	0	0.081565	0.005877	0	0.036232	0.011189	0	0.391	0.084223	0.248249	1.520956	0.016327	0	0.428096	0.084223	0.248249	1.520956	0.038107	0.790051	0	3.34381	0.003804	0	0.000973
Santa Clara	2027	MDV	Aggregate	Aggregate	Diesel	2435.715	83100.92	83100.92	0	0	11312.15	0	0.036863	0	0	0.004069	0	0	0.002	0.003253	0.004253	0	0	0.008	0.009296	386.9141	0	0	0.000446	0	0	0.060958	0	0	0.009604	0	0	0	0	0	0	0.010934	0	0	0	0	0	0.0031	0.194438	0	0	0.003666	0	0
Santa Clara	2027	MDV	Aggregate	Aggregate	Electricity	3455.571	113998.9	0	113998.9	17408.95	15272504	0	0	0	0	0	0	0	0.002	0.001529	0	0	0	0.008	0.004368	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2027	MDV	Aggregate	Aggregate	Plug-in Hyb	2094.107	84934.84	37715.29	47219.56	8659.133	4948814	0.002914	0	0.11551	0.000422	0	0.001593	0.002	0.001395	0.000459	0	0.001732	0.008	0.003987	123.973	0	88.46805	0.000387	0	0.041448	0.0005	0	0.019836	0.00126	0	0.173285	0.029525	0.02765	0.340516	0.001839	0	0.189725	0.029525	0.02765	0.340516	0.01865	0.191881	0	1.339893	0.001226	0	0.000875
Santa Clara	2027	MH	Aggregate	Aggregate	Gasoline	2196.554	20762.47	20762.47	0	0	219.7432	0	0.298167	0	0.437987	0.001494	0	0.00036	0.003	0.015756	0.001625	0	0.000392	0.012	0.045017	1946.251	0	31.10334	0.010537	0	0.035941	0.020581	0	0.047644	0.043279	0	0.146043	9.869053	0.237897	3.909775	0.063153	0	0.159898	9.869053	0.237897	3.909775	0.044964	0.962497	0	3.180054	0.019241	0	0.000307
Santa Clara	2027	MH	Aggregate	Aggregate	Diesel	1025.714	9821.237	9821.237	0	0	102.5714	0	3.725695	0	0	0.075744	0	0	0.004	0.015675	0.079169	0	0	0.016	0.044785	1083.28	0	0	0.005175	0	0	0.170671	0	0	0.111405	0	0	0	0	0	0	0.126828	0	0	0	0	0	0.169608	0.362991	0	0	0.010265	0	0
Santa Clara	2027	MHDT	Aggregate	Aggregate	Gasoline	1408.047	72579.6	72579.6	0	0	28172.21	0	0.283838	0.08115	0.393455	0.001336	0	0.000488	0.003	0.015756	0.001453	0	0.000531	0.012	0.045017	1709.11	517.1016	43.80548	0.009103	0.265767	0.043342	0.015723	0.007017	0.031676	0.04359	1.018957	0.232679	0.026764	0.221698	2.268825	0.063606	1.48686	0.254754	0.026764	0.221698	2.268825	0.045	0.873344	15.1889	5.024018	0.016896	0.005112	0.000433
Santa Clara	2027	MHDT	Aggregate	Aggregate	Diesel	10767.26	434295.5	434295.5	0	0	128657.2	0	0.939446	11.29117	1.635782	0.009401	0.016812	0	0.003	0.015941	0.009826	0.017572	0	0.012	0.045545	1128.563	2191.462	0	0.000987	0.009987	0	0.177806	0.345266	0	0.021244	0.215016	0	0	0	0	0	0.024185	0.244779	0	0	0	0	0.214146	0.090922	7.512068	0	0.010687	0.020752	0
Santa Clara	2027	MHDT	Aggregate	Aggregate	Electricity	282.6209	14714.25	0	14714.25	3656.161	5069361	0	0	0	0	0	0	0	0.003	0.00795	0	0	0	0.012	0.022715	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2027	MHDT	Aggregate	Aggregate	Natural Ga	116.0954	5192.025	5192.025	0	0	1091.191	0	0.109888	6.361962	0	0.001299	0.019267	0	0.003	0.016009	0.001413	0.020955	0	0.012	0.045741	968.913	5260.482	0	0.758684	16.39433	0	0.197519	1.072384	0	0.01084	0.234243	0	0	0	0	0	0.774293	16.73162	0	0	0	0	1.06	2.994053	37.37847	0	0	0	0
Santa Clara	2027	OBUS	Aggregate	Aggregate	Gasoline	407.8269	17375.97	17375.97	0	0	8159.8	0	0.387611	0.061312	0.399202	0.001003	0	0.000264	0.003	0.01568	0.001091	0	0.000287	0.012	0.044799	1706.278	372.2847	30.84881	0.010578	0.195621	0.034722	0.019382	0.004991	0.030332	0.051093	0.746785	0.184017	0.035247	0.182391	3.280727	0.044499	1.115566	5.777658	3.835425	0.016868	0.00368	0.000305
Santa Clara	2027	OBUS	Aggregate	Aggregate	Diesel	975.8726	63044.62	63044.62	0	0	10038.86	0	1.057611	6.690487	1.502438	0.017399	0.006668	0	0.003	0.018093	0.018186	0.006697	0	0.012	0.051694	1229.962	1514.616	0	0.001687	0.020933	0	0.193781	0.238628	0	0.036317	0.450692	0	0	0	0	0	0.041344	0.513079	0	0	0	0	0.216551	0.134702	7.701933	0	0.011647	0.014343	0
Santa Clara	2027	OBUS	Aggregate	Aggregate	Electricity	7.148004	573.2173	0	573.2173	143.0173	2076571	0	0	0	0	0	0	0	0.003	0.00784	0	0	0	0.012	0.022399	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2027	OBUS	Aggregate	Aggregate	Natural Ga	10.00472	655.306	655.306	0	0	89.042	0	0.130414	1.511841	0	0.001347	0.004509	0	0.003	0.016148	0.001465	0.004904	0	0.012	0.046137	962.0387	1183.268	0	0.822734	3.921152	0	0.196118	0.241217	0	0.011755	0.056026	0	0	0	0	0	0.839661	4.001823	0	0	0	0	1.06	3.343066	8.72839	0	0	0	0
Santa Clara	2027	SBUS	Aggregate	Aggregate	Gasoline	188.5987	9259.272	9259.272	0	0	754.3948	0	0.450353	0.871777	0.740409	0.000875	0	0.000586	0.002	0.015721	0.000952	0	0.000637	0.008	0.044917	798.7707	2554.986	56.83783	0.009468	2.468092	0.07398	0.025075	0.081195	0.067806	0.045802	10.63953	0.419588	0.124616	0.336253	2.048577	0.066835	15.52518	0.459397	0.124616	0.336253	2.048577	0.045	1.177716	82.22881	9.921963	0.007897	0.025259	0.000562
Santa Clara	2027	SBUS	Aggregate	Aggregate	Diesel	674.8268	15110.62	15110.62	0	0	9771.491	0	3.20468	19.86543	0.521414	0.016822	0.015508	0	0.003	0.015721	0.017582	0.016209	0	0.012	0.044917	1131.356	2199.096	0	0.002413	0.007856	0	0.178246	0.346468	0	0.05196	0.169144	0	0	0	0	0	0.059153	0.192557	0	0	0	0	0.159585	0.164971	4.989511	0	0.010713	0.020824	0
Santa Clara	2027	SBUS	Aggregate	Aggregate	Electricity	12.30338	395.5247	0	395.5247	141.8818	136250.4	0	0	0	0	0	0	0	0.003	0.00257	0.00786	0	0	0	0.010282	0.022459	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2027	SBUS	Aggregate	Aggregate	Natural Ga	27.00068	655.8362	655.8362	0	0	390.9698	0	0.516279	5.240894	0	0.003378	0.012073	0	0.003	0.015721	0.003674	0.01313	0	0.012	0.044917	1235.508	4086.873	0	3.295023	14.88623	0	0.251866	0.833136	0	0.047079	0.212695	0	0	0	0	0	0.362812	15.19249	0	0	0	0	1.06	10.98242	22.36041	0	0	0	0
Santa Clara	2027	UBUS	Aggregate	Aggregate	Gasoline	46.49126	4855.072	4855.072	0	0	185.9651	0	0.026613	0	0.433152	0.001143	0	0.000128	0.002	0.03185	0.001244	0	0.00014	0.008	0.091	925.4384	0	36.07215	0.001903	0	0.042735	0.004171	0	0.068782	0.005254	0	0.151018	0.054894	0.139449	0.729049	0.007666	0	0.165346	0.054894	0.139449	0.729049	0.045	0.595487	0	5.593095	0.009149	0	0.000357
Santa Clara	2027	UBUS	Aggregate	Aggregate	Diesel	397.2804	44140.83	44140.83	0	0	1589.121	0	0.382078	0	0	0.006946	0	0	0.008	0.08221	0.0385	0.00726	0	0	0.033883	0.11	1110.45	0	0	0.003187	0	0	0.174952	0	0	0.068626	0	0	0	0	0	0.078125	0	0	0	0	0	0.22	0.078519	0	0	0.010522	0	0
Santa Clara	2027	UBUS	Aggregate	Aggregate	Electricity	29.37609	3075.292	0	3075.292	117.5043	1753042	0	0	0	0	0	0	0	0.008954	0.01925	0	0	0	0.035816	0.055	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2027	UBUS	Aggregate	Aggregate	Natural Ga	63.05154	7280.138	7280.138	0	0	252.2062	0	0.060784	0	0	0.000288	0	0	0.008445	0.0385	0.000301	0	0	0.03378	0.11	1320.896	0	0	4.332417	0	0	0.269273	0	0	0.061902	0	0	0	0	0	0	0.421549	0	0	0	0	0	0.97	50.55602	0	0	0	0	0

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: Santa Clara
Calendar Year: 2028
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, 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	Energy Con	NOx_RUNEX	NOx_IDLEX	NOx_STREX	PM2.5_RU	PM2.5_IDL	PM2.5_STR	PM2.5_PM	PM10_RUN	PM10_IDLE	PM10_STR	PM10_PM	PM_PMBW	CO2_RUNEX	CO2_IDLEX	CO2_STREX	CH4_RUNE	CH4_IDLEX	CH4_STREX	N2O_RUNEX	N2O_IDLEX	N2O_STREX	ROG_RUNI	ROG_IDLEX	ROG_STREX	ROG_HOTS	ROG_RUNI	ROG_DIUR	TOG_RUNEX	TOG_IDLEX	TOG_STREX	TOG_HOTS	TOG_RUNI	TOG_DIUR	NH3_RUNEX	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNE	SOx_IDLEX	SOx_STREX
Santa Clara	2028	HHDT	Aggregate	Aggregate	Gasoline	1.470835	154.303	154.303	0	29.42846	0	3.160849	0	0.799958	0.001802	0	0.000748	0.005	0.032409	0.00196	0	0.000813	0.02	0.092597	1951.66	0	49.27078	0.108026	0	0.000299	0.124786	0	0.028209	0.5443	0	0.001621	0.086862	0.781156	5.484444	0.794242	0	0.001775	0.086862	0.781156	5.484444	0.045	24.51976	0	4.057756	0.019294	0	0.000487
Santa Clara	2028	HHDT	Aggregate	Aggregate	Diesel	9119.079	1024317	1024317	0	134474.3	0	1.649728	56.82184	2.940109	0.024493	0.025825	0	0.00878	0.027829	0.026057	0.026993	0	0.035118	0.079512	1528	11109.9	0	0.000679	0.234703	0	0	1.750369	0	0.01462	5.053085	0	0	0	0.016644	5.752553	0	0	0	0	0.216623	0.067122	73.97201	0	0.014469	0.105204	0
Santa Clara	2028	HHDT	Aggregate	Aggregate	Electricity	270.954	28275.15	0	28275.15	3483.7	16268209	0	0	0	0	0	0	0.008552	0.01525	0	0	0	0.034206	0.043571	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	2028	HHDT	Aggregate	Aggregate	Natural Ga	909.887	57673.44	57673.44	0	8080.24	0	0.845299	12.05981	0	0.001592	0.026365	0	0.009	0.050678	0.001731	0.028674	0	0.036	0.144795	1343.406	10310.04	0	1.91551	31.69951	0	0.273862	2.101769	0	0.038157	0.471295	0	0	0	1.967209	32.37261	0	0	0	0	0.820835	11.87837	75.6236	0	0	0	0
Santa Clara	2028	LDA	Aggregate	Aggregate	Gasoline	600154.7	21978505	21978505	0	2786673	0	0.030254	0	0.217367	0.000997	0	0.00169	0.002	0.002654	0.001084	0	0.001838	0.008	0.007582	254.1998	0	64.05908	0.001655	0	0.057308	0.003885	0	0.029996	0.005911	0	0.251605	0.076497	0.209635	1.284962	0.083625	0	0.275476	0.076497	0.209635	1.284962	0.03804	0.603253	0	2.607541	0.002513	0	0.000633
Santa Clara	2028	LDA	Aggregate	Aggregate	Diesel	1207.848	34499.52	34499.52	0	5156.172	0	0.118376	0	0	0.009649	0	0	0.002	0.002722	0.010085	0	0	0.008	0.007778	220.6951	0	0	0.000886	0	0	0.034771	0	0	0.019079	0	0	0	0	0.02172	0	0	0	0	0	0.0031	0.281436	0	0	0.002091	0	0
Santa Clara	2028	LDA	Aggregate	Aggregate	Electricity	69984.64	2868125	0	2868125	336272.3	3.84E+08	0	0	0	0	0	0	0.002	0.001536	0	0	0	0.008	0.004389	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2028	LDA	Aggregate	Aggregate	Plug-in Hyb	22751.93	936162.1	430803.2	505358.9	94079.21	52963808	0.02302	0	0.11551	0.000467	0	0.001715	0.002	0.001393	0.000508	0	0.001865	0.008	0.003979	128.4354	0	61.6907	0.000404	0	0.041698	0.000525	0	0.020069	0.001306	0	0.173285	0.045191	0.046177	0.492538	0.091905	0	0.189725	0.045191	0.046177	0.492538	0.018641	0.198644	0	1.339893	0.00127	0	0.00061
Santa Clara	2028	LDT1	Aggregate	Aggregate	Gasoline	49081.01	1563538	1563538	0	218519.1	0	0.084308	0	0.305828	0.00136	0	0.002171	0.002	0.00324	0.00148	0	0.002362	0.008	0.009256	304.9806	0	79.07292	0.004111	0	0.081169	0.006927	0	0.034482	0.017586	0	0.397179	0.135565	0.390418	2.261735	0.025662	0	0.434861	0.135565	0.390418	2.261735	0.037654	1.051411	0	3.964013	0.003015	0	0.000782
Santa Clara	2028	LDT1	Aggregate	Aggregate	Diesel	3.376419	51.57305	51.57305	0	9.61996	0	1.103246	0	0	0.165443	0	0	0.002	0.003602	0.172924	0	0	0.008	0.010292	376.155	0	0	0.012442	0	0	0.059263	0	0	0.267875	0	0	0	0	0.304958	0	0	0	0	0	0.0031	1.8775	0	0	0.003564	0	0
Santa Clara	2028	LDT1	Aggregate	Aggregate	Electricity	344.7167	14328.81	0	14328.81	1657.81	1919639	0	0	0	0	0	0	0.002	0.001534	0	0	0	0.008	0.004382	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2028	LDT1	Aggregate	Aggregate	Plug-in Hyb	210.9723	9240.009	3862.243	5377.766	872.3706	563613.2	0.002743	0	0.11551	0.000276	0	0.001121	0.002	0.001402	0.0003	0	0.001219	0.008	0.004004	116.728	0	65.43695	0.000365	0	0.041529	0.000473	0	0.019911	0.001186	0	0.173285	0.023021	0.019863	0.274915	0.001731	0	0.189725	0.023021	0.019863	0.274915	0.017556	0.180774	0	1.339893	0.001154	0	0.000647
Santa Clara	2028	LDT2	Aggregate	Aggregate	Gasoline	306289.6	10804407	10804407	0	1428230	0	0.048684	0	0.272265	0.001037	0	0.001722	0.002	0.00314	0.001128	0	0.001873	0.008	0.008973	311.4521	0	79.35334	0.002155	0	0.067575	0.004831	0	0.033529	0.008041	0	0.302046	0.071308	0.20464	1.273765	0.011733	0	0.330702	0.071308	0.20464	1.273765	0.038949	0.699045	0	3.020134	0.003079	0	0.000784
Santa Clara	2028	LDT2	Aggregate	Aggregate	Diesel	1124.634	40163.41	40163.41	0	5296.19	0	0.032087	0	0	0.004136	0	0	0.002	0.003139	0.004324	0	0	0.008	0.008969	283.8903	0	0	0.00057	0	0	0.044727	0	0	0.012281	0	0	0	0	0.013981	0	0	0	0	0	0.0031	0.127096	0	0	0.00269	0	0
Santa Clara	2028	LDT2	Aggregate	Aggregate	Electricity	3966.166	128586.5	0	128586.5	19886.52	17226821	0	0	0	0	0	0	0.002	0.001529	0	0	0	0.008	0.00437	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2028	LDT2	Aggregate	Aggregate	Plug-in Hyb	3889.8	160537.5	69997.62	90539.85	16084.32	9488970	0.002861	0	0.11551	0.00035	0	0.001357	0.002	0.001398	0.00038	0	0.001476	0.008	0.003995	121.7264	0	71.36672	0.00038	0	0.041442	0.000491	0	0.01983	0.001237	0	0.173285	0.025845	0.023469	0.303951	0.001805	0	0.189725	0.025845	0.023469	0.303951	0.0183	0.188386	0	1.339893	0.001203	0	0.000706
Santa Clara	2028	LHDT1	Aggregate	Aggregate	Gasoline	19758.18	736964	736964	0	294367.4	0	0.105907	0.032213	0.550872	0.001382	0	0.000225	0.002	0.0273	0.001503	0	0.000245	0.008	0.078	819.0942	115.0602	25.40508	0.005002	0.103139	0.028129	0.006125	0.002833	0.046743	0.023788	0.369318	0.136586	0.037892	0.223771	2.358305	0.034712	0.538908	0.149544	0.037892	0.223771	2.358305	0.045	0.894116	3.764573	3.249257	0.008098	0.001137	0.000251
Santa Clara	2028	LHDT1	Aggregate	Aggregate	Diesel	11024.69	426298.1	426298.1	0	138676.7	0	0.969403	1.57457	0	0.026418	0.026447	0	0.003	0.0273	0.027612	0.027643	0	0.012	0.078	620.6931	125.5014	0	0.006234	0.005098	0	0.09779	0.019773	0	0.13422	0.10976	0	0	0	0.152801	0.124954	0	0	0	0	0.19297	0.350151	0.909745	0	0.005881	0.001189	0
Santa Clara	2028	LHDT1	Aggregate	Aggregate	Electricity	1021.234	60968.04	0	60968.04	14299.84	13058564	0	0	0	0	0	0	0.002	0.01365	0	0	0	0.008	0.039	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2028	LHDT2	Aggregate	Aggregate	Gasoline	2498.391	89760.82	89760.82	0	37222.3	0	0.097832	0.031367	0.543719	0.001242	0	0.000172	0.002	0.03185	0.001351	0	0.000187	0.008	0.091	927.6745	133.3883	24.76704	0.003463	0.100393	0.02699	0.006277	0.002707	0.045144	0.014905	0.359925	0.12934	0.035925	0.207704	2.286049	0.021749	0.525202	0.141611	0.035925	0.207704	2.286049	0.045	0.707005	3.772284	3.162872	0.009171	0.001319	0.000245
Santa Clara	2028	LHDT2	Aggregate	Aggregate	Diesel	5257.65	198606.8	198606.8	0	66134.62	0	0.865041	1.574905	0	0.026454	0.027	0	0.003	0.03185	0.02765	0.02822	0	0.012	0.091	735.4981	201.5097	0	0.00621	0.005098	0	0.115878	0.031748	0	0.133707	0.10976	0	0	0	0.152217	0.124954	0	0	0	0	0.198314	0.337166	0.909745	0	0.006969	0.001909	0
Santa Clara	2028	LHDT2	Aggregate	Aggregate	Electricity	258.9077	14761.07	0	14761.07	3434.171	3113599	0	0	0	0	0	0	0.002	0.015925	0	0	0	0.008	0.0455	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2028	MCY	Aggregate	Aggregate	Gasoline	29377.66	168474	168474	0	58755.32	0	0.525696	0	0.112461	0.001844	0	0.003234	0.001	0.0042	0.001975	0	0.003451	0.004	0.012	186.1355	0	44.44114	0.148032	0	0.164333	0.037627	0	0.006825	0.934888	0	1.195378	3.558397	3.787612	3.814128	1.139755	0	1.300164	3.558397	3.787612	3.814128	0.008953	11.46379	0	7.875637	0.00184	0	0.000439
Santa Clara	2028	MDV	Aggregate	Aggregate	Gasoline	168553.5	5803822	5803822	0	781481.4	0	0.061284	0	0.315881	0.001013	0	0.001716	0.002	0.003184	0.001101	0	0.001866	0.008	0.009096	376.9736	0	96.30475	0.002561	0	0.076579	0.005494	0	0.035243	0.010093	0	0.362532	0.080433	0.240438	1.475862	0.014727	0	0.396926	0.080433	0.240438	1.475862	0.038637	0.751575	0	3.184891	0.003727	0	0.000952
Santa Clara	2028	MDV	Aggregate	Aggregate	Diesel	2426.785	81862.87	81862.87	0	11233.79	0	0.032614	0	0	0.003648	0	0	0.002	0.003262	0.003813	0	0	0.008	0.009319	380.6728	0	0	0.000421	0	0	0.059975	0	0	0.009068	0	0	0	0	0.010323	0	0	0	0	0	0.0031	0.190366	0	0	0.003607	0	0
Santa Clara	2028	MDV	Aggregate	Aggregate	Electricity	4086.684	132418.2	0	132418.2	20489.55	17740146	0	0	0	0	0	0	0.002	0.00153	0	0	0	0.008	0.004371	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2028	MDV	Aggregate	Aggregate	Plug-in Hyb	2378.288	95173.34	41647.22	53526.11	9834.221	5609769	0.002871	0	0.11551	0.000381	0	0.001468	0.002	0.001398	0.000414	0	0.001596	0.008	0.003995	122.166	0	87.32909	0.00038	0	0.041303	0.00049	0	0.0197	0.001242	0	0.173285	0.029777	0.030116	0.357344	0.001812	0	0.189725	0.029777	0.030116	0.357344	0.018379	0.189069	0	1.339893	0.001208	0	0.000863
Santa Clara	2028	MH	Aggregate	Aggregate	Gasoline	2135.932	20452.38	20452.38	0	213.6786	0	0.26549	0	0.443358	0.001449	0	0.000349	0.003	0.015756	0.001576	0	0.000379	0.012	0.045017	1945.922	0	30.95502	0.009219	0	0.035524	0.019212	0	0.048659	0.036579	0	0.142607	9.09894	0.220886	3.673671	0.053375	0	0.156136	9.09894	0.220886	3.673671	0.045	0.773269	0	3.09385	0.019237	0	0.000306
Santa Clara	2028	MH	Aggregate	Aggregate	Diesel	1038.172	9908.83	9908.83	0	103.8172	0	3.609205	0	0	0.070805	0	0	0.004	0.015675	0.074006	0	0	0.016	0.044785	1083.65	0	0	0.005048	0	0	0.170729	0	0	0.108673	0	0	0	0	0.123716	0	0	0	0	0	0.173727	0.351812	0	0	0.010268	0	0
Santa Clara	2028	MHDT	Aggregate	Aggregate	Gasoline	1401.234	72189.25	72189.25	0	28035.89	0	0.242516	0.078583	0.374586	0.001336	0	0.00048	0.003	0.015756	0.001453	0	0.000522	0.012	0.045017	1692.94	512.6804	43.11567	0.007916	0.26741	0.042275	0.014019	0.006888	0.03076	0.037328	1.020423	0.224339	0.024741	0.206107	2.119603	0.054468	1.488999	0.245622	0.024741	0.206107	2.119603	0.045	0.73501	15.20594	4.808335	0.016736	0.005068	0.000426
Santa Clara	2028	MHDT	Aggregate	Aggregate	Diesel	10803.08	430729.5	430729.5	0	129114.2	0	0.860613	10.763	1.608029	0.008248	0.013921	0	0.003	0.015941	0.008621	0.01455	0	0.012	0.045546	1122.135	2173.473	0	0.000865	0.009639	0	0.176793	0.342432	0	0.018619	0.207523	0	0	0	0.021196	0.23625	0	0	0	0	0.215005	0.083705	7.507183	0	0.010626	0.020581	0
Santa Clara	2028	MHDT	Aggregate	Aggregate	Electricity	455.7542	23641.62	0	23641.62	5888.879	8133259	0	0	0	0	0	0	0.003	0.00795	0	0	0	0.012	0.022714	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2028	MHDT	Aggregate	Aggregate	Natural Ga	123.908	5444.71	5444.71	0	1175.944	0	0.104651	6.319766	0	0.001324	0.019478	0	0.003	0.016008	0.00144	0.021184	0	0.012	0.045737	964.7434	5240.847	0	0.760505	16.16251	0	0.196669	1.068381	0	0.010866	0.23093	0	0	0	0.776151	16.49502	0	0	0	0	1.06	2.992399	37.88217	0	0	0	0
Santa Clara	2028	OBUS	Aggregate	Aggregate	Gasoline	397.1145	16622.09	16622.09	0	7945.466	0	0.357116	0.059942	0.391986	0.001028	0	0.000266	0.003	0.01568	0.001118	0	0.000289	0.012	0.044799	1689.377	370.1334	30.60894	0.009705	0.195421	0.034455	0.017965	0.004869	0.029709	0.046721	0.746963	0.182947	0.035541	0.189879	3.415245	0.068175	1.089967	0.200304	0.035541	0.189879	3.415245	0.045	1.017018	5.778725	3.777572	0.016701	0.003659	0.000303
Santa Clara	2028	OBUS	Aggregate	Aggregate	Diesel	1000.421	63426.65	63426.65	0	10301.55	0	1.028839	6.455092	1.462805	0.016693	0.006255	0	0.003	0.018135	0.017448	0.006538	0	0.012	0.051815	1214.71	1504.36	0	0.001614	0.021006	0	0.191378	0.237013	0	0.034758	0.452257	0	0	0	0.039569	0.51486	0	0	0	0	0.216724	0.130637	7.741349	0	0.011503	0.014245	0
Santa Clara	2028	OBUS	Aggregate	Aggregate	Electricity	11.18613	887.4727	0	887.4727	223.8121	321501.2	0	0	0	0	0	0	0.003	0.00784	0	0	0	0.012	0.022399	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2028	OBUS	Aggregate	Aggregate	Natural Ga	10.8368	704.2664	704.2664	0	96.44751	0	0.118641	1.506606	0	0.001403	0.004634	0	0.003	0.016148	0.001526	0.00504	0	0.012	0.046137	949.9442	1177.671	0	0.829179	3.856516	0	0.193652	0.240076	0	0.011847	0.055102	0	0	0	0.846238	3.935858	0	0	0	0	1.06	3.360428	9.009932	0	0	0	0
Santa Clara	2028	SBUS	Aggregate	Aggregate	Gasoline	192.6095	9426.49	9426.49	0	770.4379	0	0.441988	0.854627	0.742088	0.000877	0	0.00059	0.002	0.015721	0.000954	0	0.000642	0.008	0.044917	795.4934	2545.579	56.45763	0.008926	2.46924	0.074272	0.024568	0.079725	0.067747	0.043131	1.064152	0.421106	0.123435	0.341525	2.080031	0.062937	15.52808	0.461058	0.123435	0.341525	2.080031	0.045	1.111121	82.24088	9.778336	0.007864	0.025166	0.000558
Santa Clara	2028	SBUS	Aggregate	Aggregate	Diesel	672.4071	14961.93	14961.93	0	9736.455	0	2.992481	19.08388	0.530181	0.015915	0.014197	0	0.003	0.015721	0.016635	0.014839	0	0.012	0.044917	1127.12	2187.632	0	0.002319	0.007838	0	0.177578	0.344662	0	0.049921	0.168747	0	0	0	0.056831	0.192106	0	0	0	0	0.16354	0.160085	5.10628	0	0.010673	0.020716	0
Santa Clara	2028	SBUS	Aggregate	Aggregate	Electricity	19.56942	629.4361	0	629.4361	226.2446	216828.1	0	0	0	0	0	0	0.002	0.00576	0	0	0	0.008	0.003305	0.022459	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2028	SBUS	Aggregate	Aggregate	Natural Ga	27.79861	667.4476	667.4476	0	402.5239	0	0.501921	5.232817	0	0.003378	0.012266	0	0.003	0.015721	0.003674	0.01334	0	0.012	0.044917	1228.307	4092.288	0	3.255494	14.78651	0	0.250398	0.83424	0	0.046515	0.21127	0	0	0	3.322471	15.09072	0	0	0	0	1.06	10.7964	22.79477	0	0	0	0
Santa Clara	2028	UBUS	Aggregate	Aggregate	Gasoline	46.62731	4869.279	4869.279	0	186.5092	0	0.018118	0	0.301177	0.001197	0	0.000134	0.002	0.03185	0.001302	0	0.000145	0.008	0.091	850.5342	0	35.22796	0.001481	0	0.028231	0.003213	0	0.053536	0.003868	0	0.094762	0.022596	0.090653	0.320129	0.0045	0.103752	0.022596	0.090653	0.320129	0.045	0.581279	0	6.342648	0.008408	0	0.000348
Santa Clara	2028	UBUS	Aggregate	Aggregate	Diesel	397.7907	44197.62	44197.62	0	1591.163	0	0.382083	0	0	0.006946	0	0	0.008221	0.0385	0.00726	0	0	0.032883	0.11	1110.56	0	0	0.003188	0	0	0.174969	0	0	0.068627	0	0	0	0	0.078126	0	0	0	0	0	0.22	0.07852	0	0	0.010523	0	0
Santa Clara	2028	UBUS	Aggregate	Aggregate	Electricity	30.09259	3155.026	0	3155.026	120.3703	1798494	0	0	0	0	0	0	0.008937	0.01925	0	0	0	0.03575	0.055	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2028	UBUS	Aggregate	Aggregate	Natural Ga	63.25774	7303.084	7303.084	0	253.0309	0	0.06078	0	0	0.000288	0	0	0.008444	0.0385	0.000301	0	0	0.033778	0.11	1320.856	0	0	4.332259	0	0	0.269265	0	0	0.061899	0	0	0	0	4.421388	0	0	0	0	0	0.97	50.55326	0	0	0	0	0

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: Santa Clara
Calendar Year: 2029
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, 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	Energy Con	NOx_RUNEX	NOx_IDLEX	NOx_STREX	PM2.5_RU	PM2.5_IDL	PM2.5_STR	PM2.5_PM	PM2.5_PM	PM10_RUN	PM10_IDLE	PM10_STR	PM10_PM	PM10_PMI	CO2_RUNE	CO2_IDLEX	CO2_STREX	CH4_RUNE	CH4_IDLEX	CH4_STREX	N2O_RUNE	N2O_IDLEX	N2O_STREX	ROG_RUNI	ROG_IDLEX	ROG_STREX	ROG_HOTS	ROG_RUNI	ROG_DIUR	TOG_RUNE	TOG_IDLEX	TOG_STREX	TOG_HOTS	TOG_RUNI	TOG_DIUR	NH3_RUNEX	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNE	SOx_IDLEX	SOx_STREX
Santa Clara	2029	HHDT	Aggregate	Aggregate	Gasoline	1.536793	165.5766	165.5766	0	30.74816	0	3.080162	0	0.586332	0.001757	0	0.000721	0.005	0.03248	0.001911	0	0.000785	0.02	0.092801	1940.766	0	48.66979	0.107273	0	0.000252	0.122822	0	0.02219	0.536122	0	0.001366	0.078932	0.709067	4.983494	0.782308	0	0.001496	0.078932	0.709067	4.983494	0.045	25.44879	0	4.098094	0.019186	0	0.000481
Santa Clara	2029	HHDT	Aggregate	Diesel	Diesel	9189.951	1025176	1025176	0	135692.8	0	1.603158	55.79259	2.911981	0.024839	0.025083	0	0.008784	0.027987	0.025962	0.026218	0	0.035135	0.079963	1500.678	10929.24	0	0.000661	0.234793	0	0.236432	1.721907	0	0.014241	5.055032	0	0	0	0	0	0.016213	5.754769	0	0	0	0	0.216929	0.064322	74.08532	0	0.014211	0.103493	0
Santa Clara	2029	HHDT	Aggregate	Electricity	Electricity	389.0127	40402.41	0	40402.41	4941.334	74524.65	0	0	0	0	0	0	0.00854	0.015394	0	0	0	0.03416	0.043982	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2029	HHDT	Aggregate	Aggregate	Natural Ga	927.9373	58000.86	58000.86	0	8218.381	0	0.7855	11.79811	0	0.001571	0.026829	0	0.009	0.051219	0.001708	0.029179	0	0.036	0.14634	1332.874	10274.79	0	1.81245	30.88577	0	0.271715	2.094583	0	0.03551	0.457441	0	0	0	0	0	1.860691	31.53958	76.00293	0	0	0	0.815816	11.52019	76.00293	0	0	0	0
Santa Clara	2029	LDA	Aggregate	Aggregate	Gasoline	601100.9	21974248	21974248	0	2791408	0	0.028534	0	0.210484	0.00094	0	0.001611	0.002	0.002653	0.001022	0	0.001753	0.008	0.007581	249.7134	0	62.79246	0.001549	0	0.054433	0.00377	0	0.029405	0.005446	0	0.236996	0.072676	0.201901	1.23834	0.007946	0	0.25948	0.072676	0.201901	1.23834	0.038712	0.581656	0	2.490795	0.002469	0	0.000621
Santa Clara	2029	LDA	Aggregate	Diesel	Diesel	1084.711	31025.84	31025.84	0	4648.057	0	0.101199	0	0	0.008169	0	0	0.002	0.002723	0.008538	0	0	0.008	0.007779	217.4135	0	0	0.000774	0	0	0.034254	0	0	0.016664	0	0	0	0	0	0	0.018971	0	0	0	0	0	0.0031	0.26372	0	0	0.00206	0	0
Santa Clara	2029	LDA	Aggregate	Aggregate	Electricity	7249.96	2926558	0	2926558	346873.8	1129893	0	0	0	0	0	0	0.002	0.001537	0	0	0	0.008	0.00439	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2029	LDA	Aggregate	Aggregate	Plug-in Hyb	23765.79	963372.4	436887.4	526485	9827.154	1590414.2	0.022976	0	0.11551	0.000433	0	0.001624	0.002	0.001395	0.000471	0	0.001766	0.008	0.003987	126.5672	0	61.03296	0.000397	0	0.041543	0.000514	0	0.018925	0.001287	0	0.173285	0.041756	0.049483	0.514197	0.018677	0.195743	0	0.189725	0.041756	0.049483	0.514197	0.018677	0.195743	0	1.339893	0.001251	0	0.000503
Santa Clara	2029	LDT1	Aggregate	Aggregate	Gasoline	48318.69	1536414	1536414	0	215179.5	0	0.075535	0	0.290636	0.001269	0	0.00205	0.002	0.003238	0.00138	0	0.00223	0.008	0.009251	299.9537	0	77.43555	0.003704	0	0.076224	0.006439	0	0.033624	0.01567	0	0.368642	0.128603	0.37501	2.192925	0.028866	0	0.403617	0.128603	0.37501	2.192925	0.038058	0.978505	0	3.704198	0.002965	0	0.000766
Santa Clara	2029	LDT1	Aggregate	Aggregate	Diesel	1.653364	28.5403	28.5403	0	4.975153	0	0.889608	0	0	0.133307	0	0	0.002	0.003479	0.139335	0	0	0.008	0.00994	369.5867	0	0	0.010079	0	0	0.058229	0	0	0.216996	0	0	0	0	0	0	0.247035	0	0	0	0	0	0.0031	1.525786	0	0	0.003502	0	0
Santa Clara	2029	LDT1	Aggregate	Aggregate	Electricity	397.5767	16724	0	16724	1920.733	6456.843	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	0
Santa Clara	2029	LDT1	Aggregate	Aggregate	Plug-in Hyb	258.7815	11179.88	4644.176	6535.705	1070.061	1973.978	0.002726	0	0.11551	0.000254	0	0.001042	0.002	0.001403	0.000276	0	0.001134	0.008	0.004009	115.999	0	65.04306	0.000362	0	0.041423	0.000468	0	0.019812	0.001179	0	0.173285	0.022958	0.01978	0.274668	0.00172	0	0.189725	0.022958	0.01978	0.274668	0.017447	0.179621	0	1.339893	0.001147	0	0.000643
Santa Clara	2029	LDT2	Aggregate	Aggregate	Gasoline	310989.9	10911556	10911556	0	1448447	0	0.045348	0	0.262502	0.000979	0	0.001642	0.002	0.003144	0.001065	0	0.001785	0.008	0.008983	305.8279	0	77.78073	0.002038	0	0.064625	0.004648	0	0.032973	0.007504	0	0.286567	0.068074	0.19608	1.221195	0.01095	0	0.313754	0.068074	0.19608	1.221195	0.039422	0.677144	0	2.906867	0.003023	0	0.000769
Santa Clara	2029	LDT2	Aggregate	Aggregate	Diesel	1143.868	40566.17	40566.17	0	5375.525	0	0.031162	0	0	0.004086	0	0	0.002	0.003142	0.004271	0	0	0.008	0.008977	278.9842	0	0	0.000567	0	0	0.043954	0	0	0.012197	0	0	0	0	0	0	0.013886	0	0	0	0	0	0.0031	0.126667	0	0	0.002644	0	0
Santa Clara	2029	LDT2	Aggregate	Aggregate	Electricity	4679.639	149415.9	0	149415.9	23368.93	57686.88	0	0	0	0	0	0	0.002	0.00153	0	0	0	0.008	0.004372	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2029	LDT2	Aggregate	Aggregate	Plug-in Hyb	4362.021	177043.8	76391.96	100651.9	18036.96	30399.87	0.002831	0	0.11551	0.000323	0	0.001275	0.002	0.0014	0.000351	0	0.001386	0.008	0.004001	120.4538	0	70.73454	0.000375	0	0.041299	0.000483	0	0.019697	0.001224	0	0.173285	0.026558	0.025177	0.316568	0.001787	0	0.189725	0.026558	0.025177	0.316568	0.018112	0.186394	0	1.339893	0.001191	0	0.000699
Santa Clara	2029	LHDT1	Aggregate	Aggregate	Gasoline	19785.75	733739.2	733739.2	0	294778.3	0	0.093984	0.03139	0.53304	0.001356	0	0.00021	0.002	0.0273	0.001475	0	0.000228	0.008	0.078	810.0219	114.232	25.25466	0.004416	0.101066	0.02705	0.005495	0.002799	0.045813	0.020663	0.359932	0.130231	0.035283	0.208462	2.194742	0.030152	0.525212	0.142587	0.035283	0.208462	2.194742	0.045	0.835308	3.766323	3.246281	0.008008	0.001129	0.00025
Santa Clara	2029	LHDT1	Aggregate	Aggregate	Diesel	1116.616	427809.9	427809.9	0	140456.3	0	0.873133	1.506549	0	0.025101	0.026359	0	0.003	0.0273	0.026141	0.027551	0	0.012	0.078	618.8511	124.3982	0	0.00593	0.005098	0	0.0975	0.019599	0	0.127659	0.10976	0	0	0	0	0	0.145332	0.124954	0	0	0	0	0.196382	0.330526	0.909745	0	0.005864	0.001179	0
Santa Clara	2029	LHDT1	Aggregate	Aggregate	Electricity	1496.343	86923.24	0	86923.24	20957.77	56939.01	0	0	0	0	0	0	0.002	0.01365	0	0	0	0.008	0.039	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2029	LHDT2	Aggregate	Aggregate	Gasoline	2481.214	88578.37	88578.37	0	36966.39	0	0.086112	0.030466	0.526702	0.001218	0	0.000159	0.002	0.03185	0.001325	0	0.000173	0.008	0.091	918.097	132.4999	24.60866	0.003028	0.098013	0.025916	0.005652	0.002662	0.044207	0.012748	0.349631	0.12327	0.033607	0.19546	2.159585	0.0185	0.510181	0.134965	0.033607	0.19546	2.159585	0.045	0.676567	3.773947	3.168136	0.009076	0.00131	0.000243
Santa Clara	2029	LHDT2	Aggregate	Aggregate	Diesel	5355.483	199692.9	199692.9	0	67365.24	0	0.802636	1.51432	0	0.025578	0.02692	0	0.003	0.03185	0.026734	0.028138	0	0.012	0.091	731.7367	200.0024	0	0.006014	0.005098	0	0.115285	0.03151	0	0.129473	0.10976	0	0	0	0	0	0.147397	0.124954	0	0	0	0	0.200682	0.326474	0.909745	0	0.006934	0.001895	0
Santa Clara	2029	LHDT2	Aggregate	Aggregate	Electricity	378.3905	21014.89	0	21014.89	5018.593	13555.63	0	0	0	0	0	0	0.002	0.015925	0	0	0	0.008	0.0455	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2029	MCY	Aggregate	Aggregate	Gasoline	29669.57	169225	169225	0	59339.14	0	0.517318	0	0.107717	0.001856	0	0.003223	0.001	0.0042	0.001988	0	0.003441	0.004	0.012	185.8416	0	43.61908	0.145368	0	0.160622	0.037277	0	0.006579	0.911484	0	1.163493	3.557716	3.791695	3.776823	0.00898	11.24409	0	1.26562	3.557716	3.791695	3.776823	0.00898	11.24409	0	7.852658	0.001837	0	0.000431
Santa Clara	2029	MDV	Aggregate	Aggregate	Gasoline	171481.4	5884316	5884316	0	794727.1	0	0.055448	0	0.2998	0.000955	0	0.001631	0.002	0.003186	0.001039	0	0.001774	0.008	0.009102	369.9944	0	94.34979	0.002367	0	0.072275	0.005179	0	0.034473	0.009177	0	0.338162	0.076326	0.228423	1.406403	0.01339	0	0.370245	0.076326	0.228423	1.406403	0.039116	0.719422	0	3.049156	0.003658	0	0.000933
Santa Clara	2029	MDV	Aggregate	Aggregate	Diesel	2418.94	80770.39	80770.39	0	11161.69	0	0.029265	0	0	0.003328	0	0	0.002	0.003267	0.003479	0	0	0.008	0.009335	374.6968	0	0	0.000396	0	0	0.059034	0	0	0.008516	0	0	0	0	0	0	0.009695	0	0	0	0	0	0.0031	0.185913	0	0	0.00355	0	0
Santa Clara	2029	MDV	Aggregate	Aggregate	Electricity	4740.026	150975	0	150975	23654.84	58288.83	0	0	0	0	0	0	0.002	0.001531	0	0	0	0.008	0.004374	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2029	MDV	Aggregate	Aggregate	Plug-in Hyb	2669.626	105407.8	45586.26	59821.53	11038.9	18067.89	0.002838	0	0.11551	0.000348	0	0.001364	0.002	0.001401	0.000378	0	0.001484	0.008	0.004002	120.7323	0	86.41138	0.000375	0	0.041171	0.000481	0	0.019577	0.001227	0	0.173285	0.028951	0.029245	0.350121	0.001791	0	0.189725	0.028951	0.029245	0.350121	0.018164	0.186833	0	1.339893	0.001194	0	0.000854
Santa Clara	2029	MH	Aggregate	Aggregate	Gasoline	2080.529	20177.51	20177.51	0	208.1362	0	0.233388	0	0.449097	0.001403	0	0.000336	0.003	0.015756	0.001526	0	0.000366	0.012	0.045017	1945.557	0	30.81592	0.007834	0	0.035213	0.017899	0	0.049659	0.02937	0	0.139773	8.269375	0.200993	3.383173	0.042857	0	0.153034	8.269375	0.200993	3.383173	0.045	0.56307	0	3.01218	0.019234	0	0.000305
Santa Clara	2029	MH	Aggregate	Aggregate	Diesel	1051.791	10000.18	10000.18	0	105.1791	0	3.504009	0	0	0.066478	0	0	0.004	0.015675	0.069484	0	0	0.016	0.044785	1084.041	0	0	0.004944	0	0	0.170791	0	0	0.106435	0	0	0	0	0	0	0.122169	0	0	0	0	0	0.177504	0.342376	0	0	0.010272	0	0
Santa Clara	2029	MHDT	Aggregate	Aggregate	Gasoline	1389.256	71256.85	71256.85	0	27796.23	0	0.208679	0.076326	0.359337	0.001337	0	0.000473	0.003	0.015756	0.001454	0	0.000515	0.012	0.045017	1678.256	508.5208	42.47975	0.006942	0.268676	0.041356	0.012606	0.006764	0.030003	0.032145	1.021686	0.21706	0.022838	0.190438	1.969064	0.046906	1.490843	0.237653	0.022838	0.190438	1.969064	0.045	0.620643	15.22063	4.612327	0.016591	0.005027	0.00042
Santa Clara	2029	MHDT	Aggregate	Aggregate	Diesel	10773.71	424561.3	424561.3	0	128772.1	0	0.791583	10.29665	1.574117	0.0073	0.01157	0	0.003	0.015941	0.00763	0.012093	0	0.012	0.045546	1115.703	2156.347	0	0.000765	0.009357	0	0.175779	0.339733	0	0.016471	0.201454	0	0	0	0	0	0.018751	0.22934	0	0	0	0	0.215725	0.077746	7.505571	0	0.010565	0.020419	0
Santa Clara	2029	MHDT	Aggregate	Aggregate	Electricity	692.4864	35786.03	0	35786.03	8941.882	39032.96	0	0	0	0	0	0	0.003	0.00795	0	0	0	0.012	0.022715	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2029	MHDT	Aggregate	Aggregate	Natural Ga	130.9441	5651.609	5651.609	0	1253.787	0	0.100462	6.282168	0	0.001344	0.019627	0	0.003	0.016006	0.001462	0.021346	0	0.012	0.045731	961.1252	5220.59	0	0.761614	15.97009	0	0.195932	1.064252	0	0.010882	0.228181	0	0	0	0	0	0.777283	16.29865	0	0	0	0	1.06	2.990708	38.24457	0	0	0	0
Santa Clara	2029	OBUS	Aggregate	Aggregate	Gasoline	386.1026	15831.92	15831.92	0	7725.141	0	0.330257	0.058672	0.387006	0.001054	0	0.000271	0.003	0.01568	0.001147	0	0.000295	0.012	0.044799	1673.846	368.1588	30.40422	0.009027	0.195019	0.034097	0.016716	0.00475	0.029107	0.043337	0.746963	0.181239	0.035469	0.192981	3.463278	0.063237	1.089967	0.198434	0.035469	0.192981	3.463278	0.045	0.950979	5.778725	3.735662	0.016548	0.00364	0.000301
Santa Clara	2029	OBUS	Aggregate	Aggregate	Diesel	1022.156	63807	63807	0	10529.74	0	1.005208	6.214206	1.413103	0.015925	0.005807	0	0.003	0.018174	0.016645	0.006607	0	0.012	0.051926	1200.121	1491.944	0	0.001538	0.020998	0	0.18908	0.235056	0	0.033117	0.452085	0	0	0	0	0	0.037702	0.514664	0	0	0	0	0.21691	0.126763	7.756583	0	0.011364	0.014128	0
Santa Clara	2029	OBUS	Aggregate	Aggregate	Electricity	16.64277	1306.516	0	1306.516	332.8885	1447.42	0	0	0	0	0	0	0.003	0.00784	0	0	0	0.012	0.022399	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2029	OBUS	Aggregate	Aggregate	Natural Ga	11.64934	749.4538	749.4538	0	103.6792	0	0.109569	1.502505	0	0.001446	0.004732	0	0.003	0.016148	0.001573	0.005146	0	0.012	0.046137	939.9347	1172.691	0	0.834145	3.805889	0	0.191612	0.239061	0	0.011918	0.054379	0	0	0	0	0	0.851306	3.884189	0	0	0	0	1.06	3.373808	9.230456	0	0	0	0
Santa Clara	2029	SBUS	Aggregate	Aggregate	Gasoline	195.9663	9563.071	9563.071	0	783.8652	0	0.419629	0.840344	0.754349	0.000884	0	0.000595	0.002	0.015721	0.000961	0	0.000647	0.008	0.044917	792.6042	2537.249	56.13365	0.008492	2.469702	0.073996	0.023812	0.078275	0.068491	0.04096	10.64152	0.418575	0.123029	0.346431	2.102249	0.059768	15.52808	0.458287	0.123029	0.346431	2.102249	0.045	1.054644	82.24088	9.667099	0.007836	0.025083	0.000555
Santa Clara	2029	SBUS	Aggregate	Diesel	Diesel	667.2037	14758.12	14758.12	0	9661.109	0	2.770352	18.24511	0.53938	0.014981	0.012896	0	0.003	0.015721	0.015658	0.01348	0	0.012	0.044917	1122.834	2175.179	0	0.002212	0.007831	0	0.176903	0.3427	0	0.047619	0.168593	0	0	0	0	0	0.05421	0.19193	0	0	0	0	0.167639	0.154508	5.232364	0	0.010633	0.020598	0
Santa Clara	2029	SBUS	Aggregate	Electricity	Electricity	29.63612	952.7034	0	952.7034	344.1721	1003.631	0	0	0	0	0	0	0.002	0.002585	0.00786	0	0	0	0.010339	0.022459	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2029	SBUS	Aggregate	Aggregate	Natural Ga	28.5349	676.8434	676.8434	0	413.1854	0	0.488972	5.225702	0	0.003378	0.012435	0	0.003	0.015721	0.003674	0.013524	0	0.012	0.044917	1221.806	4097.042	0	3.219842	14.69867	0	0.249073	0.835209	0	0.046005	0.210015	0	0	0	0	0	3.286085	15.00107	0	0	0	0	1.06	10.62863	23.17741	0	0	0	0
Santa Clara	2029	UBUS	Aggregate	Aggregate	Gasoline	46.76335	4883.486	4883.486	0	187.0534	0	0.018829	0	0.312831	0.001197	0	0.000134	0.002	0.03185	0.001302	0	0.000145	0.008	0.091	850.5513	0	35.34997	0.001499	0	0.029528	0.003298	0	0.055	0.003933	0	0.099483	0.024152	0.090653	0.323595	0.045	0.592532	0	6.409567	0.008409	0	0.000349
Santa Clara	2029	UBUS	Aggregate	Aggregate	Diesel	338.5092	37119.08	37119.08	0	1354.037	0	0.396482	0	0	0.007209	0	0	0.008494	0.0385	0.007535	0	0	0.033977	0.11	1140.779	0	0	0.003281	0	0	0.17973	0	0	0.070632	0	0	0	0	0	0	0.080409	0	0	0	0	0	0.22	0.081446	0	0	0.010809	0	0
Santa Clara	2029	UBUS	Aggregate	Aggregate	Electricity	77.23925	8775.56	0	8775.56	308.957	15297.94	0	0	0	0	0	0	0.007581	0.01925	0	0	0	0.030324	0.055	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2029	UBUS	Aggregate	Aggregate	Natural Ga	76.82557	8920.557	8920.557	0	307.3023	0	0.058538	0	0	0.000282	0	0	0.00815	0.0385	0.000294	0	0	0.032599	0.11	1296.487	0	0	4.23523	0	0	0.264297	0	0	0.060513	0	0	0	0	0	0	4.322362	0	0	0	0	0	0.97	48.85872	0	0	0	0	0

Attachment 3: Project Construction and Operation Dispersion Modeling Inputs and Risk Calculations

Construction Health Risk Assessment and Calculations

Arbor, 255 W. Julian Street, San Jose, CA

Year	Unmitigated DPM	DPM EMFAC2021	Unmitigated Emissions	Unmitigated Fug PM2.5	Fug PM2.5 EMFAC2021	Unmitigated Emissions
2026	0.0266	0.0028	0.0294	0.0975	0.0028	0.1003
2027	0.0603	0.0028	0.0631	0.0000	0.0028	0.0028
2028	0.0204	0.0016	0.0220	0.0000	0.0016	0.0016

Year	Mitigated DPM	DPM EMFAC2021	Mitigated Emissions	Mitigated Fug PM2.5	Fug PM2.5 EMFAC2021	Mitigated Emissions
2026	0.0018	0.0028	0.0046	0.0190	0.0028	0.0218
2027	0.0038	0.0028	0.0066	0.0000	0.0028	0.0028
2028	0.0012	0.0016	0.0027	0.0000	0.0016	0.0016

Arbor, 255 W. Julian Street, San Jose, CA

DPM Construction Emissions and Modeling Emission Rates

Construction Year	Activity	DPM (ton/year)	Source Type	No. Sources	DPM Emissions (lb/yr)	(lb/hr)	(g/s)	Emissions per Point Source (g/s)
2026	Construction	0.0294	Point	115	58.8	0.01297	1.63E-03	1.42E-05
2027	Construction	0.0631	Point	115	126.2	0.02783	3.51E-03	3.05E-05
2028	Construction	0.0220	Point	115	43.9	0.00968	1.22E-03	1.06E-05
Total		***0.1145***			***229.0***	***0.0505***	***0.0064***	

Emissions assumed to be evenly distributed over each construction areas

hr/day = 12.4 (7am - 10pm M-F, 7am-7pm Sat)
days/yr = 365
hours/year = 4536

DPM Construction Emissions and Modeling Emission Rates - With Mitigation

Construction Year	Activity	DPM (ton/year)	Source Type	No. Sources	DPM Emissions (lb/yr)	(lb/hr)	(g/s)	Emissions per Point Source (g/s)
2026	Construction	0.0046	Point	115	9.2	0.00203	2.55E-04	2.22E-06
2027	Construction	0.0066	Point	115	13.2	0.00291	3.67E-04	3.19E-06
2028	Construction	0.0027	Point	115	5.4	0.00120	1.51E-04	1.31E-06
Total		***0.0139***			***27.8***	***0.0061***	***0.0008***	

Emissions assumed to be evenly distributed over each construction areas

hr/day = 12.4 (7am - 10pm M-F, 7am-7pm Sat)
days/yr = 365
hours/year = 4536

Arbor, 255 W. Julian Street, San Jose, CA

PM2.5 Fugitive Dust Construction Emissions for Modeling

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	PM2.5 Emissions (lb/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate $g/s/m^2$
2026	Construction	CON_FUG	0.1003	200.6	0.04423	5.57E-03	5747.668	9.70E-07
2027	Construction	CON_FUG	0.0028	5.6	0.00125	1.57E-04	5747.668	2.73E-08
2028	Construction	CON_FUG	0.0016	3.2	0.00070	8.77E-05	5747.668	1.53E-08
Total			***0.1047***	***209.4***	***0.0462***	***0.0058***		

Emissions assumed to be evenly distributed over each construction areas

hr/day = 12.4 (7am - 10pm M-F, 7am-7pm Sat)
days/yr = 365
hours/year = 4536

PM2.5 Fugitive Dust Construction Emissions for Modeling - With Mitigation

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	PM2.5 Emissions (lb/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate $g/s/m^2$
2026	Construction	CON_FUG	0.0218	43.6	0.00962	1.21E-03	5747.668	2.11E-07
2027	Construction	CON_FUG	0.0028	5.6	0.00125	1.57E-04	5747.668	2.73E-08
2028	Construction	CON_FUG	0.0016	3.2	0.00070	8.77E-05	5747.668	1.53E-08
Total			***0.0262***	***52.4***	***0.0116***	***0.0015***		

Emissions assumed to be evenly distributed over each construction areas

hr/day = 12.4 (7am - 10pm M-F, 7am-7pm Sat)
days/yr = 365
hours/year = 4536

Arbor, San Jose, CA - Construction Health Impact Modeling

Source Parameters for Point Sources Used in Construction Modeling

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

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

Arbor, 255 W. Julian Street, San Jose, CA - Construction Health Impact Summary

Maximum Impacts at MEI Residential Location - Without Mitigation

Emissions Year	Maximum Concentrations: Exhaust PM10/DPM (µg/m^3)	Maximum Concentrations: Fugitive PM2.5 (µg/m^3)	Cancer Risk* (per million): Infant/Child	Cancer Risk* (per million): Adult	Hazard Index (-)	Maximum Annual PM2.5 Concentration* (µg/m^3)
2026	0.0641	0.2558	11.40	0.18	0.01	0.68
2027	0.1375	0.0072	22.59	0.39	0.03	0.13
2028	0.0479	0.0040	1.24	0.14	0.01	0.05
Total	-	-	**35.23**	**0.72**	-	-
Maximum	0.1375	0.2558	**-**	**-**	**0.03**	**0.68**

* Maximum cancer risk and maximum PM2.5 concentration occur at same receptor on different floors.

Maximum Impacts at MEI Residential Location - With Mitigation

Emissions Year	Maximum Concentrations: Exhaust PM10/DPM (µg/m^3)	Maximum Concentrations: Fugitive PM2.5 (µg/m^3)	Cancer Risk* (per million): Infant/Child	Cancer Risk* (per million): Adult	Hazard Index (-)	Maximum Annual PM2.5 Concentration* (µg/m^3)
2026	0.0100	0.0556	1.78	0.03	0.002	0.14
2027	0.0144	0.0072	2.37	0.04	0.003	0.03
2028	0.0059	0.0040	0.15	0.02	0.001	0.01
Total	-	-	**4.30**	**0.1**	-	-
Maximum	0.0144	0.0556	**-**	**-**	**0.003**	**0.14**

- Tier 4 Final Engine, Electric Cranes, and Enhanced BMPs Mitigation

* Maximum cancer risk and maximum PM2.5 concentration occur at same receptor on different floors.

Arbor, 255 W. Julian Street, San Jose, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 1.5 meter receptor height

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information				Adult - Exposure Information				Maximum		
							Modeled						
Exposure	Exposure Duration		DPM Conc (ug/m3)		Age Sensitivity	Infant/Child Cancer Risk	DPM Conc (ug/m3)		Age Sensitivity	Adult Cancer Risk	Hazard	Fugitive	Total
Year	(years)	Age	Year	Annual	Factor	(per million)	Year	Annual	Factor	(per million)	Index	PM2.5	PM2.5
0	0.25	-0.25 - 0*	2026	0.0530	10	0.72	2026	0.0530	-	-			
1	1	0 - 1	2026	0.0530	10	8.70	2026	0.0530	1	0.15	0.01	0.63	0.68
2	1	1 - 2	2027	0.1136	10	18.66	2027	0.1136	1	0.33	0.02	0.02	0.13
3	1	2 - 3	2028	0.0395	3	1.02	2028	0.0395	1	0.11	0.01	0.01	0.05
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						**29.11**				**0.59**			

* Third trimester of pregnancy

Arbor, 255 W. Julian Street, San Jose, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 5.2 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 - 16**	**16 - 30**
Parameter				
ASF =	10	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information				Adult - Exposure Information				Maximum		
			DPM Conc (ug/m3)		Age	Infant/Child Cancer	Modeled DPM Conc (ug/m3)		Age	Adult Cancer			
Exposure Year	Exposure Duration (years)	Age	Year	Annual	Sensitivity Factor	Risk (per million)	Year	Annual	Sensitivity Factor	Risk (per million)	Hazard Index	Fugitive PM2.5	Total PM2.5
0	0.25	-0.25 - 0*	2026	0.0632	10	0.86	2026	0.0632	-	-			
1	1	0 - 1	2026	0.0632	10	10.38	2026	0.0632	1	0.18	0.01	0.43	0.49
2	1	1 - 2	2027	0.1355	10	22.26	2027	0.1355	1	0.39	0.03	0.01	0.15
3	1	2 - 3	2028	0.0472	3	1.22	2028	0.0472	1	0.14	0.01	0.01	0.05
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						**34.71**				**0.71**			

* Third trimester of pregnancy

Arbor, 255 W. Julian Street, San Jose, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 8.2 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 - 16**	**16 - 30**
Parameter				
ASF =	10	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information				Adult - Exposure Information				Maximum		
			DPM Conc (ug/m3)		Age	Infant/Child	Modeled DPM Conc (ug/m3)		Age	Adult			
Exposure Year	Exposure Duration (years)	Age	Year	Annual	Sensitivity Factor	Cancer Risk (per million)	Year	Annual	Sensitivity Factor	Cancer Risk (per million)	Hazard Index	Fugitive PM2.5	Total PM2.5
0	0.25	-0.25 - 0*	2026	0.0641	10	0.87	2026	0.0641	-	-			
1	1	0 - 1	2026	0.0641	10	10.53	2026	0.0641	1	0.18	0.01	0.26	0.32
2	1	1 - 2	2027	0.1375	10	22.59	2027	0.1375	1	0.39	0.03	0.01	0.14
3	1	2 - 3	2028	0.0479	3	1.24	2028	0.0479	1	0.14	0.01	0.00	0.05
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						**35.23**				**0.72**			

* Third trimester of pregnancy

Arbor, 255 W. Julian Street, San Jose, CA - Construction Impacts - With Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 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 - 16	16 - 30
Parameter				
ASF =	10	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information				Adult - Exposure Information				Maximum		
			DPM Conc (ug/m3)		Age	Infant/Child	Modeled DPM Conc (ug/m3)		Age	Adult			
Exposure Year	Exposure Duration (years)	Age	Year	Annual	Sensitivity Factor	Cancer Risk (per million)	Year	Annual	Sensitivity Factor	Cancer Risk (per million)	Hazard Index	Fugitive PM2.5	Total PM2.5
0	0.25	-0.25 - 0*	2026	0.0083	10	0.11	2026	0.0083	-	-			
1	1	0 - 1	2026	0.0083	10	1.36	2026	0.0083	1	0.02	0.002	0.14	0.14
2	1	1 - 2	2027	0.0119	10	1.95	2027	0.0119	1	0.03	0.002	0.02	0.03
3	1	2 - 3	2028	0.0049	3	0.13	2028	0.0049	1	0.01	0.001	0.01	0.01
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						**3.55**				**0.07**			

* Third trimester of pregnancy

Arbor, 255 W. Julian Street, San Jose, CA - Construction Impacts - With Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 8.2 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 - 16**	**16 - 30**
Parameter				
ASF =	10	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information				Adult - Exposure Information				Maximum		
							Modeled						
Exposure	Exposure Duration		DPM Conc (ug/m3)		Age Sensitivity	Infant/Child Cancer Risk	DPM Conc (ug/m3)		Age Sensitivity	Adult Cancer Risk	Hazard	Fugitive	Total
Year	(years)	Age	Year	Annual	Factor	(per million)	Year	Annual	Factor	(per million)	Index	PM2.5	PM2.5
0	0.25	-0.25 - 0*	2026	0.0100	10	0.14	2026	0.0100	-	-			
1	1	0 - 1	2026	0.0100	10	1.65	2026	0.0100	1	0.03	0.002	0.06	0.07
2	1	1 - 2	2027	0.0144	10	2.37	2027	0.0144	1	0.04	0.003	0.01	0.02
3	1	2 - 3	2028	0.0059	3	0.15	2028	0.0059	1	0.02	0.001	0.00	0.01
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00			
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00			
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00			
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00			
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00			
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00			
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00			
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00			
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00			
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00			
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00			
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00			
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00			
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00			
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00			
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00			
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00			
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00			
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00			
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00			
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00			
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00			
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00			
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00			
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00			
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00			
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00			
Total Increased Cancer Risk						**4.30**				**0.09**			

* Third trimester of pregnancy

Project Traffic Health Risk Assessment and Calculations

CT-EMFAC2021 Emissions Factors for Project Traffic on Terraine Street for 2029

File Name: Arbor Roadways - Santa Clara (SF) - 2029 - Annual.EF
CT-EMFAC2017 Version: 1.0.2.0
Run Date: 3/4/2025 15:12
Area: Santa Clara (SF)
Analysis Year: 2029
Season: Annual

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category	Gas VMT Fraction Within Category
Truck 1	0.017	0.403	0.528
Truck 2	0.018	0.873	0.043
Non-Truck	0.965	0.006	0.907

Road Type: Major/Collector
Silt Loading Factor: CARB 0.032 g/m2
Precipitation Correction: CARB P = 63 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
PM2.5	0.006888	0.004494	0.003063	0.002198	0.001665	0.001333	0.001131	0.00102	0.000978
TOG	0.102724	0.066378	0.044373	0.03163	0.023982	0.019148	0.016027	0.014039	0.012863
Diesel PM	0.00074	0.000648	0.000507	0.000405	0.000341	0.000301	0.000283	0.000285	0.000308

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

Pollutant Name	Emission Factor
TOG	0.897819

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

Pollutant Name	Emission Factor
PM2.5	0.002102

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

Pollutant Name	Emission Factor <= 5 mp	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph
PM2.5	0.003465	0.004008	0.004544	0.005073	0.005354	0.005438	0.005454	0.004962	0.003931

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

Pollutant Name	Emission Factor
PM2.5	0.01533

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

Terraine Street Emissions 2029 and Health Risk Calculations

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Project Operation - Terraine Street
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2029

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	Line Area: Area (sq m)	Line Area: Area (sq ft)	Line Area: Emission (g/s/m2)	Line Area: Emission (lb/hr/ft2)	Line Area: Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
DPM_TER	Terraine Street	NB/SB	2	303.5	0.19	15.2	50.0	3.4	25	2,243	4,625	49,787	3.609E-10	2.661E-10	6.8	3.16

Emission Factors - DPM

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.00034			

Emisson Factors from CT-EMFAC2021

2029
Hourl
Hour

2029 Hourly Traffic Volumes and DPM Emissions - DPM_TER

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	4.00%	90	1.60E-06	9	6.43%	144	2.58E-06	17	5.58%	125	2.24E-06
2	2.65%	59	1.06E-06	10	7.39%	166	2.96E-06	18	3.16%	71	1.27E-06
3	2.87%	64	1.15E-06	11	6.37%	143	2.55E-06	19	2.20%	49	8.83E-07
4	3.27%	73	1.31E-06	12	6.99%	157	2.80E-06	20	0.85%	19	3.41E-07
5	2.08%	47	8.35E-07	13	6.32%	142	2.53E-06	21	3.05%	68	1.22E-06
6	3.32%	75	1.33E-06	14	6.20%	139	2.49E-06	22	4.23%	95	1.70E-06
7	6.09%	137	2.44E-06	15	5.13%	115	2.06E-06	23	2.59%	58	1.04E-06
8	4.46%	100	1.79E-06	16	3.89%	87	1.56E-06	24	0.85%	19	3.39E-07
								Total		2,243	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Project Operation - Terraine Street
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2029

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	Line Area: Area (sq m)	Line Area: Area (sq ft)	Line Area: Emission (g/s/m2)	Line Area: Emission (lb/hr/ft2)	Line Area: Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
PM25_TER	Terraine Street	NB/SB	2	303.5	0.19	15.2	50	1.3	25	2,243	4,625	49,787	1.762E-09	1.299E-09	2.6	1.21

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.001665			

Emisson Factors from CT-EMFAC2021

2029
Hourl
Hour

2029 Hourly Traffic Volumes and PM2.5 Emissions - PM25_TER

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	26	2.25E-06	9	7.11%	160	1.39E-05	17	7.40%	166	1.45E-05
2	0.42%	9	8.14E-07	10	4.39%	98	8.59E-06	18	8.18%	184	1.60E-05
3	0.40%	9	7.85E-07	11	4.67%	105	9.13E-06	19	5.70%	128	1.11E-05
4	0.26%	6	5.06E-07	12	5.89%	132	1.15E-05	20	4.28%	96	8.37E-06
5	0.50%	11	9.72E-07	13	6.15%	138	1.20E-05	21	3.25%	73	6.37E-06
6	0.90%	20	1.76E-06	14	6.03%	135	1.18E-05	22	3.30%	74	6.46E-06
7	3.79%	85	7.41E-06	15	7.01%	157	1.37E-05	23	2.46%	55	4.82E-06
8	7.76%	174	1.52E-05	16	7.14%	160	1.40E-05	24	1.86%	42	3.64E-06
								Total		2,243	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Project Operation - Terraine Street
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2029

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	Line Area: Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
TEXH_TER	Terraine Street	NB/SB	2	303.5	0.19	15.2	50	1.3	25	2,243	4,625	49,787	2.538E-08	1.872E-08	2.6	1.21

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.02398			

Emisson Factors from CT-EMFAC2021

2029
Hourl
Hour

2029 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_TER

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	26	3.24E-05	9	7.11%	160	2.00E-04	17	7.40%	166	2.08E-04
2	0.42%	9	1.17E-05	10	4.39%	98	1.24E-04	18	8.18%	184	2.31E-04
3	0.40%	9	1.13E-05	11	4.67%	105	1.31E-04	19	5.70%	128	1.61E-04
4	0.26%	6	7.28E-06	12	5.89%	132	1.66E-04	20	4.28%	96	1.21E-04
5	0.50%	11	1.40E-05	13	6.15%	138	1.73E-04	21	3.25%	73	9.17E-05
6	0.90%	20	2.53E-05	14	6.03%	135	1.70E-04	22	3.30%	74	9.30E-05
7	3.79%	85	1.07E-04	15	7.01%	157	1.98E-04	23	2.46%	55	6.94E-05
8	7.76%	174	2.19E-04	16	7.14%	160	2.01E-04	24	1.86%	42	5.25E-05
								Total		2,243	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Project Operation - Terraine Street
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2029

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	Line Area: Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
TEVAP_TER	Terraine Street	NB/SB	2	303.5	0.19	15.2	50	1.3	25	2,243	4,625	49,787	3.801E-08	2.803E-08	2.6	1.21
							81.7									

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Emissions per Vehicle per Hour (g/hour)	0.89782			
Emissions per Vehicle per Mile (g/VMT)	0.03591			

Emisson Factors from CT-EMFAC2021

2029
Hourl
Hour
1.75E-01 1

2029 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_TER

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	26	4.85E-05	9	7.11%	160	3.00E-04	17	7.40%	166	3.12E-04
2	0.42%	9	1.76E-05	10	4.39%	98	1.85E-04	18	8.18%	184	3.45E-04
3	0.40%	9	1.69E-05	11	4.67%	105	1.97E-04	19	5.70%	128	2.40E-04
4	0.26%	6	1.09E-05	12	5.89%	132	2.48E-04	20	4.28%	96	1.80E-04
5	0.50%	11	2.10E-05	13	6.15%	138	2.60E-04	21	3.25%	73	1.37E-04
6	0.90%	20	3.79E-05	14	6.03%	135	2.55E-04	22	3.30%	74	1.39E-04
7	3.79%	85	1.60E-04	15	7.01%	157	2.96E-04	23	2.46%	55	1.04E-04
8	7.76%	174	3.28E-04	16	7.14%	160	3.01E-04	24	1.86%	42	7.86E-05
								Total		2,243	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Project Operation - Terraine Street
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = **2029**

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
FUG_TER	Terraine Street	NB/SB	2	303.5	0.19	15.2	50	1.3	25	2,243	4,625	49,787	2.412E-08	1.778E-08	2.6	1.21

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00210			
Brake Wear - Emissions per Vehicle (g/VMT)	0.00535			
Road Dust - Emissions per Vehicle (g/VMT)	0.01533			
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.02279			

Emisson Factors from CT-EMFAC2021

2029 Hourl	
	Hour
1.11E-01	1
4.01E-02	2
3.87E-02	3

2029 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_TER

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	26	3.08E-05	9	7.11%	160	1.90E-04	17	7.40%	166	1.98E-04
2	0.42%	9	1.11E-05	10	4.39%	98	1.17E-04	18	8.18%	184	2.19E-04
3	0.40%	9	1.07E-05	11	4.67%	105	1.25E-04	19	5.70%	128	1.53E-04
4	0.26%	6	6.92E-06	12	5.89%	132	1.58E-04	20	4.28%	96	1.15E-04
5	0.50%	11	1.33E-05	13	6.15%	138	1.65E-04	21	3.25%	73	8.71E-05
6	0.90%	20	2.40E-05	14	6.03%	135	1.62E-04	22	3.30%	74	8.83E-05
7	3.79%	85	1.01E-04	15	7.01%	157	1.88E-04	23	2.46%	55	6.59E-05
8	7.76%	174	2.08E-04	16	7.14%	160	1.91E-04	24	1.86%	42	4.99E-05
								Total		2,243	

Arbor, 255 W. Julian Street, San Jose, CA - Project Traffic Terraine Street - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations - Project Traffic
at Construction MEI Receptors (PM2.5 1.5m receptor height, Cancer Risk 8.2m height)

Emission Year	2029
Receptor Information	Construction MEI receptor
Number of Receptors	2
Receptor Height	PM2.5 1.5 meters, Cancer Risk 8.2 meters
Receptor Distances	At Construction MEI locations
Meteorological Conditions	
BAQMD San Jose Airport Met Data	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Wind Direction	Variable

Construction MEI Cancer Risk Maximum Concentrations - 8.2m

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0002	0.0080	0.0119

Construction MEI PM2.5 Maximum Concentrations - 1.5m

Meteorological Data Years	PM2.5 Concentration (µg/m3)*		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.0339	0.0316	0.00231

Arbor, 255 W. Julian Street, San Jose, CA - Terraine Street Cancer Risk
Impacts at Construction MEI - PM2.5 1.5 meter receptor height, Cancer Risk 8.2m height
27 Year Residential Exposure - Project Traffic

Cancer Risk Calculation Method

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

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

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

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

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

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

Values

	Infant/Child			Adult
Age -->	3rd Trimester	0 - 2	2 - 16	16 - 30
Parameter				
ASF =	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	0.85	0.85	0.72	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*	2026	10	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
1	1	0 - 1	2026	10	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
2	1	1 - 2	2027	10	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
3	1	2 - 3	2028	3	0.0000	0.0000	0.0000	0.000	0.000	0.0000	0.00
4	1	3 - 4	2029	3	0.0002	0.0080	0.0119	0.003	0.001	0.0001	0.00
5	1	4 - 5	2030	3	0.0002	0.0080	0.0119	0.003	0.001	0.0001	0.00
6	1	5 - 6	2031	3	0.0002	0.0080	0.0119	0.003	0.001	0.0001	0.00
7	1	6 - 7	2032	3	0.0002	0.0080	0.0119	0.003	0.001	0.0001	0.00
8	1	7 - 8	2033	3	0.0002	0.0080	0.0119	0.003	0.001	0.0001	0.00
9	1	8 - 9	2034	3	0.0002	0.0080	0.0119	0.003	0.001	0.0001	0.00
10	1	9 - 10	2035	3	0.0002	0.0080	0.0119	0.003	0.001	0.0001	0.00
11	1	10 - 11	2036	3	0.0002	0.0080	0.0119	0.003	0.001	0.0001	0.00
12	1	11 - 12	2037	3	0.0002	0.0080	0.0119	0.003	0.001	0.0001	0.00
13	1	12 - 13	2038	3	0.0002	0.0080	0.0119	0.003	0.001	0.0001	0.00
14	1	13 - 14	2039	3	0.0002	0.0080	0.0119	0.003	0.001	0.0001	0.00
15	1	14 - 15	2040	3	0.0002	0.0080	0.0119	0.003	0.001	0.0001	0.00
16	1	15 - 16	2041	3	0.0002	0.0080	0.0119	0.003	0.001	0.0001	0.00
17	1	16-17	2042	1	0.0002	0.0080	0.0119	0.000	0.000	0.0000	0.00
18	1	17-18	2043	1	0.0002	0.0080	0.0119	0.000	0.000	0.0000	0.00
19	1	18-19	2044	1	0.0002	0.0080	0.0119	0.000	0.000	0.0000	0.00
20	1	19-20	2045	1	0.0002	0.0080	0.0119	0.000	0.000	0.0000	0.00
21	1	20-21	2046	1	0.0002	0.0080	0.0119	0.000	0.000	0.0000	0.00
22	1	21-22	2047	1	0.0002	0.0080	0.0119	0.000	0.000	0.0000	0.00
23	1	22-23	2048	1	0.0002	0.0080	0.0119	0.000	0.000	0.0000	0.00
24	1	23-24	2049	1	0.0002	0.0080	0.0119	0.000	0.000	0.0000	0.00
25	1	24-25	2050	1	0.0002	0.0080	0.0119	0.000	0.000	0.0000	0.00
26	1	25-26	2051	1	0.0002	0.0080	0.0119	0.000	0.000	0.0000	0.00
27	1	26-27	2052	1	0.0002	0.0080	0.0119	0.000	0.000	0.0000	0.00
28	1	27-28	2053	1	0.0002	0.0080	0.0119	0.000	0.000	0.0000	0.00
29	1	28-29	2054	1	0.0002	0.0080	0.0119	0.000	0.000	0.0000	0.00
30	1	29-30	2055	1	0.0002	0.0080	0.0119	0.000	0.000	0.0000	0.00
Total Increased Cancer Risk								0.05	0.013	0.001	**0.06**

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.00003	0.03	0.03

* Third trimester of pregnancy

Project Generators Health Risk Assessment and Calculations

Arbor, 255 W. Julian Street, San Jose, CA

Standby Emergency Generator Impacts

Off-site Sensitive Receptors

MEI Location = 1.5 meter PM2.5 receptor height, 8.2 meter Cancer risk receptor height

DPM Emission Rates		
	DPM Emissions per Generator	
	Max Daily	Annual
Source Type	(lb/day)	(lb/year)
Two, 1,000-kW, 1,340-hp Generators w/ BACT requirements for >1,000-hp generator	0.012	4.32
CalEEMod DPM Emissions	2.16E-03	tons/year

Modeling Information		
Model	AERMOD	
Source	Diesel Generator Engine	
Source Type	Point	
Meteorological Data	2013-2017 San Jose Airport Meterological Data	
Point Source Stack Parameters		
Generator Engine Size (hp)	1340	
Stack Height (ft)	12.00	near ground level release
Stack Diameter (ft)**	0.60	
Exhaust Gas Flowrate (CFM)*	2527.73	
Stack Exit Velocity (ft/sec)**	149.00	
Exhaust Temperature (˚F)**	872.00	
Emissions Rate (lb/hr)	0.0005	0.0002 each generator

* AERMOD default

**BAAQMD default generator parameters

Arbor, 255 W. Julian Street, San Jose, CA - Cancer Risks from Project Operation
Project Emergency Generator
Impacts at Off-Site MEI Receptors- 1.5m PM2.5, 8.2m Cancer Risk MEI Receptor Heights
Impact at Project MEI (27-year Exposure)

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

	Infant/Child			Adult
Age -->	3rd Trimester	0 - 2	2 - 16	16 - 30
Parameter				
ASF =	10	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	0.85	0.85	0.72	0.73

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information: DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age Sensitivity Factor	Infant/Child Cancer Risk (per million)		Hazard Index	Fugitive PM2.5	Total PM2.5
0	0.25	-0.25 - 0*	2026	0.00000	10	0.00				
1	1	0 - 1	2026	0.00000	10	0.00				
2	1	1 - 2	2027	0.00000	10	0.00				
3	1	2 - 3	2028	0.00000	3	0.00				
4	1	3 - 4	2029	0.00142	3	0.03		0.0003	0.001	0.003
5	1	4 - 5	2030	0.00142	3	0.03		0.0003	0.001	0.003
6	1	5 - 6	2031	0.00142	3	0.03		0.0003	0.001	0.003
7	1	6 - 7	2032	0.00142	3	0.03		0.0003	0.001	0.003
8	1	7 - 8	2033	0.00142	3	0.03		0.0003	0.001	0.003
9	1	8 - 9	2034	0.00142	3	0.03		0.0003	0.001	0.003
10	1	9 - 10	2035	0.00142	3	0.03		0.0003	0.001	0.003
11	1	10 - 11	2036	0.00142	3	0.03		0.0003	0.001	0.003
12	1	11 - 12	2037	0.00142	3	0.03		0.0003	0.001	0.003
13	1	12 - 13	2038	0.00142	3	0.03		0.0003	0.001	0.003
14	1	13 - 14	2039	0.00142	3	0.03		0.0003	0.001	0.003
15	1	14 - 15	2040	0.00142	3	0.03		0.0003	0.001	0.003
16	1	15 - 16	2041	0.00142	3	0.03		0.0003	0.001	0.003
17	1	16-17	2042	0.00142	1	0.00		0.0003	0.001	0.003
18	1	17-18	2043	0.00142	1	0.00		0.0003	0.001	0.003
19	1	18-19	2044	0.00142	1	0.00		0.0003	0.001	0.003
20	1	19-20	2045	0.00142	1	0.00		0.0003	0.001	0.003
21	1	20-21	2046	0.00142	1	0.00		0.0003	0.001	0.003
22	1	21-22	2047	0.00142	1	0.00		0.0003	0.001	0.003
23	1	22-23	2048	0.00142	1	0.00		0.0003	0.001	0.003
24	1	23-24	2049	0.00142	1	0.00		0.0003	0.001	0.003
25	1	24-25	2050	0.00142	1	0.00		0.0003	0.001	0.003
26	1	25-26	2051	0.00142	1	0.00		0.0003	0.001	0.003
27	1	26-27	2052	0.00142	1	0.00		0.0003	0.001	0.003
28	1	27-28	2053	0.00142	1	0.00		0.0003	0.001	0.003
29	1	28-29	2054	0.00142	1	0.00		0.0003	0.001	0.003
30	1	29-30	2055	0.00142	1	0.00		0.0003	0.001	0.003
Total Increased Cancer Risk						**0.40**	**Max**	**0.0003**	**0.001**	**0.003**

* Third trimester of pregnancy

Project Cooling Tower Health Risk Assessment and Calculations

Arbor, 255 W. Julian Street, San Jose, CA - Project Cooling Tower - PM2.5 AERMOD Risk Modeling Parameters and Maximum Concentrations at PM2.5 MEI Receptor (1.5 m receptor height)

Emission Year	2029
Receptor Information	PM2.5 MEI receptor
Number of Receptors	1
Receptor Height	1.5 meter
Receptor Distances	At PM2.5 MEI location

Meteorological Conditions

BAQMD San Jose International Airport M	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Wind Direction	Variable

PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3) MEI
2013-2017	0.05

Project Generators Health Risk On Project Site Assessment and Calculations

Arbor, 255 W. Julian Street, San Jose, CA - Cancer Risks from Project Operation
Project Emergency Generator
Impacts at On-Site MEI Receptors- 7.0 MEI Receptor Heights
Impact at On-SIte MEI (30-year Exposure)

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

	Infant/Child			Adult
Age --> / Parameter	3rd Trimester	0 - 2	2 - 16	16 - 30
ASF =	10	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	0.85	0.85	0.72	0.73

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information: DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age Sensitivity Factor	Infant/Child Cancer Risk (per million)		Hazard Index	Fugitive PM2.5	Total PM2.5
0	0.25	-0.25 - 0*	2029	0.01279	10	0.15				
1	1	0 - 1	2029	0.01279	10	1.79		0.003	0.01	0.03
2	1	1 - 2	2030	0.01279	10	1.79		0.003	0.01	0.03
3	1	2 - 3	2031	0.01279	3	0.24		0.003	0.01	0.03
4	1	3 - 4	2032	0.01279	3	0.24		0.003	0.01	0.03
5	1	4 - 5	2033	0.01279	3	0.24		0.003	0.01	0.03
6	1	5 - 6	2034	0.01279	3	0.24		0.003	0.01	0.03
7	1	6 - 7	2035	0.01279	3	0.24		0.003	0.01	0.03
8	1	7 - 8	2036	0.01279	3	0.24		0.003	0.01	0.03
9	1	8 - 9	2037	0.01279	3	0.24		0.003	0.01	0.03
10	1	9 - 10	2038	0.01279	3	0.24		0.003	0.01	0.03
11	1	10 - 11	2039	0.01279	3	0.24		0.003	0.01	0.03
12	1	11 - 12	2040	0.01279	3	0.24		0.003	0.01	0.03
13	1	12 - 13	2041	0.01279	3	0.24		0.003	0.01	0.03
14	1	13 - 14	2042	0.01279	3	0.24		0.003	0.01	0.03
15	1	14 - 15	2043	0.01279	3	0.24		0.003	0.01	0.03
16	1	15 - 16	2044	0.01279	3	0.24		0.003	0.01	0.03
17	1	16-17	2045	0.01279	1	0.04		0.003	0.01	0.03
18	1	17-18	2046	0.01279	1	0.04		0.003	0.01	0.03
19	1	18-19	2047	0.01279	1	0.04		0.003	0.01	0.03
20	1	19-20	2048	0.01279	1	0.04		0.003	0.01	0.03
21	1	20-21	2049	0.01279	1	0.04		0.003	0.01	0.03
22	1	21-22	2050	0.01279	1	0.04		0.003	0.01	0.03
23	1	22-23	2051	0.01279	1	0.04		0.003	0.01	0.03
24	1	23-24	2052	0.01279	1	0.04		0.003	0.01	0.03
25	1	24-25	2053	0.01279	1	0.04		0.003	0.01	0.03
26	1	25-26	2054	0.01279	1	0.04		0.003	0.01	0.03
27	1	26-27	2055	0.01279	1	0.04		0.003	0.01	0.03
28	1	27-28	2056	0.01279	1	0.04		0.003	0.01	0.03
29	1	28-29	2057	0.01279	1	0.04		0.003	0.01	0.03
30	1	29-30	2058	0.01279	1	0.04		0.003	0.01	0.03
Total Increased Cancer Risk						**7.57**	**Max**	**0.003**	**0.01**	**0.03**

* Third trimester of pregnancy

Arbor, 255 W. Julian Street, San Jose, CA - Cancer Risks from Project Operation
Project Emergency Generator
Impacts at On-Site MEI Receptors- 10.7 MEI Receptor Heights
Impact at On-SIte MEI (30-year Exposure)

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

	Infant/Child			Adult
Age -->	3rd Trimester	0 - 2	2 - 16	16 - 30
Parameter				
ASF =	10	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	0.85	0.85	0.72	0.73

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information: DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age Sensitivity Factor	Infant/Child Cancer Risk (per million)		Hazard Index	Fugitive PM2.5	Total PM2.5
0	0.25	-0.25 - 0*	2029	0.01329	10	0.15				
1	1	0 - 1	2029	0.01329	10	1.86		0.003	0.01	0.03
2	1	1 - 2	2030	0.01329	10	1.86		0.003	0.01	0.03
3	1	2 - 3	2031	0.01329	3	0.25		0.003	0.01	0.03
4	1	3 - 4	2032	0.01329	3	0.25		0.003	0.01	0.03
5	1	4 - 5	2033	0.01329	3	0.25		0.003	0.01	0.03
6	1	5 - 6	2034	0.01329	3	0.25		0.003	0.01	0.03
7	1	6 - 7	2035	0.01329	3	0.25		0.003	0.01	0.03
8	1	7 - 8	2036	0.01329	3	0.25		0.003	0.01	0.03
9	1	8 - 9	2037	0.01329	3	0.25		0.003	0.01	0.03
10	1	9 - 10	2038	0.01329	3	0.25		0.003	0.01	0.03
11	1	10 - 11	2039	0.01329	3	0.25		0.003	0.01	0.03
12	1	11 - 12	2040	0.01329	3	0.25		0.003	0.01	0.03
13	1	12 - 13	2041	0.01329	3	0.25		0.003	0.01	0.03
14	1	13 - 14	2042	0.01329	3	0.25		0.003	0.01	0.03
15	1	14 - 15	2043	0.01329	3	0.25		0.003	0.01	0.03
16	1	15 - 16	2044	0.01329	3	0.25		0.003	0.01	0.03
17	1	16-17	2045	0.01329	1	0.04		0.003	0.01	0.03
18	1	17-18	2046	0.01329	1	0.04		0.003	0.01	0.03
19	1	18-19	2047	0.01329	1	0.04		0.003	0.01	0.03
20	1	19-20	2048	0.01329	1	0.04		0.003	0.01	0.03
21	1	20-21	2049	0.01329	1	0.04		0.003	0.01	0.03
22	1	21-22	2050	0.01329	1	0.04		0.003	0.01	0.03
23	1	22-23	2051	0.01329	1	0.04		0.003	0.01	0.03
24	1	23-24	2052	0.01329	1	0.04		0.003	0.01	0.03
25	1	24-25	2053	0.01329	1	0.04		0.003	0.01	0.03
26	1	25-26	2054	0.01329	1	0.04		0.003	0.01	0.03
27	1	26-27	2055	0.01329	1	0.04		0.003	0.01	0.03
28	1	27-28	2056	0.01329	1	0.04		0.003	0.01	0.03
29	1	28-29	2057	0.01329	1	0.04		0.003	0.01	0.03
30	1	29-30	2058	0.01329	1	0.04		0.003	0.01	0.03
Total Increased Cancer Risk						**7.86**	**Max**	**0.003**	**0.01**	**0.03**

* Third trimester of pregnancy

Arbor, 255 W. Julian Street, San Jose, CA - Cancer Risks from Project Operation
Project Emergency Generator
Impacts at On-Site MEI Receptors- 14.3 MEI Receptor Heights
Impact at On-SIte MEI (30-year Exposure)

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

	Infant/Child			Adult
Age -->	3rd Trimester	0 - 2	2 - 16	16 - 30
Parameter				
ASF =	10	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	0.85	0.85	0.72	0.73

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information: DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age Sensitivity Factor	Infant/Child Cancer Risk (per million)		Hazard Index	Fugitive PM2.5	Total PM2.5
0	0.25	-0.25 - 0*	2029	0.00536	10	0.06				
1	1	0 - 1	2029	0.00536	10	0.75		0.001	0.01	0.01
2	1	1 - 2	2030	0.00536	10	0.75		0.001	0.01	0.01
3	1	2 - 3	2031	0.00536	3	0.10		0.001	0.01	0.01
4	1	3 - 4	2032	0.00536	3	0.10		0.001	0.01	0.01
5	1	4 - 5	2033	0.00536	3	0.10		0.001	0.01	0.01
6	1	5 - 6	2034	0.00536	3	0.10		0.001	0.01	0.01
7	1	6 - 7	2035	0.00536	3	0.10		0.001	0.01	0.01
8	1	7 - 8	2036	0.00536	3	0.10		0.001	0.01	0.01
9	1	8 - 9	2037	0.00536	3	0.10		0.001	0.01	0.01
10	1	9 - 10	2038	0.00536	3	0.10		0.001	0.01	0.01
11	1	10 - 11	2039	0.00536	3	0.10		0.001	0.01	0.01
12	1	11 - 12	2040	0.00536	3	0.10		0.001	0.01	0.01
13	1	12 - 13	2041	0.00536	3	0.10		0.001	0.01	0.01
14	1	13 - 14	2042	0.00536	3	0.10		0.001	0.01	0.01
15	1	14 - 15	2043	0.00536	3	0.10		0.001	0.01	0.01
16	1	15 - 16	2044	0.00536	3	0.10		0.001	0.01	0.01
17	1	16-17	2045	0.00536	1	0.02		0.001	0.01	0.01
18	1	17-18	2046	0.00536	1	0.02		0.001	0.01	0.01
19	1	18-19	2047	0.00536	1	0.02		0.001	0.01	0.01
20	1	19-20	2048	0.00536	1	0.02		0.001	0.01	0.01
21	1	20-21	2049	0.00536	1	0.02		0.001	0.01	0.01
22	1	21-22	2050	0.00536	1	0.02		0.001	0.01	0.01
23	1	22-23	2051	0.00536	1	0.02		0.001	0.01	0.01
24	1	23-24	2052	0.00536	1	0.02		0.001	0.01	0.01
25	1	24-25	2053	0.00536	1	0.02		0.001	0.01	0.01
26	1	25-26	2054	0.00536	1	0.02		0.001	0.01	0.01
27	1	26-27	2055	0.00536	1	0.02		0.001	0.01	0.01
28	1	27-28	2056	0.00536	1	0.02		0.001	0.01	0.01
29	1	28-29	2057	0.00536	1	0.02		0.001	0.01	0.01
30	1	29-30	2058	0.00536	1	0.02		0.001	0.01	0.01
Total Increased Cancer Risk						**3.17**	**Max**	**0.001**	**0.01**	**0.01**

* Third trimester of pregnancy

Project Cooling Tower On Project Site Health Risk Assessment and Calculations

Arbor, 255 W. Julian Street, San Jose, CA - Project Cooling Tower - PM2.5 AERMOD Risk Modeling Parameters and Maximum Concentrations at On-Site MEI Receptor (7 m receptor height)

Emission Year	2029
Receptor Information	On-Site MEI receptor
Number of Receptors	115
Receptor Height	7 m
Receptor Distances	At On-Site MEI locations

Meteorological Conditions

BAQMD San Jose International Airport I	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Wind Direction	Variable

PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3) MEI
2013-2017	0.10

Arbor, 255 W. Julian Street, San Jose, CA - Project Cooling Tower - PM2.5 AERMOD Risk Modeling Parameters and Maximum Concentrations at On-Site MEI Receptor (10.7 m receptor height)

Emission Year	2029
Receptor Information	On-Site MEI receptor
Number of Receptors	115
Receptor Height	7 m
Receptor Distances	At On-Site MEI locations

Meteorological Conditions

BAQMD San Jose International Airport I	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Wind Direction	Variable

PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3) MEI
2013-2017	0.02

Attachment 4: Cumulative Health Risk Screening, Modeling and Calculations from Existing TAC Sources

Highway and Roadways Health Risk Assessment and Calculations

CT-EMFAC2021 Emissions Factors for S.R. 87 2026

File Name: Arbor Highway - Santa Clara (SF) - 2026 - Annual.EF
CT-EMFAC2017 Version: 1.0.2.0
Run Date: 3/7/2025 9:46
Area: Santa Clara (SF)
Analysis Year: 2026
Season: Annual

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category	Gas VMT Fraction Within Category
Truck 1	0.027	0.416	0.563
Truck 2	0.01	0.904	0.045
Non-Truck	0.963	0.007	0.914

Road Type: Major/Collector
Silt Loading Factor: CARB 0.015 g/m2
Precipitation Correction: CARB P = 63 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	55 mph	60 mph	65 mph	70 mph	75 mph
PM2.5	0.008394	0.005513	0.003788	0.002735	0.002079	0.001662	0.001395	0.001235	0.001155	0.001142	0.001192	0.001304	0.001487	0.001597	0.001597
TOG	0.123367	0.080048	0.054063	0.038699	0.029356	0.023413	0.019563	0.017109	0.015659	0.015021	0.01511	0.015995	0.017784	0.019101	0.019101
Diesel PM	0.001143	0.000966	0.000765	0.000614	0.000512	0.000439	0.00039	0.000363	0.000358	0.000373	0.00041	0.000461	0.000518	0.000521	0.000521

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

Pollutant Name	Emission Factor
TOG	0.983682

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

Pollutant Name	Emission Factor
PM2.5	0.002067

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

Pollutant Name	Emission Factor <= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
PM2.5	0.003446	0.003988	0.004526	0.00506	0.005357	0.005452	0.00551	0.005044	0.004035	0.003033	0.002394	0.002092	0.00179	0.00179	0.00179

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

Pollutant Name	Emission Factor
PM2.5	0.00729

END

S.R. 87 Emissions 2026 and Health Risk Calculations

Analysis Year = ***2026***

Vehicle Type	2022 Caltrans Vehicles (veh/day)	2026 Vehicles (veh/day)
Truck 1 (MDT)	2,736	2,846
Truck 2 (HDT)	1,075	1,118
Non-Truck	99,189	103,157
Total	**103,000**	**107,120**

Increase From 2022	1.04
Vehicles/Direction	**53,560**
Avg Vehicles/Hour/Direction	2,232

Traffic Data Year = ***2022***

Caltrans AADT & Truck %s	AADT Total	Total Truck	Trucks by Axle 2	3	4	5
SAN JOSE, JULIAN STREET Ahead / SAN JOSE, JCT. RTE. 280 Ahead	103,000	3,811	2,736	495	130	450
			71.80%	13.00%	3.40%	11.80%
Percent of Total Vehicles		3.70%	2.66%	0.48%	0.13%	0.44%

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

3,811	Trucks	100.00%
1.0%	HDT	Truck 2
2.7%	MDT	Truck 1
3.70%	Total	
96.3%	Other	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - S.R. 87
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = **2026** 20.63

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
DPM_87	S.R. 87 Northbound	NB	4	723.7	0.45	20.6	67.7	3.4	Varied	53,560	14,930	160,708	9.672E-09	7.131E-09	6.8	3.16
DPM_87	S.R. 87 Southbound	SB	4	706.7	0.44	20.6	67.7	3.4	Varied	53,560	14,580	156,932	9.672E-09	7.131E-09	6.8	3.16
									Total	107,120						

Emission Factors - DPM

Speed Category	1	2	3	4
Travel Speed (mph)	65	60	25	
Emissions per Vehicle (g/VMT)	0.00052	0.000461	0.000512	

Emisson Factors from CT-EMFAC2021

2026
Hourl
Hour

2026 Hourly Traffic Volumes and DPM Emissions - DPM_87

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.78%	416	2.69E-05	9	8.20%	4393	2.81E-04	17	5.10%	2734	1.57E-04
2	0.48%	259	1.68E-05	10	7.39%	3958	2.56E-04	18	5.08%	2719	1.57E-04
3	0.48%	259	1.67E-05	11	6.33%	3392	2.19E-04	19	4.26%	2281	1.48E-04
4	0.74%	398	2.58E-05	12	5.69%	3049	1.97E-04	20	3.56%	1905	1.23E-04
5	1.93%	1033	6.68E-05	13	5.42%	2901	1.88E-04	21	3.05%	1635	1.06E-04
6	5.36%	2870	1.86E-04	14	5.38%	2884	1.87E-04	22	2.66%	1425	9.22E-05
7	6.59%	3529	2.28E-04	15	5.19%	2781	1.80E-04	23	2.05%	1098	7.11E-05
8	7.88%	4218	2.70E-04	16	5.11%	2738	1.77E-04	24	1.28%	686	4.44E-05
								Total		53,560	

2026 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_87

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.10%	590	3.73E-05	9	5.36%	2873	1.62E-04	17	6.83%	3659	2.29E-04
2	0.62%	334	2.11E-05	10	5.51%	2950	1.86E-04	18	6.74%	3611	2.25E-04
3	0.46%	247	1.56E-05	11	5.74%	3072	1.94E-04	19	6.06%	3247	2.05E-04
4	0.47%	254	1.61E-05	12	5.92%	3169	2.00E-04	20	5.14%	2754	1.74E-04
5	0.89%	478	3.02E-05	13	6.10%	3268	2.06E-04	21	4.32%	2315	1.46E-04
6	2.03%	1085	6.85E-05	14	6.24%	3342	2.11E-04	22	3.74%	2004	1.27E-04
7	3.49%	1871	1.18E-04	15	6.69%	3581	2.26E-04	23	2.91%	1559	9.85E-05
8	4.91%	2632	1.48E-04	16	6.78%	3634	2.30E-04	24	1.93%	1034	6.54E-05
								Total		53,560	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - S.R. 87
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = **2026**

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
PM25_87	S.R. 87 Northbound	NB	4	723.7	0.45	20.6	68	1.3	Varied	53,560	14,930	160,708	2.776E-08	2.047E-08	2.6	1.21
PM25_87	S.R. 87 Southbound	SB	4	706.7	0.44	20.6	68	1.3	Varied	53,560	14,580	156,932	2.776E-08	2.047E-08	2.6	1.21
									Total	107,120						

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	65	60	25	
Emissions per Vehicle (g/VMT)	0.001487	0.00130	0.002079	

Emisson Factors from CT-EMFAC2021

2026
Hourl

Hour

2026 Hourly Traffic Volumes and PM2.5 Emissions - PM25_87

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.78%	416	7.73E-05	9	8.20%	4393	1.14E-03	17	5.10%	2734	4.45E-04
2	0.48%	259	4.81E-05	10	7.39%	3958	7.35E-04	18	5.08%	2719	4.43E-04
3	0.48%	259	4.80E-05	11	6.33%	3392	6.30E-04	19	4.26%	2281	4.24E-04
4	0.74%	398	7.39E-05	12	5.69%	3049	5.66E-04	20	3.56%	1905	3.54E-04
5	1.93%	1033	1.92E-04	13	5.42%	2901	5.39E-04	21	3.05%	1635	3.04E-04
6	5.36%	2870	5.33E-04	14	5.38%	2884	5.36E-04	22	2.66%	1425	2.65E-04
7	6.59%	3529	6.55E-04	15	5.19%	2781	5.16E-04	23	2.05%	1098	2.04E-04
8	7.88%	4218	1.10E-03	16	5.11%	2738	5.09E-04	24	1.28%	686	1.27E-04
								Total		53,560	

2026 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM25_87

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.10%	590	1.07E-04	9	5.36%	2873	4.57E-04	17	6.83%	3659	9.28E-04
2	0.62%	334	6.05E-05	10	5.51%	2950	5.35E-04	18	6.74%	3611	9.16E-04
3	0.46%	247	4.49E-05	11	5.74%	3072	5.57E-04	19	6.06%	3247	5.89E-04
4	0.47%	254	4.61E-05	12	5.92%	3169	5.75E-04	20	5.14%	2754	4.99E-04
5	0.89%	478	8.66E-05	13	6.10%	3268	5.93E-04	21	4.32%	2315	4.20E-04
6	2.03%	1085	1.97E-04	14	6.24%	3342	6.06E-04	22	3.74%	2004	3.63E-04
7	3.49%	1871	3.39E-04	15	6.69%	3581	6.49E-04	23	2.91%	1559	2.83E-04
8	4.91%	2632	4.19E-04	16	6.78%	3634	6.59E-04	24	1.93%	1034	1.88E-04
								Total		53,560	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - S.R. 87
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2026

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
TEXH_87	S.R. 87 Northbound	NB	4	723.7	0.45	20.6	68	1.3	Varied	53,560	14,930	160,708	3.320E-07	2.448E-07	2.6	1.21
TEXH_87	S.R. 87 Southbound	SB	4	706.7	0.44	20.6	68	1.3	Varied	53,560	14,580	156,932	3.320E-07	2.448E-07	2.6	1.21
									Total	107,120						

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	65	60	25	
Emissions per Vehicle (g/VMT)	0.01778	0.01600	########	

Emisson Factors from CT-EMFAC2021

2026
Hourl
Hour

2026 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_87

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.78%	416	9.25E-04	9	8.20%	4393	1.61E-02	17	5.10%	2734	5.46E-03
2	0.48%	259	5.75E-04	10	7.39%	3958	8.79E-03	18	5.08%	2719	5.43E-03
3	0.48%	259	5.74E-04	11	6.33%	3392	7.54E-03	19	4.26%	2281	5.07E-03
4	0.74%	398	8.84E-04	12	5.69%	3049	6.77E-03	20	3.56%	1905	4.23E-03
5	1.93%	1033	2.29E-03	13	5.42%	2901	6.44E-03	21	3.05%	1635	3.63E-03
6	5.36%	2870	6.37E-03	14	5.38%	2884	6.41E-03	22	2.66%	1425	3.17E-03
7	6.59%	3529	7.84E-03	15	5.19%	2781	6.18E-03	23	2.05%	1098	2.44E-03
8	7.88%	4218	1.55E-02	16	5.11%	2738	6.08E-03	24	1.28%	686	1.52E-03
								Total		53,560	

2026 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH_87

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.10%	590	1.28E-03	9	5.36%	2873	5.61E-03	17	6.83%	3659	1.31E-02
2	0.62%	334	7.24E-04	10	5.51%	2950	6.40E-03	18	6.74%	3611	1.29E-02
3	0.46%	247	5.37E-04	11	5.74%	3072	6.66E-03	19	6.06%	3247	7.04E-03
4	0.47%	254	5.51E-04	12	5.92%	3169	6.87E-03	20	5.14%	2754	5.97E-03
5	0.89%	478	1.04E-03	13	6.10%	3268	7.09E-03	21	4.32%	2315	5.02E-03
6	2.03%	1085	2.35E-03	14	6.24%	3342	7.25E-03	22	3.74%	2004	4.35E-03
7	3.49%	1871	4.06E-03	15	6.69%	3581	7.77E-03	23	2.91%	1559	3.38E-03
8	4.91%	2632	5.14E-03	16	6.78%	3634	7.88E-03	24	1.93%	1034	2.24E-03
								Total		53,560	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - S.R. 87
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2026

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
TEVAP_87	S.R. 87 Northbound	NB	4	723.7	0.45	20.6	68	1.3	Varied	53,560	14,930	160,708	2.826E-07	2.083E-07	2.6	1.21
TEVAP_87	S.R. 87 Southbound	SB	4	706.7	0.44	20.6	68	1.3	Varied	53,560	14,580	156,932	2.826E-07	2.083E-07	2.6	1.21
									Total	107,120						

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	65	60	25	
Emissions per Vehicle per Hour (g/hour)	0.98368	0.98368	########	
Emissions per Vehicle per Mile (g/VMT)	0.01513	0.01639	########	

Emisson Factors from CT-EMFAC2021

2026
Hourl

Hour
2.83E+00 1

2026 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_87

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.78%	416	7.87E-04	9	8.20%	4393	2.16E-02	17	5.10%	2734	5.60E-03
2	0.48%	259	4.89E-04	10	7.39%	3958	7.48E-03	18	5.08%	2719	5.57E-03
3	0.48%	259	4.89E-04	11	6.33%	3392	6.41E-03	19	4.26%	2281	4.31E-03
4	0.74%	398	7.52E-04	12	5.69%	3049	5.76E-03	20	3.56%	1905	3.60E-03
5	1.93%	1033	1.95E-03	13	5.42%	2901	5.48E-03	21	3.05%	1635	3.09E-03
6	5.36%	2870	5.42E-03	14	5.38%	2884	5.45E-03	22	2.66%	1425	2.69E-03
7	6.59%	3529	6.67E-03	15	5.19%	2781	5.26E-03	23	2.05%	1098	2.08E-03
8	7.88%	4218	2.07E-02	16	5.11%	2738	5.18E-03	24	1.28%	686	1.30E-03
								Total		53,560	

2026 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP_87

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.10%	590	1.09E-03	9	5.36%	2873	5.75E-03	17	6.83%	3659	1.76E-02
2	0.62%	334	6.16E-04	10	5.51%	2950	5.45E-03	18	6.74%	3611	1.73E-02
3	0.46%	247	4.57E-04	11	5.74%	3072	5.67E-03	19	6.06%	3247	5.99E-03
4	0.47%	254	4.69E-04	12	5.92%	3169	5.85E-03	20	5.14%	2754	5.08E-03
5	0.89%	478	8.81E-04	13	6.10%	3268	6.03E-03	21	4.32%	2315	4.27E-03
6	2.03%	1085	2.00E-03	14	6.24%	3342	6.17E-03	22	3.74%	2004	3.70E-03
7	3.49%	1871	3.45E-03	15	6.69%	3581	6.61E-03	23	2.91%	1559	2.88E-03
8	4.91%	2632	5.26E-03	16	6.78%	3634	6.71E-03	24	1.93%	1034	1.91E-03
								Total		53,560	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - S.R. 87
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = **2026**

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
FUG_87	S.R. 87 Northbound	NB	4	723.7	0.45	20.6	68	1.3	Varied	53,560	14,930	160,708	2.081E-07	1.535E-07	2.6	1.21
FUG_87	S.R. 87 Southbound	SB	4	706.7	0.44	20.6	68	1.3	Varied	53,560	14,580	156,932	2.081E-07	1.535E-07	2.6	1.21
									Total	107,120						

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	65	60	25	
Tire Wear - Emissions per Vehicle (g/VMT)	0.00207	0.00207	########	
Brake Wear - Emissions per Vehicle (g/VMT)	0.00179	0.00209	########	
Road Dust - Emissions per Vehicle (g/VMT)	0.00729	0.00729	########	
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.01115	0.01145	########	

Emisson Factors from CT-EMFAC2021

2026 Hourl	
	Hour
2.09E+00	1
1.30E+00	2
1.30E+00	3

2026 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_87

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.78%	416	5.80E-04	9	8.20%	4393	8.07E-03	17	5.10%	2734	3.91E-03
2	0.48%	259	3.61E-04	10	7.39%	3958	5.51E-03	18	5.08%	2719	3.89E-03
3	0.48%	259	3.60E-04	11	6.33%	3392	4.72E-03	19	4.26%	2281	3.18E-03
4	0.74%	398	5.54E-04	12	5.69%	3049	4.24E-03	20	3.56%	1905	2.65E-03
5	1.93%	1033	1.44E-03	13	5.42%	2901	4.04E-03	21	3.05%	1635	2.28E-03
6	5.36%	2870	4.00E-03	14	5.38%	2884	4.02E-03	22	2.66%	1425	1.98E-03
7	6.59%	3529	4.91E-03	15	5.19%	2781	3.87E-03	23	2.05%	1098	1.53E-03
8	7.88%	4218	7.75E-03	16	5.11%	2738	3.81E-03	24	1.28%	686	9.55E-04
								Total		53,560	

2026 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG_87

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.10%	590	8.02E-04	9	5.36%	2873	4.01E-03	17	6.83%	3659	6.57E-03
2	0.62%	334	4.54E-04	10	5.51%	2950	4.01E-03	18	6.74%	3611	6.48E-03
3	0.46%	247	3.36E-04	11	5.74%	3072	4.18E-03	19	6.06%	3247	4.41E-03
4	0.47%	254	3.45E-04	12	5.92%	3169	4.31E-03	20	5.14%	2754	3.74E-03
5	0.89%	478	6.49E-04	13	6.10%	3268	4.44E-03	21	4.32%	2315	3.15E-03
6	2.03%	1085	1.47E-03	14	6.24%	3342	4.54E-03	22	3.74%	2004	2.72E-03
7	3.49%	1871	2.54E-03	15	6.69%	3581	4.87E-03	23	2.91%	1559	2.12E-03
8	4.91%	2632	3.68E-03	16	6.78%	3634	4.94E-03	24	1.93%	1034	1.41E-03
								Total		53,560	

Arbor, 255 W. Julian Street, San Jose, CA - SR 87 Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
at Construction MEI Receptors (PM2.5 1.5m receptor height, Cancer Risk 8.2m height)

Emission Year	2026
Receptor Information	Construction MEI receptors
Number of Receptors	2
Receptor Height	PM2.5 1.5 meters, Cancer Risk 8.2 meters
Receptor Distances	At Construction MEI locations
Meteorological Conditions	
BAQMD San Jose Airport Met Data	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Wind Direction	Variable

Construction MEI Cancer Risk Maximum Concentrations - 8.2m

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0041	0.1571	0.1502

Construction MEI PM2.5 Maximum Concentrations - 1.5m

Meteorological Data Years	PM2.5 Concentration (µg/m3)*		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.1087	0.0960	0.0128

Arbor, 255 W. Julian Street, San Jose, CA - SR 87 Cancer Risk
Impacts at Construction MEI - PM2.5 1.5 meter receptor height, Cancer Risk 8.2m 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 $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

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

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

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

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

Values

	Infant/Child			Adult
Age –>	**3rd Trimester**	**0 - 2**	**2 - 16**	**16 - 30**
Parameter				
ASF =	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	0.85	0.85	0.72	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*	2026	10	0.0041	0.1571	0.1502	0.047	0.010	0.0006	0.06
1	1	0 - 1	2026	10	0.0041	0.1571	0.1502	0.570	0.125	0.0071	0.70
2	1	1 - 2	2027	10	0.0041	0.1571	0.1502	0.570	0.125	0.0071	0.70
3	1	2 - 3	2028	3	0.0041	0.1571	0.1502	0.076	0.017	0.0009	0.09
4	1	3 - 4	2029	3	0.0041	0.1571	0.1502	0.076	0.017	0.0009	0.09
5	1	4 - 5	2030	3	0.0041	0.1571	0.1502	0.076	0.017	0.0009	0.09
6	1	5 - 6	2031	3	0.0041	0.1571	0.1502	0.076	0.017	0.0009	0.09
7	1	6 - 7	2032	3	0.0041	0.1571	0.1502	0.076	0.017	0.0009	0.09
8	1	7 - 8	2033	3	0.0041	0.1571	0.1502	0.076	0.017	0.0009	0.09
9	1	8 - 9	2034	3	0.0041	0.1571	0.1502	0.076	0.017	0.0009	0.09
10	1	9 - 10	2035	3	0.0041	0.1571	0.1502	0.076	0.017	0.0009	0.09
11	1	10 - 11	2036	3	0.0041	0.1571	0.1502	0.076	0.017	0.0009	0.09
12	1	11 - 12	2037	3	0.0041	0.1571	0.1502	0.076	0.017	0.0009	0.09
13	1	12 - 13	2038	3	0.0041	0.1571	0.1502	0.076	0.017	0.0009	0.09
14	1	13 - 14	2039	3	0.0041	0.1571	0.1502	0.076	0.017	0.0009	0.09
15	1	14 - 15	2040	3	0.0041	0.1571	0.1502	0.076	0.017	0.0009	0.09
16	1	15 - 16	2041	3	0.0041	0.1571	0.1502	0.076	0.017	0.0009	0.09
17	1	16-17	2042	1	0.0041	0.1571	0.1502	0.012	0.003	0.0001	0.01
18	1	17-18	2043	1	0.0041	0.1571	0.1502	0.012	0.003	0.0001	0.01
19	1	18-19	2044	1	0.0041	0.1571	0.1502	0.012	0.003	0.0001	0.01
20	1	19-20	2045	1	0.0041	0.1571	0.1502	0.012	0.003	0.0001	0.01
21	1	20-21	2046	1	0.0041	0.1571	0.1502	0.012	0.003	0.0001	0.01
22	1	21-22	2047	1	0.0041	0.1571	0.1502	0.012	0.003	0.0001	0.01
23	1	22-23	2048	1	0.0041	0.1571	0.1502	0.012	0.003	0.0001	0.01
24	1	23-24	2049	1	0.0041	0.1571	0.1502	0.012	0.003	0.0001	0.01
25	1	24-25	2050	1	0.0041	0.1571	0.1502	0.012	0.003	0.0001	0.01
26	1	25-26	2051	1	0.0041	0.1571	0.1502	0.012	0.003	0.0001	0.01
27	1	26-27	2052	1	0.0041	0.1571	0.1502	0.012	0.003	0.0001	0.01
28	1	27-28	2053	1	0.0041	0.1571	0.1502	0.012	0.003	0.0001	0.01
29	1	28-29	2054	1	0.0041	0.1571	0.1502	0.012	0.003	0.0001	0.01
30	1	29-30	2055	1	0.0041	0.1571	0.1502	0.012	0.003	0.0001	0.01
Total Increased Cancer Risk								2.41	0.531	0.030	**2.97**

* Third trimester of pregnancy

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.001	0.10	0.11

CT-EMFAC2021 Emissions Factors for Northbound S.R. 87 On-Ramp, W. Julian Street/W. St. James Street, and N. Market Street/Coleman Avenue 2026

File Name: Arbor Roadways - Santa Clara (SF) - 2026 - Annual.EF
CT-EMFAC2017 Version: 1.0.2.0
Run Date: 3/4/2025 15:13
Area: Santa Clara (SF)
Analysis Year: 2026
Season: Annual

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category	Gas VMT Fraction Within Category
Truck 1	0.017	0.416	0.563
Truck 2	0.018	0.904	0.045
Non-Truck	0.965	0.007	0.914

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
PM2.5	0.008267	0.005408	0.003684	0.00264	0.002	0.001601	0.001355	0.001217	0.001161
TOG	0.12603	0.081556	0.054567	0.038846	0.029403	0.023431	0.019575	0.017125	0.015684
Diesel PM	0.000987	0.000858	0.000659	0.000518	0.000432	0.000378	0.00035	0.000346	0.000366

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

Pollutant Name	Emission Factor
TOG	0.972931

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

Pollutant Name	Emission Factor
PM2.5	0.002102

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

Pollutant Name	Emission Factor								
	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph
PM2.5	0.003487	0.00403	0.004566	0.005095	0.005377	0.005465	0.005486	0.004993	0.003957

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

Pollutant Name	Emission Factor
PM2.5	0.015247

END

Northbound S.R. 87 On-Ramp Emissions 2026 and Health Risk Calculations

Analysis Year = ***2026***

Vehicle Type	2023 Caltrans Vehicles (veh/day)	2026 Vehicles (veh/day)
Truck 1 (MDT)	439	453
Truck 2 (HDT)	118	122
Non-Truck	15,327	15,787
Total	**15,885**	**16,362**
Increase From 2023		1.03
Vehicles/Direction		**8,181**
Avg Vehicles/Hour/Direction		341

Traffic Data Year = ***2023***

Proejct Traffic Backgrond Plus Project ADT	AADT Total	Total Truck	Trucks by Axle 2	3	4	5
SR-87 NB Ramps/Notre Dame Avenue and Julian Street/St. J	15,885	558	439	62	17	39
			78.81%	11.07%	3.10%	7.02%
Percent of Total Vehicles		3.51%	2.77%	0.39%	0.11%	0.25%

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

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - On-Ramp Northbound S.R. 87
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = **2026** 13.315

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	Line Area: Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
DPM_RAM	On-Ramp NB SR 87	NB	2	196.2	0.12	13.3	43.7	3.4	25	16,362	2,612	28,120	3.818E-09	2.815E-09	6.8	3.16

Emission Factors - DPM

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.00043			

Emisson Factors from CT-EMFAC2021

2026
Hourl

Hour

2026 Hourly Traffic Volumes and DPM Emissions - DPM_RAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	3.98%	651	9.52E-06	9	6.44%	1053	1.54E-05	17	5.53%	905	1.32E-05
2	2.67%	437	6.39E-06	10	7.40%	1210	1.77E-05	18	3.14%	514	7.52E-06
3	2.84%	465	6.80E-06	11	6.32%	1033	1.51E-05	19	2.35%	384	5.62E-06
4	3.30%	539	7.89E-06	12	6.88%	1126	1.65E-05	20	0.86%	141	2.06E-06
5	2.16%	353	5.17E-06	13	6.27%	1025	1.50E-05	21	3.08%	503	7.36E-06
6	3.30%	539	7.89E-06	14	6.21%	1016	1.49E-05	22	4.21%	689	1.01E-05
7	6.03%	987	1.44E-05	15	5.13%	840	1.23E-05	23	2.62%	429	6.28E-06
8	4.56%	747	1.09E-05	16	3.88%	635	9.29E-06	24	0.85%	139	2.04E-06
								Total		16,362	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - On-Ramp Northbound S.R. 87
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2026

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
PM25_RAM	On-Ramp NB SR 87	NB	2	196.2	0.12	13.3	44	1.3	25	16,362	2,612	28,120	1.767E-08	1.303E-08	2.6	1.21

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.002000			

Emisson Factors from CT-EMFAC2021

2026
Hourl
Hour

2026 Hourly Traffic Volumes and PM2.5 Emissions - PM25_RAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	188	1.27E-05	9	7.11%	1164	7.88E-05	17	7.38%	1208	8.18E-05
2	0.42%	69	4.66E-06	10	4.39%	718	4.86E-05	18	8.18%	1338	9.06E-05
3	0.41%	66	4.49E-06	11	4.66%	763	5.17E-05	19	5.70%	932	6.31E-05
4	0.26%	43	2.89E-06	12	5.89%	963	6.53E-05	20	4.27%	699	4.73E-05
5	0.50%	82	5.53E-06	13	6.15%	1007	6.82E-05	21	3.26%	533	3.61E-05
6	0.90%	148	1.00E-05	14	6.04%	988	6.69E-05	22	3.30%	540	3.66E-05
7	3.79%	620	4.20E-05	15	7.01%	1147	7.77E-05	23	2.46%	403	2.73E-05
8	7.76%	1270	8.60E-05	16	7.14%	1168	7.91E-05	24	1.87%	305	2.07E-05
								Total		16,362	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - On-Ramp Northbound S.R. 87
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2026

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
TEXH_RAM	On-Ramp NB SR 87	NB	2	196.2	0.12	13.3	44	1.3	25	16,362	2,612	28,120	2.598E-07	1.916E-07	2.6	1.21

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.02940			

Emisson Factors from CT-EMFAC2021

2026
Hourl
Hour

2026 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_RAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	188	1.87E-04	9	7.11%	1164	1.16E-03	17	7.38%	1208	1.20E-03
2	0.42%	69	6.85E-05	10	4.39%	718	7.15E-04	18	8.18%	1338	1.33E-03
3	0.41%	66	6.60E-05	11	4.66%	763	7.60E-04	19	5.70%	932	9.28E-04
4	0.26%	43	4.25E-05	12	5.89%	963	9.59E-04	20	4.27%	699	6.96E-04
5	0.50%	82	8.12E-05	13	6.15%	1007	1.00E-03	21	3.26%	533	5.31E-04
6	0.90%	148	1.47E-04	14	6.04%	988	9.84E-04	22	3.30%	540	5.38E-04
7	3.79%	620	6.17E-04	15	7.01%	1147	1.14E-03	23	2.46%	403	4.01E-04
8	7.76%	1270	1.26E-03	16	7.14%	1168	1.16E-03	24	1.87%	305	3.04E-04
								Total		16,362	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - On-Ramp Northbound S.R. 87
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2026

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
TEVAP_RAM	On-Ramp NB SR 87	NB	2	196.2	0.12	13.3	44	1.3	25	16,362	2,612	28,120	3.439E-07	2.536E-07	2.6	1.21
							75.4									

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Emissions per Vehicle per Hour (g/hour)	0.97293			
Emissions per Vehicle per Mile (g/VMT)	0.03892			

Emisson Factors from CT-EMFAC2021

2026 Hourl	Hour
8.92E-01	1

2026 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_RAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	188	2.48E-04	9	7.11%	1164	1.53E-03	17	7.38%	1208	1.59E-03
2	0.42%	69	9.07E-05	10	4.39%	718	9.46E-04	18	8.18%	1338	1.76E-03
3	0.41%	66	8.74E-05	11	4.66%	763	1.01E-03	19	5.70%	932	1.23E-03
4	0.26%	43	5.62E-05	12	5.89%	963	1.27E-03	20	4.27%	699	9.21E-04
5	0.50%	82	1.08E-04	13	6.15%	1007	1.33E-03	21	3.26%	533	7.03E-04
6	0.90%	148	1.95E-04	14	6.04%	988	1.30E-03	22	3.30%	540	7.12E-04
7	3.79%	620	8.17E-04	15	7.01%	1147	1.51E-03	23	2.46%	403	5.31E-04
8	7.76%	1270	1.67E-03	16	7.14%	1168	1.54E-03	24	1.87%	305	4.03E-04
								Total		16,362	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - On-Ramp Northbound S.R. 87
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2026

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
FUG_RAM	On-Ramp NB SR 87	NB	2	196.2	0.12	13.3	44	1.3	25	16,362	2,612	28,120	2.008E-07	1.481E-07	2.6	1.21

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00210			
Brake Wear - Emissions per Vehicle (g/VMT)	0.00538			
Road Dust - Emissions per Vehicle (g/VMT)	0.01525			
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.02273			

Emisson Factors from CT-EMFAC2021

2026 Hourl	Hour
5.21E-01	1
1.91E-01	2
1.84E-01	3

2026 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_RAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	188	1.45E-04	9	7.11%	1164	8.96E-04	17	7.38%	1208	9.30E-04
2	0.42%	69	5.30E-05	10	4.39%	718	5.52E-04	18	8.18%	1338	1.03E-03
3	0.41%	66	5.10E-05	11	4.66%	763	5.87E-04	19	5.70%	932	7.18E-04
4	0.26%	43	3.28E-05	12	5.89%	963	7.41E-04	20	4.27%	699	5.38E-04
5	0.50%	82	6.28E-05	13	6.15%	1007	7.75E-04	21	3.26%	533	4.10E-04
6	0.90%	148	1.14E-04	14	6.04%	988	7.60E-04	22	3.30%	540	4.16E-04
7	3.79%	620	4.77E-04	15	7.01%	1147	8.83E-04	23	2.46%	403	3.10E-04
8	7.76%	1270	9.78E-04	16	7.14%	1168	8.99E-04	24	1.87%	305	2.35E-04
								Total		16,362	

Arbor, 255 W. Julian Street, San Jose, CA - On-Ramp NB SR 87 Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
at Construction MEI Receptors (PM2.5 1.5m receptor height, Cancer Risk 8.2m height)

Emission Year	2026
Receptor Information	Construction MEI receptors
Number of Receptors	2
Receptor Height	PM2.5 1.5 meters, Cancer Risk 8.2 meters
Receptor Distances	At Construction MEI locations
Meteorological Conditions	
BAQMD San Jose Airport Met Data	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Wind Direction	Variable

Construction MEI Cancer Risk Maximum Concentrations - 8.2m

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0003	0.0262	0.0347

Construction MEI PM2.5 Maximum Concentrations - 1.5m

Meteorological Data Years	PM2.5 Concentration (µg/m3)*		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.0317	0.0292	0.0026

Arbor, 255 W. Julian Street, San Jose, CA - On-Ramp NB SR 87 Cancer Risk
Impacts at Construction MEI - PM2.5 1.5 meter receptor height, Cancer Risk 8.2m 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 $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

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

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

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

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

Values

	Infant/Child			Adult
Age -->	3rd Trimester	0 - 2	2 - 16	16 - 30
Parameter				
ASF =	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	0.85	0.85	0.72	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*	2026	10	0.0003	0.0262	0.0347	0.004	0.002	0.0001	0.01
1	1	0 - 1	2026	10	0.0003	0.0262	0.0347	0.046	0.021	0.0016	0.07
2	1	1 - 2	2027	10	0.0003	0.0262	0.0347	0.046	0.021	0.0016	0.07
3	1	2 - 3	2028	3	0.0003	0.0262	0.0347	0.006	0.003	0.0002	0.01
4	1	3 - 4	2029	3	0.0003	0.0262	0.0347	0.006	0.003	0.0002	0.01
5	1	4 - 5	2030	3	0.0003	0.0262	0.0347	0.006	0.003	0.0002	0.01
6	1	5 - 6	2031	3	0.0003	0.0262	0.0347	0.006	0.003	0.0002	0.01
7	1	6 - 7	2032	3	0.0003	0.0262	0.0347	0.006	0.003	0.0002	0.01
8	1	7 - 8	2033	3	0.0003	0.0262	0.0347	0.006	0.003	0.0002	0.01
9	1	8 - 9	2034	3	0.0003	0.0262	0.0347	0.006	0.003	0.0002	0.01
10	1	9 - 10	2035	3	0.0003	0.0262	0.0347	0.006	0.003	0.0002	0.01
11	1	10 - 11	2036	3	0.0003	0.0262	0.0347	0.006	0.003	0.0002	0.01
12	1	11 - 12	2037	3	0.0003	0.0262	0.0347	0.006	0.003	0.0002	0.01
13	1	12 - 13	2038	3	0.0003	0.0262	0.0347	0.006	0.003	0.0002	0.01
14	1	13 - 14	2039	3	0.0003	0.0262	0.0347	0.006	0.003	0.0002	0.01
15	1	14 - 15	2040	3	0.0003	0.0262	0.0347	0.006	0.003	0.0002	0.01
16	1	15 - 16	2041	3	0.0003	0.0262	0.0347	0.006	0.003	0.0002	0.01
17	1	16-17	2042	1	0.0003	0.0262	0.0347	0.001	0.000	0.0000	0.00
18	1	17-18	2043	1	0.0003	0.0262	0.0347	0.001	0.000	0.0000	0.00
19	1	18-19	2044	1	0.0003	0.0262	0.0347	0.001	0.000	0.0000	0.00
20	1	19-20	2045	1	0.0003	0.0262	0.0347	0.001	0.000	0.0000	0.00
21	1	20-21	2046	1	0.0003	0.0262	0.0347	0.001	0.000	0.0000	0.00
22	1	21-22	2047	1	0.0003	0.0262	0.0347	0.001	0.000	0.0000	0.00
23	1	22-23	2048	1	0.0003	0.0262	0.0347	0.001	0.000	0.0000	0.00
24	1	23-24	2049	1	0.0003	0.0262	0.0347	0.001	0.000	0.0000	0.00
25	1	24-25	2050	1	0.0003	0.0262	0.0347	0.001	0.000	0.0000	0.00
26	1	25-26	2051	1	0.0003	0.0262	0.0347	0.001	0.000	0.0000	0.00
27	1	26-27	2052	1	0.0003	0.0262	0.0347	0.001	0.000	0.0000	0.00
28	1	27-28	2053	1	0.0003	0.0262	0.0347	0.001	0.000	0.0000	0.00
29	1	28-29	2054	1	0.0003	0.0262	0.0347	0.001	0.000	0.0000	0.00
30	1	29-30	2055	1	0.0003	0.0262	0.0347	0.001	0.000	0.0000	0.00
Total Increased Cancer Risk								0.20	0.088	0.007	**0.29**

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.0001	0.03	0.03

* Third trimester of pregnancy

W. Julian Street/W. St. James Street Emissions 2026 and Health Risk Calculations

Analysis Year = ***2026***

Vehicle Type	2023 Caltrans Vehicles (veh/day)	2026 Vehicles (veh/day)
Truck 1 (MDT)	390	401
Truck 2 (HDT)	105	108
Non-Truck	13,591	13,998
Total	**14,085**	**14,508**

Increase From 2023	1.03
Vehicles/Direction	**7,254**
Avg Vehicles/Hour/Direction	302

Traffic Data Year = ***2023***

Proejct Traffic Backgrond Plus Project ADT		Total	Trucks by Axle			
	AADT Total	Truck	2	3	4	5
W. St James ST / Terraine ST	14,085	494	390	55	15	35
			78.81%	11.07%	3.10%	7.02%
Percent of Total Vehicles		3.51%	2.77%	0.39%	0.11%	0.25%

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

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - W. St. James Street / W. Julaian Street
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = **2026** 13.315

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	Line Area					(Sigma z) Initial Vertical Dimension
											Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	
DPM_JAM	W. St. James Street / W. Julaian Street Eastbound	EB	2	662.3	0.41	13.3	43.7	3.4	25	7,254	8,819	94,923	1.693E-09	1.248E-09	6.8	3.16
DPM_JAM	W. St. James Street / W. Julaian Street Westbound	WB	2	546.8	0.34	13.3	43.7	3.4	25	7,254	7,281	78,369	1.693E-09	1.248E-09	6.8	3.16
									Total	14,508						

Emission Factors - DPM

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.00043			

Emisson Factors from CT-EMFAC2021

2026
Hourl
Hour

2026 Hourly Traffic Volumes and DPM Emissions - DPM_JAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	3.98%	289	1.42E-05	9	6.44%	467	2.31E-05	17	5.53%	401	1.98E-05
2	2.67%	194	9.57E-06	10	7.40%	536	2.65E-05	18	3.14%	228	1.13E-05
3	2.84%	206	1.02E-05	11	6.32%	458	2.26E-05	19	2.35%	170	8.41E-06
4	3.30%	239	1.18E-05	12	6.88%	499	2.47E-05	20	0.86%	62	3.08E-06
5	2.16%	157	7.73E-06	13	6.27%	455	2.25E-05	21	3.08%	223	1.10E-05
6	3.30%	239	1.18E-05	14	6.21%	451	2.22E-05	22	4.21%	306	1.51E-05
7	6.03%	438	2.16E-05	15	5.13%	372	1.84E-05	23	2.62%	190	9.39E-06
8	4.56%	331	1.63E-05	16	3.88%	282	1.39E-05	24	0.85%	62	3.05E-06
								Total		7,254	

2026 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_JAM

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.98%	289	1.18E-05	9	6.44%	467	1.90E-05	17	5.53%	401	1.64E-05
2	2.67%	194	7.90E-06	10	7.40%	536	2.19E-05	18	3.14%	228	9.29E-06
3	2.84%	206	8.40E-06	11	6.32%	458	1.87E-05	19	2.35%	170	6.94E-06
4	3.30%	239	9.75E-06	12	6.88%	499	2.04E-05	20	0.86%	62	2.55E-06
5	2.16%	157	6.39E-06	13	6.27%	455	1.85E-05	21	3.08%	223	9.10E-06
6	3.30%	239	9.75E-06	14	6.21%	451	1.84E-05	22	4.21%	306	1.25E-05
7	6.03%	438	1.78E-05	15	5.13%	372	1.52E-05	23	2.62%	190	7.76E-06
8	4.56%	331	1.35E-05	16	3.88%	282	1.15E-05	24	0.85%	62	2.52E-06
								Total		7,254	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - W. St. James Street / W. Julaian Street
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2026

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
PM25_JAM	W. St. James Street / W. Julaian Street Eastbound	EB	2	662.3	0.41	13.3	44	1.3	25	7,254	8,819	94,923	7.836E-09	5.778E-09	2.6	1.21
PM25_JAM	W. St. James Street / W. Julaian Street Westbound	WB	2	546.8	0.34	13.3	44	1.3	25	7,254	7,281	78,369	7.836E-09	5.778E-09	2.6	1.21
									Total	14,508						

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.002000			

Emisson Factors from CT-EMFAC2021

2026
Hourl

Hour

2026 Hourly Traffic Volumes and PM2.5 Emissions - PM25_JAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	83	1.91E-05	9	7.11%	516	1.18E-04	17	7.38%	536	1.22E-04
2	0.42%	31	6.98E-06	10	4.39%	318	7.28E-05	18	8.18%	593	1.36E-04
3	0.41%	29	6.72E-06	11	4.66%	338	7.73E-05	19	5.70%	413	9.45E-05
4	0.26%	19	4.32E-06	12	5.89%	427	9.77E-05	20	4.27%	310	7.08E-05
5	0.50%	36	8.27E-06	13	6.15%	446	1.02E-04	21	3.26%	236	5.40E-05
6	0.90%	66	1.50E-05	14	6.04%	438	1.00E-04	22	3.30%	239	5.47E-05
7	3.79%	275	6.28E-05	15	7.01%	509	1.16E-04	23	2.46%	179	4.08E-05
8	7.76%	563	1.29E-04	16	7.14%	518	1.18E-04	24	1.87%	135	3.10E-05
								Total		7,254	

2026 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM25_JAM

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	83	1.57E-05	9	7.11%	516	9.74E-05	17	7.38%	536	1.01E-04
2	0.42%	31	5.76E-06	10	4.39%	318	6.01E-05	18	8.18%	593	1.12E-04
3	0.41%	29	5.55E-06	11	4.66%	338	6.38E-05	19	5.70%	413	7.80E-05
4	0.26%	19	3.57E-06	12	5.89%	427	8.06E-05	20	4.27%	310	5.85E-05
5	0.50%	36	6.83E-06	13	6.15%	446	8.42E-05	21	3.26%	236	4.46E-05
6	0.90%	66	1.24E-05	14	6.04%	438	8.27E-05	22	3.30%	239	4.52E-05
7	3.79%	275	5.19E-05	15	7.01%	509	9.60E-05	23	2.46%	179	3.37E-05
8	7.76%	563	1.06E-04	16	7.14%	518	9.77E-05	24	1.87%	135	2.56E-05
								Total		7,254	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - W. St. James Street / W. Julaian Street
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = **2026**

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	Line Area					
											Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
TEXH_RAM	W. St. James Street / W. Julaian Street Eastbound	EB	2	662.3	0.41	13.3	44	1.3	25	7,254	8,819	94,923	1.152E-07	8.494E-08	2.6	1.21
TEXH_Main	W. St. James Street / W. Julaian Street Westbound	WB	2	546.8	0.34	13.3	44	1.3	25	7,254	7,281	78,369	1.152E-07	8.494E-08	2.6	1.21
									Total	14,508						

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.02940			

Emisson Factors from CT-EMFAC2021

2026
Hourl

Hour

2026 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_RAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	83	2.80E-04	9	7.11%	516	1.73E-03	17	7.38%	536	1.80E-03
2	0.42%	31	1.03E-04	10	4.39%	318	1.07E-03	18	8.18%	593	1.99E-03
3	0.41%	29	9.88E-05	11	4.66%	338	1.14E-03	19	5.70%	413	1.39E-03
4	0.26%	19	6.36E-05	12	5.89%	427	1.44E-03	20	4.27%	310	1.04E-03
5	0.50%	36	1.22E-04	13	6.15%	446	1.50E-03	21	3.26%	236	7.94E-04
6	0.90%	66	2.20E-04	14	6.04%	438	1.47E-03	22	3.30%	239	8.05E-04
7	3.79%	275	9.23E-04	15	7.01%	509	1.71E-03	23	2.46%	179	6.00E-04
8	7.76%	563	1.89E-03	16	7.14%	518	1.74E-03	24	1.87%	135	4.55E-04
								Total		7,254	

2026 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH_Main

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	83	2.31E-04	9	7.11%	516	1.43E-03	17	7.38%	536	1.49E-03
2	0.42%	31	8.47E-05	10	4.39%	318	8.83E-04	18	8.18%	593	1.65E-03
3	0.41%	29	8.16E-05	11	4.66%	338	9.39E-04	19	5.70%	413	1.15E-03
4	0.26%	19	5.25E-05	12	5.89%	427	1.19E-03	20	4.27%	310	8.60E-04
5	0.50%	36	1.00E-04	13	6.15%	446	1.24E-03	21	3.26%	236	6.56E-04
6	0.90%	66	1.82E-04	14	6.04%	438	1.22E-03	22	3.30%	239	6.64E-04
7	3.79%	275	7.62E-04	15	7.01%	509	1.41E-03	23	2.46%	179	4.96E-04
8	7.76%	563	1.56E-03	16	7.14%	518	1.44E-03	24	1.87%	135	3.76E-04
								Total		7,254	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - W. St. James Street / W. Julaian Street
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2026

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
TEVAP_RAM	W. St. James Street / W. Julaian Street Eastbound	EB	2	662.3	0.41	13.3	44	1.3	25	7,254	8,819	94,923	1.525E-07	1.124E-07	2.6	1.21
TEVAP_Main	W. St. James Street / W. Julaian Street Westbound	WB	2	546.8	0.34	13.3	44	1.3	25	7,254	7,281	78,369	1.525E-07	1.124E-07	2.6	1.21
									Total	14,508						

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Emissions per Vehicle per Hour (g/hour)	0.97293			
Emissions per Vehicle per Mile (g/VMT)	0.03892			

Emisson Factors from CT-EMFAC2021

2026
Hourl

Hour	
1	1.34E+00

2026 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_RAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	83	3.71E-04	9	7.11%	516	2.30E-03	17	7.38%	536	2.38E-03
2	0.42%	31	1.36E-04	10	4.39%	318	1.42E-03	18	8.18%	593	2.64E-03
3	0.41%	29	1.31E-04	11	4.66%	338	1.50E-03	19	5.70%	413	1.84E-03
4	0.26%	19	8.41E-05	12	5.89%	427	1.90E-03	20	4.27%	310	1.38E-03
5	0.50%	36	1.61E-04	13	6.15%	446	1.99E-03	21	3.26%	236	1.05E-03
6	0.90%	66	2.92E-04	14	6.04%	438	1.95E-03	22	3.30%	239	1.06E-03
7	3.79%	275	1.22E-03	15	7.01%	509	2.26E-03	23	2.46%	179	7.95E-04
8	7.76%	563	2.51E-03	16	7.14%	518	2.30E-03	24	1.87%	135	6.03E-04
								Total		7,254	

2026 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP_Main

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	83	3.06E-04	9	7.11%	516	1.89E-03	17	7.38%	536	1.97E-03
2	0.42%	31	1.12E-04	10	4.39%	318	1.17E-03	18	8.18%	593	2.18E-03
3	0.41%	29	1.08E-04	11	4.66%	338	1.24E-03	19	5.70%	413	1.52E-03
4	0.26%	19	6.95E-05	12	5.89%	427	1.57E-03	20	4.27%	310	1.14E-03
5	0.50%	36	1.33E-04	13	6.15%	446	1.64E-03	21	3.26%	236	8.68E-04
6	0.90%	66	2.41E-04	14	6.04%	438	1.61E-03	22	3.30%	239	8.79E-04
7	3.79%	275	1.01E-03	15	7.01%	509	1.87E-03	23	2.46%	179	6.56E-04
8	7.76%	563	2.07E-03	16	7.14%	518	1.90E-03	24	1.87%	135	4.97E-04
								Total		7,254	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - W. St. James Street / W. Julaian Street
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = **2026**

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
FUG_RAM	W. St. James Street / W. Julaian Street Eastbound	EB	2	662.3	0.41	13.3	44	1.3	25	7,254	8,819	94,923	8.904E-08	6.565E-08	2.6	1.21
FUG_Main	W. St. James Street / W. Julaian Street Westbound	WB	2	546.8	0.34	13.3	44	1.3	25	7,254	7,281	78,369	8.904E-08	6.565E-08	2.6	1.21
									Total	14,508						

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00210			
Brake Wear - Emissions per Vehicle (g/VMT)	0.00538			
Road Dust - Emissions per Vehicle (g/VMT)	0.01525			
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.02273			

Emisson Factors from CT-EMFAC2021

2026 Hourl	
	Hour
7.80E-01	1
2.85E-01	2
2.75E-01	3

2026 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_RAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	83	2.17E-04	9	7.11%	516	1.34E-03	17	7.38%	536	1.39E-03
2	0.42%	31	7.93E-05	10	4.39%	318	8.27E-04	18	8.18%	593	1.54E-03
3	0.41%	29	7.64E-05	11	4.66%	338	8.79E-04	19	5.70%	413	1.07E-03
4	0.26%	19	4.91E-05	12	5.89%	427	1.11E-03	20	4.27%	310	8.05E-04
5	0.50%	36	9.40E-05	13	6.15%	446	1.16E-03	21	3.26%	236	6.14E-04
6	0.90%	66	1.70E-04	14	6.04%	438	1.14E-03	22	3.30%	239	6.22E-04
7	3.79%	275	7.14E-04	15	7.01%	509	1.32E-03	23	2.46%	179	4.64E-04
8	7.76%	563	1.46E-03	16	7.14%	518	1.35E-03	24	1.87%	135	3.52E-04
								Total		7,254	

2026 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG_Main

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	83	1.79E-04	9	7.11%	516	1.11E-03	17	7.38%	536	1.15E-03
2	0.42%	31	6.54E-05	10	4.39%	318	6.83E-04	18	8.18%	593	1.27E-03
3	0.41%	29	6.31E-05	11	4.66%	338	7.25E-04	19	5.70%	413	8.87E-04
4	0.26%	19	4.06E-05	12	5.89%	427	9.16E-04	20	4.27%	310	6.64E-04
5	0.50%	36	7.76E-05	13	6.15%	446	9.57E-04	21	3.26%	236	5.07E-04
6	0.90%	66	1.41E-04	14	6.04%	438	9.39E-04	22	3.30%	239	5.13E-04
7	3.79%	275	5.89E-04	15	7.01%	509	1.09E-03	23	2.46%	179	3.83E-04
8	7.76%	563	1.21E-03	16	7.14%	518	1.11E-03	24	1.87%	135	2.90E-04
								Total		7,254	

Arbor, 255 W. Julian Street, San Jose, CA - W. St James ST / W Julian ST Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
at Construction MEI Receptors (PM2.5 1.5m receptor height, Cancer Risk 8.2m height)

Emission Year	2026
Receptor Information	Construction MEI receptors
Number of Receptors	2
Receptor Height	PM2.5 1.5 meters, Cancer Risk 8.2 meters
Receptor Distances	At Construction MEI locations
Meteorological Conditions	
BAQMD San Jose Airport Met Data	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Wind Direction	Variable

Construction MEI Cancer Risk Maximum Concentrations - 8.2m

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0007	0.0329	0.0435

Construction MEI PM2.5 Maximum Concentrations - 1.5m

Meteorological Data Years	PM2.5 Concentration (µg/m3)*		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.0552	0.0507	0.0045

Arbor, 255 W. Julian Street, San Jose, CA - W. St James ST / W Julian ST Cancer Risk
Impacts at Construction MEI - PM2.5 1.5 meter receptor height, Cancer Risk 8.2m 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 $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

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

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

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

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

Values

	Infant/Child			Adult
Age –>	**3rd Trimester**	**0 - 2**	**2 - 16**	**16 - 30**
Parameter				
ASF =	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	0.85	0.85	0.72	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*	2026	10	0.0007	0.0329	0.0435	0.008	0.002	0.0002	0.01
1	1	0 - 1	2026	10	0.0007	0.0329	0.0435	0.094	0.026	0.0020	0.12
2	1	1 - 2	2027	10	0.0007	0.0329	0.0435	0.094	0.026	0.0020	0.12
3	1	2 - 3	2028	3	0.0007	0.0329	0.0435	0.012	0.003	0.0003	0.02
4	1	3 - 4	2029	3	0.0007	0.0329	0.0435	0.012	0.003	0.0003	0.02
5	1	4 - 5	2030	3	0.0007	0.0329	0.0435	0.012	0.003	0.0003	0.02
6	1	5 - 6	2031	3	0.0007	0.0329	0.0435	0.012	0.003	0.0003	0.02
7	1	6 - 7	2032	3	0.0007	0.0329	0.0435	0.012	0.003	0.0003	0.02
8	1	7 - 8	2033	3	0.0007	0.0329	0.0435	0.012	0.003	0.0003	0.02
9	1	8 - 9	2034	3	0.0007	0.0329	0.0435	0.012	0.003	0.0003	0.02
10	1	9 - 10	2035	3	0.0007	0.0329	0.0435	0.012	0.003	0.0003	0.02
11	1	10 - 11	2036	3	0.0007	0.0329	0.0435	0.012	0.003	0.0003	0.02
12	1	11 - 12	2037	3	0.0007	0.0329	0.0435	0.012	0.003	0.0003	0.02
13	1	12 - 13	2038	3	0.0007	0.0329	0.0435	0.012	0.003	0.0003	0.02
14	1	13 - 14	2039	3	0.0007	0.0329	0.0435	0.012	0.003	0.0003	0.02
15	1	14 - 15	2040	3	0.0007	0.0329	0.0435	0.012	0.003	0.0003	0.02
16	1	15 - 16	2041	3	0.0007	0.0329	0.0435	0.012	0.003	0.0003	0.02
17	1	16-17	2042	1	0.0007	0.0329	0.0435	0.002	0.001	0.0000	0.00
18	1	17-18	2043	1	0.0007	0.0329	0.0435	0.002	0.001	0.0000	0.00
19	1	18-19	2044	1	0.0007	0.0329	0.0435	0.002	0.001	0.0000	0.00
20	1	19-20	2045	1	0.0007	0.0329	0.0435	0.002	0.001	0.0000	0.00
21	1	20-21	2046	1	0.0007	0.0329	0.0435	0.002	0.001	0.0000	0.00
22	1	21-22	2047	1	0.0007	0.0329	0.0435	0.002	0.001	0.0000	0.00
23	1	22-23	2048	1	0.0007	0.0329	0.0435	0.002	0.001	0.0000	0.00
24	1	23-24	2049	1	0.0007	0.0329	0.0435	0.002	0.001	0.0000	0.00
25	1	24-25	2050	1	0.0007	0.0329	0.0435	0.002	0.001	0.0000	0.00
26	1	25-26	2051	1	0.0007	0.0329	0.0435	0.002	0.001	0.0000	0.00
27	1	26-27	2052	1	0.0007	0.0329	0.0435	0.002	0.001	0.0000	0.00
28	1	27-28	2053	1	0.0007	0.0329	0.0435	0.002	0.001	0.0000	0.00
29	1	28-29	2054	1	0.0007	0.0329	0.0435	0.002	0.001	0.0000	0.00
30	1	29-30	2055	1	0.0007	0.0329	0.0435	0.002	0.001	0.0000	0.00
Total Increased Cancer Risk								0.40	0.111	0.009	**0.52**

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.0001	0.05	0.06

* Third trimester of pregnancy

N. Market Street/Coleman Avenue Emissions 2026 and Health Risk Calculations

Analysis Year = ***2026***

Vehicle Type	2023 Caltrans Vehicles (veh/day)	2026 Vehicles (veh/day)
Truck 1 (MDT)	563	580
Truck 2 (HDT)	151	156
Non-Truck	19,645	20,235
Total	**20,360**	**20,971**

Increase From 2023	1.03
Vehicles/Direction	**10,485**
Avg Vehicles/Hour/Direction	437

Traffic Data Year = ***2023***

Proejct Traffic Backgrond Plus Project ADT		Total	Trucks by Axle			
	AADT Total	Truck	2	3	4	5
Coleman Avenue/Market Street and Julian Street	20,360	715	563	79	22	50
			78.81%	11.07%	3.10%	7.02%
Percent of Total Vehicles		3.51%	2.77%	0.39%	0.11%	0.25%

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

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - Market Street / Coleman Ave
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = **2026** 13.315

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	Line Area: Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
DPM_MAR	Market Street / Coleman Avenue Northbound	NB	2	677.2	0.42	13.3	43.7	3.4	25	10,485	9,017	97,059	2.447E-09	1.804E-09	6.8	3.16
DPM_MAR	Market Street / Coleman Avenue Southbound	SB	2	694.2	0.43	13.3	43.7	3.4	25	10,485	9,243	99,495	2.447E-09	1.804E-09	6.8	3.16
									Total	20,971						

Emission Factors - DPM

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.00043			

Emisson Factors from CT-EMFAC2021

2026
Hourl
Hour

2026 Hourly Traffic Volumes and DPM Emissions - DPM_MAR

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	3.98%	417	2.11E-05	9	6.44%	675	3.41E-05	17	5.53%	580	2.93E-05
2	2.67%	280	1.41E-05	10	7.40%	775	3.92E-05	18	3.14%	330	1.66E-05
3	2.84%	298	1.50E-05	11	6.32%	662	3.34E-05	19	2.35%	246	1.24E-05
4	3.30%	346	1.74E-05	12	6.88%	722	3.64E-05	20	0.86%	90	4.56E-06
5	2.16%	226	1.14E-05	13	6.27%	657	3.32E-05	21	3.08%	323	1.63E-05
6	3.30%	346	1.74E-05	14	6.21%	651	3.29E-05	22	4.21%	442	2.23E-05
7	6.03%	632	3.19E-05	15	5.13%	538	2.72E-05	23	2.62%	275	1.39E-05
8	4.56%	478	2.42E-05	16	3.88%	407	2.05E-05	24	0.85%	89	4.51E-06
								Total		10,485	

2026 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_MAR

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.98%	417	2.16E-05	9	6.44%	675	3.49E-05	17	5.53%	580	3.00E-05
2	2.67%	280	1.45E-05	10	7.40%	775	4.01E-05	18	3.14%	330	1.71E-05
3	2.84%	298	1.54E-05	11	6.32%	662	3.43E-05	19	2.35%	246	1.27E-05
4	3.30%	346	1.79E-05	12	6.88%	722	3.74E-05	20	0.86%	90	4.67E-06
5	2.16%	226	1.17E-05	13	6.27%	657	3.40E-05	21	3.08%	323	1.67E-05
6	3.30%	346	1.79E-05	14	6.21%	651	3.37E-05	22	4.21%	442	2.29E-05
7	6.03%	632	3.27E-05	15	5.13%	538	2.78E-05	23	2.62%	275	1.42E-05
8	4.56%	478	2.48E-05	16	3.88%	407	2.11E-05	24	0.85%	89	4.63E-06
								Total		10,485	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - Market Street / Coleman Ave
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2026

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
PM25_MAR	Market Street / Coleman Avenue Northbound	NB	2	677.2	0.42	13.3	44	1.3	25	10,485	9,017	97,059	1.133E-08	8.351E-09	2.6	1.21
PM25_MAR	Market Street / Coleman Avenue Southbound	SB	2	694.2	0.43	13.3	44	1.3	25	10,485	9,243	99,495	1.133E-08	8.351E-09	2.6	1.21
									Total	20,971						

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.002000			

Emisson Factors from CT-EMFAC2021

2026
Hourl

Hour

2026 Hourly Traffic Volumes and PM2.5 Emissions - PM25_MAR

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	121	2.82E-05	9	7.11%	746	1.74E-04	17	7.38%	774	1.81E-04
2	0.42%	44	1.03E-05	10	4.39%	460	1.08E-04	18	8.18%	858	2.01E-04
3	0.41%	43	1.00E-05	11	4.66%	489	1.14E-04	19	5.70%	598	1.40E-04
4	0.26%	27	6.37E-06	12	5.89%	618	1.44E-04	20	4.27%	448	1.05E-04
5	0.50%	52	1.23E-05	13	6.15%	645	1.51E-04	21	3.26%	342	7.99E-05
6	0.90%	94	2.21E-05	14	6.04%	633	1.48E-04	22	3.30%	346	8.09E-05
7	3.79%	397	9.29E-05	15	7.01%	735	1.72E-04	23	2.46%	258	6.03E-05
8	7.76%	814	1.90E-04	16	7.14%	749	1.75E-04	24	1.87%	196	4.58E-05
								Total		10,485	

2026 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM25_MAR

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	121	2.89E-05	9	7.11%	746	1.79E-04	17	7.38%	774	1.85E-04
2	0.42%	44	1.06E-05	10	4.39%	460	1.10E-04	18	8.18%	858	2.06E-04
3	0.41%	43	1.03E-05	11	4.66%	489	1.17E-04	19	5.70%	598	1.43E-04
4	0.26%	27	6.53E-06	12	5.89%	618	1.48E-04	20	4.27%	448	1.07E-04
5	0.50%	52	1.26E-05	13	6.15%	645	1.55E-04	21	3.26%	342	8.19E-05
6	0.90%	94	2.26E-05	14	6.04%	633	1.52E-04	22	3.30%	346	8.29E-05
7	3.79%	397	9.52E-05	15	7.01%	735	1.76E-04	23	2.46%	258	6.18E-05
8	7.76%	814	1.95E-04	16	7.14%	749	1.79E-04	24	1.87%	196	4.70E-05
								Total		10,485	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - Market Street / Coleman Ave
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = **2026**

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
TEXH_MAR	Market Street / Coleman Avenue Northbound	NB	2	677.2	0.42	13.3	44	1.3	25	10,485	9,017	97,059	1.665E-07	1.228E-07	2.6	1.21
TEXH_MAR	Market Street / Coleman Avenue Southbound	SB	2	694.2	0.43	13.3	44	1.3	25	10,485	9,243	99,495	1.665E-07	1.228E-07	2.6	1.21
									Total	20,971						

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.02940			

Emisson Factors from CT-EMFAC2021

2026
Hourl

Hour

2026 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_MAR

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	121	4.14E-04	9	7.11%	746	2.56E-03	17	7.38%	774	2.66E-03
2	0.42%	44	1.51E-04	10	4.39%	460	1.58E-03	18	8.18%	858	2.95E-03
3	0.41%	43	1.48E-04	11	4.66%	489	1.68E-03	19	5.70%	598	2.05E-03
4	0.26%	27	9.37E-05	12	5.89%	618	2.12E-03	20	4.27%	448	1.54E-03
5	0.50%	52	1.80E-04	13	6.15%	645	2.22E-03	21	3.26%	342	1.17E-03
6	0.90%	94	3.24E-04	14	6.04%	633	2.18E-03	22	3.30%	346	1.19E-03
7	3.79%	397	1.37E-03	15	7.01%	735	2.53E-03	23	2.46%	258	8.86E-04
8	7.76%	814	2.80E-03	16	7.14%	749	2.57E-03	24	1.87%	196	6.74E-04
								Total		10,485	

2026 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH_MAR

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	121	4.25E-04	9	7.11%	746	2.63E-03	17	7.38%	774	2.73E-03
2	0.42%	44	1.55E-04	10	4.39%	460	1.62E-03	18	8.18%	858	3.02E-03
3	0.41%	43	1.51E-04	11	4.66%	489	1.72E-03	19	5.70%	598	2.11E-03
4	0.26%	27	9.60E-05	12	5.89%	618	2.18E-03	20	4.27%	448	1.58E-03
5	0.50%	52	1.85E-04	13	6.15%	645	2.27E-03	21	3.26%	342	1.20E-03
6	0.90%	94	3.32E-04	14	6.04%	633	2.23E-03	22	3.30%	346	1.22E-03
7	3.79%	397	1.40E-03	15	7.01%	735	2.59E-03	23	2.46%	258	9.09E-04
8	7.76%	814	2.87E-03	16	7.14%	749	2.64E-03	24	1.87%	196	6.91E-04
								Total		10,485	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - Market Street / Coleman Ave
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2026

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
TEVAP_MAR	Market Street / Coleman Avenue Northbound	NB	2	677.2	0.42	13.3	44	1.3	25	10,485	9,017	97,059	2.204E-07	1.625E-07	2.6	1.21
TEVAP_MAR	Market Street / Coleman Avenue Southbound	SB	2	694.2	0.43	13.3	44	1.3	25	10,485	9,243	99,495	2.204E-07	1.625E-07	2.6	1.21
									Total	20,971						

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Emissions per Vehicle per Hour (g/hour)	0.97293			
Emissions per Vehicle per Mile (g/VMT)	0.03892			

Emisson Factors from CT-EMFAC2021

2026
Hourl

Hour	
1.97E+00	1

2026 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_MAR

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	121	5.49E-04	9	7.11%	746	3.39E-03	17	7.38%	774	3.52E-03
2	0.42%	44	2.00E-04	10	4.39%	460	2.09E-03	18	8.18%	858	3.90E-03
3	0.41%	43	1.96E-04	11	4.66%	489	2.22E-03	19	5.70%	598	2.72E-03
4	0.26%	27	1.24E-04	12	5.89%	618	2.81E-03	20	4.27%	448	2.04E-03
5	0.50%	52	2.38E-04	13	6.15%	645	2.93E-03	21	3.26%	342	1.55E-03
6	0.90%	94	4.29E-04	14	6.04%	633	2.88E-03	22	3.30%	346	1.57E-03
7	3.79%	397	1.81E-03	15	7.01%	735	3.34E-03	23	2.46%	258	1.17E-03
8	7.76%	814	3.70E-03	16	7.14%	749	3.41E-03	24	1.87%	196	8.92E-04
								Total		10,485	

2026 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP_MAR

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	121	5.62E-04	9	7.11%	746	3.48E-03	17	7.38%	774	3.61E-03
2	0.42%	44	2.05E-04	10	4.39%	460	2.15E-03	18	8.18%	858	4.00E-03
3	0.41%	43	2.00E-04	11	4.66%	489	2.28E-03	19	5.70%	598	2.79E-03
4	0.26%	27	1.27E-04	12	5.89%	618	2.88E-03	20	4.27%	448	2.09E-03
5	0.50%	52	2.44E-04	13	6.15%	645	3.01E-03	21	3.26%	342	1.59E-03
6	0.90%	94	4.40E-04	14	6.04%	633	2.95E-03	22	3.30%	346	1.61E-03
7	3.79%	397	1.85E-03	15	7.01%	735	3.43E-03	23	2.46%	258	1.20E-03
8	7.76%	814	3.79E-03	16	7.14%	749	3.49E-03	24	1.87%	196	9.14E-04
								Total		10,485	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - Market Street / Coleman Ave
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = **2026**

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
FUG_MAR	Market Street / Coleman Avenue Northbound	NB	2	677.2	0.42	13.3	44	1.3	25	10,485	9,017	97,059	1.287E-07	9.490E-08	2.6	1.21
FUG_MAR	Market Street / Coleman Avenue Southbound	SB	2	694.2	0.43	13.3	44	1.3	25	10,485	9,243	99,495	1.287E-07	9.490E-08	2.6	1.21
									Total	20,971						

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00210			
Brake Wear - Emissions per Vehicle (g/VMT)	0.00538			
Road Dust - Emissions per Vehicle (g/VMT)	0.01525			
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.02273			

Emisson Factors from CT-EMFAC2021

2026 Hourl	
	Hour
1.15E+00	1
4.21E-01	2
4.11E-01	3

2026 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_MAR

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	121	3.20E-04	9	7.11%	746	1.98E-03	17	7.38%	774	2.06E-03
2	0.42%	44	1.17E-04	10	4.39%	460	1.22E-03	18	8.18%	858	2.28E-03
3	0.41%	43	1.14E-04	11	4.66%	489	1.30E-03	19	5.70%	598	1.59E-03
4	0.26%	27	7.24E-05	12	5.89%	618	1.64E-03	20	4.27%	448	1.19E-03
5	0.50%	52	1.39E-04	13	6.15%	645	1.71E-03	21	3.26%	342	9.08E-04
6	0.90%	94	2.51E-04	14	6.04%	633	1.68E-03	22	3.30%	346	9.19E-04
7	3.79%	397	1.06E-03	15	7.01%	735	1.95E-03	23	2.46%	258	6.85E-04
8	7.76%	814	2.16E-03	16	7.14%	749	1.99E-03	24	1.87%	196	5.21E-04
								Total		10,485	

2026 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG_MAR

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	121	3.28E-04	9	7.11%	746	2.03E-03	17	7.38%	774	2.11E-03
2	0.42%	44	1.20E-04	10	4.39%	460	1.25E-03	18	8.18%	858	2.34E-03
3	0.41%	43	1.17E-04	11	4.66%	489	1.33E-03	19	5.70%	598	1.63E-03
4	0.26%	27	7.42E-05	12	5.89%	618	1.68E-03	20	4.27%	448	1.22E-03
5	0.50%	52	1.43E-04	13	6.15%	645	1.76E-03	21	3.26%	342	9.31E-04
6	0.90%	94	2.57E-04	14	6.04%	633	1.72E-03	22	3.30%	346	9.42E-04
7	3.79%	397	1.08E-03	15	7.01%	735	2.00E-03	23	2.46%	258	7.02E-04
8	7.76%	814	2.22E-03	16	7.14%	749	2.04E-03	24	1.87%	196	5.34E-04
								Total		10,485	

Arbor, 255 W. Julian Street, San Jose, CA - Market ST / Coleman Ave Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
at Construction MEI Receptors (PM2.5 1.5m receptor height, Cancer Risk 8.2m height)

Emission Year	2026
Receptor Information	Construction MEI receptors
Number of Receptors	2
Receptor Height	PM2.5 1.5 meters, Cancer Risk 8.2 meters
Receptor Distances	At Construction MEI locations
Meteorological Conditions	
BAQMD San Jose Airport Met Data	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Wind Direction	Variable

Construction MEI Cancer Risk Maximum Concentrations - 8.2m

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0003	0.0136	0.0180

Construction MEI PM2.5 Maximum Concentrations - 1.5m

Meteorological Data Years	PM2.5 Concentration (µg/m3)*		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.0135	0.0124	0.0011

Arbor, 255 W. Julian Street, San Jose, CA - Market ST / Coleman Ave Cancer Risk
Impacts at Construction MEI - PM2.5 1.5 meter receptor height, Cancer Risk 8.2m 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 $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

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

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

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

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

Values

	Infant/Child			Adult
Age -->	3rd Trimester	0 - 2	2 - 16	16 - 30
Parameter				
ASF =	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	0.85	0.85	0.72	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*	2026	10	0.0003	0.0136	0.0180	0.003	0.001	0.0001	0.00
1	1	0 - 1	2026	10	0.0003	0.0136	0.0180	0.039	0.011	0.0008	0.05
2	1	1 - 2	2027	10	0.0003	0.0136	0.0180	0.039	0.011	0.0008	0.05
3	1	2 - 3	2028	3	0.0003	0.0136	0.0180	0.005	0.001	0.0001	0.01
4	1	3 - 4	2029	3	0.0003	0.0136	0.0180	0.005	0.001	0.0001	0.01
5	1	4 - 5	2030	3	0.0003	0.0136	0.0180	0.005	0.001	0.0001	0.01
6	1	5 - 6	2031	3	0.0003	0.0136	0.0180	0.005	0.001	0.0001	0.01
7	1	6 - 7	2032	3	0.0003	0.0136	0.0180	0.005	0.001	0.0001	0.01
8	1	7 - 8	2033	3	0.0003	0.0136	0.0180	0.005	0.001	0.0001	0.01
9	1	8 - 9	2034	3	0.0003	0.0136	0.0180	0.005	0.001	0.0001	0.01
10	1	9 - 10	2035	3	0.0003	0.0136	0.0180	0.005	0.001	0.0001	0.01
11	1	10 - 11	2036	3	0.0003	0.0136	0.0180	0.005	0.001	0.0001	0.01
12	1	11 - 12	2037	3	0.0003	0.0136	0.0180	0.005	0.001	0.0001	0.01
13	1	12 - 13	2038	3	0.0003	0.0136	0.0180	0.005	0.001	0.0001	0.01
14	1	13 - 14	2039	3	0.0003	0.0136	0.0180	0.005	0.001	0.0001	0.01
15	1	14 - 15	2040	3	0.0003	0.0136	0.0180	0.005	0.001	0.0001	0.01
16	1	15 - 16	2041	3	0.0003	0.0136	0.0180	0.005	0.001	0.0001	0.01
17	1	16-17	2042	1	0.0003	0.0136	0.0180	0.001	0.000	0.0000	0.00
18	1	17-18	2043	1	0.0003	0.0136	0.0180	0.001	0.000	0.0000	0.00
19	1	18-19	2044	1	0.0003	0.0136	0.0180	0.001	0.000	0.0000	0.00
20	1	19-20	2045	1	0.0003	0.0136	0.0180	0.001	0.000	0.0000	0.00
21	1	20-21	2046	1	0.0003	0.0136	0.0180	0.001	0.000	0.0000	0.00
22	1	21-22	2047	1	0.0003	0.0136	0.0180	0.001	0.000	0.0000	0.00
23	1	22-23	2048	1	0.0003	0.0136	0.0180	0.001	0.000	0.0000	0.00
24	1	23-24	2049	1	0.0003	0.0136	0.0180	0.001	0.000	0.0000	0.00
25	1	24-25	2050	1	0.0003	0.0136	0.0180	0.001	0.000	0.0000	0.00
26	1	25-26	2051	1	0.0003	0.0136	0.0180	0.001	0.000	0.0000	0.00
27	1	26-27	2052	1	0.0003	0.0136	0.0180	0.001	0.000	0.0000	0.00
28	1	27-28	2053	1	0.0003	0.0136	0.0180	0.001	0.000	0.0000	0.00
29	1	28-29	2054	1	0.0003	0.0136	0.0180	0.001	0.000	0.0000	0.00
30	1	29-30	2055	1	0.0003	0.0136	0.0180	0.001	0.000	0.0000	0.00
Total Increased Cancer Risk								0.17	0.046	0.004	**0.22**

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.0001	0.01	0.01

* Third trimester of pregnancy

CT-EMFAC2021 Emissions Factors for S.R. 87 2029

File Name: Arbor Highway - Santa Clara (SF) - 2029 - Annual.EF
CT-EMFAC2017 Version: 1.0.2.0
Run Date: 3/7/2025 9:47
Area: Santa Clara (SF)
Analysis Year: 2029
Season: Annual

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category	Gas VMT Fraction Within Category
Truck 1	0.027	0.403	0.528
Truck 2	0.01	0.873	0.043
Non-Truck	0.963	0.006	0.907

Road Type: Major/Collector
Silt Loading Factor: CARB 0.015 g/m2
Precipitation Correction: CARB P = 63 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	55 mph	60 mph	65 mph	70 mph	75 mph
PM2.5	0.007001	0.004591	0.003155	0.00228	0.001734	0.001387	0.001166	0.001035	0.000971	0.000964	0.001009	0.001108	0.001266	0.001357	0.001357
TOG	0.100198	0.064953	0.043848	0.031426	0.023883	0.019088	0.015979	0.013991	0.012809	0.012278	0.012327	0.013014	0.014422	0.01545	0.015451
Diesel PM	0.000875	0.000748	0.000601	0.000489	0.00041	0.000354	0.000318	0.000299	0.000298	0.000315	0.000349	0.000397	0.000452	0.000455	0.000455

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

Pollutant Name	Emission Factor
TOG	0.906745

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

Pollutant Name	Emission Factor
PM2.5	0.002067

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

Pollutant Name	Emission Factor														
	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
PM2.5	0.003415	0.003957	0.004496	0.005029	0.005325	0.005416	0.005471	0.005005	0.004001	0.003006	0.00237	0.002068	0.001767	0.001767	0.001767

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

Pollutant Name	Emission Factor
PM2.5	0.007331

END

S.R. 87 Emissions 2029 and Health Risk Calculations

Analysis Year = ***2029***

Vehicle Type	2022 Caltrans Vehicles (veh/day)	2029 Vehicles (veh/day)
Truck 1 (MDT)	2,736	2,928
Truck 2 (HDT)	1,075	1,150
Non-Truck	99,189	106,132
Total	**103,000**	**110,210**

Increase From 2022	1.07
Vehicles/Direction	**55,105**
Avg Vehicles/Hour/Direction	2,296

Traffic Data Year = ***2022***

Caltrans AADT & Truck %s	AADT Total	Total Truck	Trucks by Axle 2	3	4	5
SAN JOSE, JULIAN STREET Ahead / SAN JOSE, JCT. RTE. 280 Ahead	103,000	3,811	2,736	495	130	450
			71.80%	13.00%	3.40%	11.80%
Percent of Total Vehicles		3.70%	2.66%	0.48%	0.13%	0.44%

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

3,811	Trucks	100.00%
1.0%	HDT	Truck 2
2.7%	MDT	Truck 1
3.70%	Total	
96.3%	Other	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - S.R. 87
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2029 20.63

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	Line Area					(Sigma z) Initial Vertical Dimension
											Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	
DPM_87	S.R. 87 Northbound	NB	4	723.7	0.45	20.6	67.7	3.4	Varied	55,105	14,930	160,708	8.683E-09	6.402E-09	6.8	3.16
DPM_87	S.R. 87 Southbound	SB	4	706.7	0.44	20.6	67.7	3.4	Varied	55,105	14,580	156,932	8.683E-09	6.402E-09	6.8	3.16
									Total	110,210						

Emission Factors - DPM

Speed Category	1	2	3	4
Travel Speed (mph)	65	60	25	
Emissions per Vehicle (g/VMT)	0.00045	0.000397	0.000410	

Emisson Factors from CT-EMFAC2021

2029
Hourl
Hour

2029 Hourly Traffic Volumes and DPM Emissions - DPM_87

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.78%	428	2.42E-05	9	8.20%	4520	2.31E-04	17	5.10%	2813	1.39E-04
2	0.48%	266	1.50E-05	10	7.39%	4072	2.30E-04	18	5.08%	2797	1.39E-04
3	0.48%	266	1.50E-05	11	6.33%	3490	1.97E-04	19	4.26%	2347	1.33E-04
4	0.74%	409	2.31E-05	12	5.69%	3136	1.77E-04	20	3.56%	1960	1.11E-04
5	1.93%	1062	6.00E-05	13	5.42%	2985	1.69E-04	21	3.05%	1682	9.50E-05
6	5.36%	2952	1.67E-04	14	5.38%	2967	1.68E-04	22	2.66%	1467	8.28E-05
7	6.59%	3630	2.05E-04	15	5.19%	2861	1.62E-04	23	2.05%	1130	6.38E-05
8	7.88%	4340	2.22E-04	16	5.11%	2817	1.59E-04	24	1.28%	706	3.98E-05
								Total		55,105	

2029 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_87

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.10%	607	3.34E-05	9	5.36%	2956	1.43E-04	17	6.83%	3765	1.88E-04
2	0.62%	343	1.89E-05	10	5.51%	3035	1.67E-04	18	6.74%	3715	1.86E-04
3	0.46%	255	1.40E-05	11	5.74%	3160	1.74E-04	19	6.06%	3340	1.84E-04
4	0.47%	261	1.44E-05	12	5.92%	3260	1.80E-04	20	5.14%	2833	1.56E-04
5	0.89%	491	2.71E-05	13	6.10%	3362	1.85E-04	21	4.32%	2381	1.31E-04
6	2.03%	1116	6.15E-05	14	6.24%	3438	1.90E-04	22	3.74%	2062	1.14E-04
7	3.49%	1925	1.06E-04	15	6.69%	3684	2.03E-04	23	2.91%	1604	8.84E-05
8	4.91%	2708	1.31E-04	16	6.78%	3739	2.06E-04	24	1.93%	1064	5.87E-05
								Total		55,105	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - S.R. 87
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = **2029**

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
PM25_87	S.R. 87 Northbound	NB	4	723.7	0.45	20.6	68	1.3	Varied	55,105	14,930	160,708	2.432E-08	1.793E-08	2.6	1.21
PM25_87	S.R. 87 Southbound	SB	4	706.7	0.44	20.6	68	1.3	Varied	55,105	14,580	156,932	2.432E-08	1.793E-08	2.6	1.21
									Total	110,210						

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	65	60	25	
Emissions per Vehicle (g/VMT)	0.001266	0.00111	0.001734	

Emisson Factors from CT-EMFAC2021

2029
Hourl

Hour

2029 Hourly Traffic Volumes and PM2.5 Emissions - PM25_87

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.78%	428	6.77E-05	9	8.20%	4520	9.79E-04	17	5.10%	2813	3.89E-04
2	0.48%	266	4.21E-05	10	7.39%	4072	6.44E-04	18	5.08%	2797	3.87E-04
3	0.48%	266	4.21E-05	11	6.33%	3490	5.52E-04	19	4.26%	2347	3.71E-04
4	0.74%	409	6.48E-05	12	5.69%	3136	4.96E-04	20	3.56%	1960	3.10E-04
5	1.93%	1062	1.68E-04	13	5.42%	2985	4.72E-04	21	3.05%	1682	2.66E-04
6	5.36%	2952	4.67E-04	14	5.38%	2967	4.69E-04	22	2.66%	1467	2.32E-04
7	6.59%	3630	5.74E-04	15	5.19%	2861	4.52E-04	23	2.05%	1130	1.79E-04
8	7.88%	4340	9.40E-04	16	5.11%	2817	4.45E-04	24	1.28%	706	1.12E-04
								Total		55,105	

2029 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM25_87

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.10%	607	9.37E-05	9	5.36%	2956	3.99E-04	17	6.83%	3765	7.96E-04
2	0.62%	343	5.30E-05	10	5.51%	3035	4.69E-04	18	6.74%	3715	7.86E-04
3	0.46%	255	3.93E-05	11	5.74%	3160	4.88E-04	19	6.06%	3340	5.16E-04
4	0.47%	261	4.04E-05	12	5.92%	3260	5.03E-04	20	5.14%	2833	4.37E-04
5	0.89%	491	7.59E-05	13	6.10%	3362	5.19E-04	21	4.32%	2381	3.68E-04
6	2.03%	1116	1.72E-04	14	6.24%	3438	5.31E-04	22	3.74%	2062	3.18E-04
7	3.49%	1925	2.97E-04	15	6.69%	3684	5.69E-04	23	2.91%	1604	2.48E-04
8	4.91%	2708	3.66E-04	16	6.78%	3739	5.77E-04	24	1.93%	1064	1.64E-04
								Total		55,105	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - S.R. 87
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2029

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
TEXH_87	S.R. 87 Northbound	NB	4	723.7	0.45	20.6	68	1.3	Varied	55,105	14,930	160,708	2.770E-07	2.043E-07	2.6	1.21
TEXH_87	S.R. 87 Southbound	SB	4	706.7	0.44	20.6	68	1.3	Varied	55,105	14,580	156,932	2.770E-07	2.043E-07	2.6	1.21
									Total	110,210						

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	65	60	25	
Emissions per Vehicle (g/VMT)	0.01442	0.01301	########	

Emisson Factors from CT-EMFAC2021

2029
Hourl

Hour

2029 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_87

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.78%	428	7.71E-04	9	8.20%	4520	1.35E-02	17	5.10%	2813	4.57E-03
2	0.48%	266	4.80E-04	10	7.39%	4072	7.34E-03	18	5.08%	2797	4.55E-03
3	0.48%	266	4.79E-04	11	6.33%	3490	6.29E-03	19	4.26%	2347	4.23E-03
4	0.74%	409	7.38E-04	12	5.69%	3136	5.65E-03	20	3.56%	1960	3.53E-03
5	1.93%	1062	1.91E-03	13	5.42%	2985	5.38E-03	21	3.05%	1682	3.03E-03
6	5.36%	2952	5.32E-03	14	5.38%	2967	5.35E-03	22	2.66%	1467	2.64E-03
7	6.59%	3630	6.54E-03	15	5.19%	2861	5.15E-03	23	2.05%	1130	2.04E-03
8	7.88%	4340	1.29E-02	16	5.11%	2817	5.07E-03	24	1.28%	706	1.27E-03
								Total		55,105	

2029 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH_87

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.10%	607	1.07E-03	9	5.36%	2956	4.69E-03	17	6.83%	3765	1.10E-02
2	0.62%	343	6.04E-04	10	5.51%	3035	5.34E-03	18	6.74%	3715	1.08E-02
3	0.46%	255	4.48E-04	11	5.74%	3160	5.56E-03	19	6.06%	3340	5.88E-03
4	0.47%	261	4.60E-04	12	5.92%	3260	5.74E-03	20	5.14%	2833	4.98E-03
5	0.89%	491	8.64E-04	13	6.10%	3362	5.91E-03	21	4.32%	2381	4.19E-03
6	2.03%	1116	1.96E-03	14	6.24%	3438	6.05E-03	22	3.74%	2062	3.63E-03
7	3.49%	1925	3.39E-03	15	6.69%	3684	6.48E-03	23	2.91%	1604	2.82E-03
8	4.91%	2708	4.30E-03	16	6.78%	3739	6.58E-03	24	1.93%	1064	1.87E-03
								Total		55,105	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - S.R. 87
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2029

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
TEVAP_87	S.R. 87 Northbound	NB	4	723.7	0.45	20.6	68	1.3	Varied	55,105	14,930	160,708	2.680E-07	1.976E-07	2.6	1.21
TEVAP_87	S.R. 87 Southbound	SB	4	706.7	0.44	20.6	68	1.3	Varied	55,105	14,580	156,932	2.680E-07	1.976E-07	2.6	1.21
									Total	110,210						

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	65	60	25	
Emissions per Vehicle per Hour (g/hour)	0.90675	0.90675	########	
Emissions per Vehicle per Mile (g/VMT)	0.01395	0.01511	########	

Emisson Factors from CT-EMFAC2021

2029
Hourl
Hour
2.69E+00 1

2029 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_87

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.78%	428	7.46E-04	9	8.20%	4520	2.05E-02	17	5.10%	2813	5.31E-03
2	0.48%	266	4.64E-04	10	7.39%	4072	7.10E-03	18	5.08%	2797	5.28E-03
3	0.48%	266	4.64E-04	11	6.33%	3490	6.08E-03	19	4.26%	2347	4.09E-03
4	0.74%	409	7.14E-04	12	5.69%	3136	5.47E-03	20	3.56%	1960	3.42E-03
5	1.93%	1062	1.85E-03	13	5.42%	2985	5.20E-03	21	3.05%	1682	2.93E-03
6	5.36%	2952	5.14E-03	14	5.38%	2967	5.17E-03	22	2.66%	1467	2.56E-03
7	6.59%	3630	6.33E-03	15	5.19%	2861	4.98E-03	23	2.05%	1130	1.97E-03
8	7.88%	4340	1.97E-02	16	5.11%	2817	4.91E-03	24	1.28%	706	1.23E-03
								Total		55,105	

2029 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP_87

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.10%	607	1.03E-03	9	5.36%	2956	5.45E-03	17	6.83%	3765	1.67E-02
2	0.62%	343	5.84E-04	10	5.51%	3035	5.16E-03	18	6.74%	3715	1.64E-02
3	0.46%	255	4.33E-04	11	5.74%	3160	5.38E-03	19	6.06%	3340	5.68E-03
4	0.47%	261	4.45E-04	12	5.92%	3260	5.55E-03	20	5.14%	2833	4.82E-03
5	0.89%	491	8.36E-04	13	6.10%	3362	5.72E-03	21	4.32%	2381	4.05E-03
6	2.03%	1116	1.90E-03	14	6.24%	3438	5.85E-03	22	3.74%	2062	3.51E-03
7	3.49%	1925	3.28E-03	15	6.69%	3684	6.27E-03	23	2.91%	1604	2.73E-03
8	4.91%	2708	4.99E-03	16	6.78%	3739	6.36E-03	24	1.93%	1064	1.81E-03
								Total		55,105	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - S.R. 87
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = **2029**

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
FUG_87	S.R. 87 Northbound	NB	4	723.7	0.45	20.6	68	1.3	Varied	55,105	14,930	160,708	2.145E-07	1.581E-07	2.6	1.21
FUG_87	S.R. 87 Southbound	SB	4	706.7	0.44	20.6	68	1.3	Varied	55,105	14,580	156,932	2.145E-07	1.581E-07	2.6	1.21
									Total	110,210						

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	65	60	25	
Tire Wear - Emissions per Vehicle (g/VMT)	0.00207	0.00207	########	
Brake Wear - Emissions per Vehicle (g/VMT)	0.00177	0.00207	########	
Road Dust - Emissions per Vehicle (g/VMT)	0.00733	0.00733	########	
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.01117	0.01147	########	

Emisson Factors from CT-EMFAC2021

2029 Hourl	
	Hour
2.15E+00	1
1.34E+00	2
1.34E+00	3

2029 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_87

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.78%	428	5.97E-04	9	8.20%	4520	8.31E-03	17	5.10%	2813	4.03E-03
2	0.48%	266	3.72E-04	10	7.39%	4072	5.68E-03	18	5.08%	2797	4.01E-03
3	0.48%	266	3.71E-04	11	6.33%	3490	4.87E-03	19	4.26%	2347	3.27E-03
4	0.74%	409	5.71E-04	12	5.69%	3136	4.37E-03	20	3.56%	1960	2.73E-03
5	1.93%	1062	1.48E-03	13	5.42%	2985	4.16E-03	21	3.05%	1682	2.35E-03
6	5.36%	2952	4.12E-03	14	5.38%	2967	4.14E-03	22	2.66%	1467	2.05E-03
7	6.59%	3630	5.06E-03	15	5.19%	2861	3.99E-03	23	2.05%	1130	1.58E-03
8	7.88%	4340	7.98E-03	16	5.11%	2817	3.93E-03	24	1.28%	706	9.84E-04
								Total		55,105	

2029 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG_87

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.10%	607	8.26E-04	9	5.36%	2956	4.13E-03	17	6.83%	3765	6.76E-03
2	0.62%	343	4.68E-04	10	5.51%	3035	4.13E-03	18	6.74%	3715	6.67E-03
3	0.46%	255	3.47E-04	11	5.74%	3160	4.30E-03	19	6.06%	3340	4.55E-03
4	0.47%	261	3.56E-04	12	5.92%	3260	4.44E-03	20	5.14%	2833	3.86E-03
5	0.89%	491	6.69E-04	13	6.10%	3362	4.58E-03	21	4.32%	2381	3.24E-03
6	2.03%	1116	1.52E-03	14	6.24%	3438	4.68E-03	22	3.74%	2062	2.81E-03
7	3.49%	1925	2.62E-03	15	6.69%	3684	5.02E-03	23	2.91%	1604	2.18E-03
8	4.91%	2708	3.79E-03	16	6.78%	3739	5.09E-03	24	1.93%	1064	1.45E-03
								Total		55,105	

Arbor, 255 W. Julian Street, San Jose, CA - SR 87 Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
On-Site 2nd (7.0m) & 3rd (10.7m) Floor Receptor Heights

Emission Year	2029
Receptor Information	Maximum On-Site Receptor
Number of Receptors	115
Receptor Height	2nd (7.0m) & 3rd (10.7m) Floors
Receptor Distances	7m grid spacing in building area

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

On-Site Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3) DPM	Exhaust TOG	Evaporative TOG	
2013-2017	0.0078	0.2933	0.3192	2nd Floor
2013-2017	0.0070	0.2586	0.2815	3rd Floor

On-Site PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3) Total PM2.5	Fugitive PM2.5	Vehicle PM2.5	
2013-2017	0.2453	0.2204	0.0248	2nd Floor
2013-2017	0.2161	0.1943	0.0219	3rd Floor

Arbor, 255 W. Julian Street, San Jose, CA - SR 87 Cancer Risk & PM2.5
Impacts at On-Site 2nd Floor Receptors - 7.0m receptor heights
30 Year Residential Exposure

Cancer Risk Calculation Method

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

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

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	0.25	-0.25 - 0*	2029	10	0.0078	0.2933	0.3192	0.106	0.023	0.0015	0.13
1	1	0 - 1	2029	10	0.0078	0.2933	0.3192	1.278	0.275	0.0176	1.57
2	1	1 - 2	2030	10	0.0078	0.2933	0.3192	1.278	0.275	0.0176	1.57
3	1	2 - 3	2031	3	0.0078	0.2933	0.3192	0.201	0.043	0.0028	0.25
4	1	3 - 4	2032	3	0.0078	0.2933	0.3192	0.201	0.043	0.0028	0.25
5	1	4 - 5	2033	3	0.0078	0.2933	0.3192	0.201	0.043	0.0028	0.25
6	1	5 - 6	2034	3	0.0078	0.2933	0.3192	0.201	0.043	0.0028	0.25
7	1	6 - 7	2035	3	0.0078	0.2933	0.3192	0.201	0.043	0.0028	0.25
8	1	7 - 8	2036	3	0.0078	0.2933	0.3192	0.201	0.043	0.0028	0.25
9	1	8 - 9	2037	3	0.0078	0.2933	0.3192	0.201	0.043	0.0028	0.25
10	1	9 - 10	2038	3	0.0078	0.2933	0.3192	0.201	0.043	0.0028	0.25
11	1	10 - 11	2039	3	0.0078	0.2933	0.3192	0.201	0.043	0.0028	0.25
12	1	11 - 12	2040	3	0.0078	0.2933	0.3192	0.201	0.043	0.0028	0.25
13	1	12 - 13	2041	3	0.0078	0.2933	0.3192	0.201	0.043	0.0028	0.25
14	1	13 - 14	2042	3	0.0078	0.2933	0.3192	0.201	0.043	0.0028	0.25
15	1	14 - 15	2043	3	0.0078	0.2933	0.3192	0.201	0.043	0.0028	0.25
16	1	15 - 16	2044	3	0.0078	0.2933	0.3192	0.201	0.043	0.0028	0.25
17	1	16-17	2045	1	0.0078	0.2933	0.3192	0.022	0.005	0.0003	0.03
18	1	17-18	2046	1	0.0078	0.2933	0.3192	0.022	0.005	0.0003	0.03
19	1	18-19	2047	1	0.0078	0.2933	0.3192	0.022	0.005	0.0003	0.03
20	1	19-20	2048	1	0.0078	0.2933	0.3192	0.022	0.005	0.0003	0.03
21	1	20-21	2049	1	0.0078	0.2933	0.3192	0.022	0.005	0.0003	0.03
22	1	21-22	2050	1	0.0078	0.2933	0.3192	0.022	0.005	0.0003	0.03
23	1	22-23	2051	1	0.0078	0.2933	0.3192	0.022	0.005	0.0003	0.03
24	1	23-24	2052	1	0.0078	0.2933	0.3192	0.022	0.005	0.0003	0.03
25	1	24-25	2053	1	0.0078	0.2933	0.3192	0.022	0.005	0.0003	0.03
26	1	25-26	2054	1	0.0078	0.2933	0.3192	0.022	0.005	0.0003	0.03
27	1	26-27	2055	1	0.0078	0.2933	0.3192	0.022	0.005	0.0003	0.03
28	1	27-28	2056	1	0.0078	0.2933	0.3192	0.022	0.005	0.0003	0.03
29	1	28-29	2057	1	0.0078	0.2933	0.3192	0.022	0.005	0.0003	0.03
30	1	29-30	2058	1	0.0078	0.2933	0.3192	0.022	0.005	0.0003	0.03
Total Increased Cancer Risk								5.79	1.246	0.080	**7.12**

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.002	0.22	0.25

* Third trimester of pregnancy

Arbor, 255 W. Julian Street, San Jose, CA - SR 87 Cancer Risk & PM2.5
Impacts at On-Site 3rd Floor Receptors - 10.7m receptor heights
30 Year Residential Exposure

Cancer Risk Calculation Method

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

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

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	0.25	-0.25 - 0*	2029	10	0.0070	0.2586	0.2815	0.095	0.020	0.0013	0.12
1	1	0 - 1	2029	10	0.0070	0.2586	0.2815	1.151	0.242	0.0156	1.41
2	1	1 - 2	2030	10	0.0070	0.2586	0.2815	1.151	0.242	0.0156	1.41
3	1	2 - 3	2031	3	0.0070	0.2586	0.2815	0.181	0.038	0.0024	0.22
4	1	3 - 4	2032	3	0.0070	0.2586	0.2815	0.181	0.038	0.0024	0.22
5	1	4 - 5	2033	3	0.0070	0.2586	0.2815	0.181	0.038	0.0024	0.22
6	1	5 - 6	2034	3	0.0070	0.2586	0.2815	0.181	0.038	0.0024	0.22
7	1	6 - 7	2035	3	0.0070	0.2586	0.2815	0.181	0.038	0.0024	0.22
8	1	7 - 8	2036	3	0.0070	0.2586	0.2815	0.181	0.038	0.0024	0.22
9	1	8 - 9	2037	3	0.0070	0.2586	0.2815	0.181	0.038	0.0024	0.22
10	1	9 - 10	2038	3	0.0070	0.2586	0.2815	0.181	0.038	0.0024	0.22
11	1	10 - 11	2039	3	0.0070	0.2586	0.2815	0.181	0.038	0.0024	0.22
12	1	11 - 12	2040	3	0.0070	0.2586	0.2815	0.181	0.038	0.0024	0.22
13	1	12 - 13	2041	3	0.0070	0.2586	0.2815	0.181	0.038	0.0024	0.22
14	1	13 - 14	2042	3	0.0070	0.2586	0.2815	0.181	0.038	0.0024	0.22
15	1	14 - 15	2043	3	0.0070	0.2586	0.2815	0.181	0.038	0.0024	0.22
16	1	15 - 16	2044	3	0.0070	0.2586	0.2815	0.181	0.038	0.0024	0.22
17	1	16-17	2045	1	0.0070	0.2586	0.2815	0.020	0.004	0.0003	0.02
18	1	17-18	2046	1	0.0070	0.2586	0.2815	0.020	0.004	0.0003	0.02
19	1	18-19	2047	1	0.0070	0.2586	0.2815	0.020	0.004	0.0003	0.02
20	1	19-20	2048	1	0.0070	0.2586	0.2815	0.020	0.004	0.0003	0.02
21	1	20-21	2049	1	0.0070	0.2586	0.2815	0.020	0.004	0.0003	0.02
22	1	21-22	2050	1	0.0070	0.2586	0.2815	0.020	0.004	0.0003	0.02
23	1	22-23	2051	1	0.0070	0.2586	0.2815	0.020	0.004	0.0003	0.02
24	1	23-24	2052	1	0.0070	0.2586	0.2815	0.020	0.004	0.0003	0.02
25	1	24-25	2053	1	0.0070	0.2586	0.2815	0.020	0.004	0.0003	0.02
26	1	25-26	2054	1	0.0070	0.2586	0.2815	0.020	0.004	0.0003	0.02
27	1	26-27	2055	1	0.0070	0.2586	0.2815	0.020	0.004	0.0003	0.02
28	1	27-28	2056	1	0.0070	0.2586	0.2815	0.020	0.004	0.0003	0.02
29	1	28-29	2057	1	0.0070	0.2586	0.2815	0.020	0.004	0.0003	0.02
30	1	29-30	2058	1	0.0070	0.2586	0.2815	0.020	0.004	0.0003	0.02
Total Increased Cancer Risk								5.22	1.099	0.070	**6.39**

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.001	0.19	0.22

* Third trimester of pregnancy

CT-EMFAC2021 Emissions Factors for Northbound S.R. 87 On-Ramp, W. Julian Street/W. St. James Street, and N. Market Street/Coleman Avenue 2029

File Name: Arbor Roadways - Santa Clara (SF) - 2029 - Annual.EF
CT-EMFAC2017 Version: 1.0.2.0
Run Date: 3/4/2025 15:12
Area: Santa Clara (SF)
Analysis Year: 2029
Season: Annual

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category	Gas VMT Fraction Within Category
Truck 1	0.017	0.403	0.528
Truck 2	0.018	0.873	0.043
Non-Truck	0.965	0.006	0.907

Road Type: Major/Collector
Silt Loading Factor: CARB 0.032 g/m2
Precipitation Correction: CARB P = 63 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
PM2.5	0.006888	0.004494	0.003063	0.002198	0.001665	0.001333	0.001131	0.00102	0.000978
TOG	0.102724	0.066378	0.044373	0.03163	0.023982	0.019148	0.016027	0.014039	0.012863
Diesel PM	0.00074	0.000648	0.000507	0.000405	0.000341	0.000301	0.000283	0.000285	0.000308

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

Pollutant Name	Emission Factor
TOG	0.897819

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

Pollutant Name	Emission Factor
PM2.5	0.002102

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

	Emission Factor								
Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph
PM2.5	0.003465	0.004008	0.004544	0.005073	0.005354	0.005438	0.005454	0.004962	0.003931

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

Pollutant Name	Emission Factor
PM2.5	0.01533

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

Northbound S.R. 87 On-Ramp Emissions 2029 and Health Risk Calculations

Analysis Year = ***2029***

Vehicle Type	2023 Caltrans Vehicles (veh/day)	2029 Vehicles (veh/day)
Truck 1 (MDT)	439	466
Truck 2 (HDT)	118	125
Non-Truck	15,327	16,247
Total	**15,885**	**16,838**
Increase From 2023		1.06
Vehicles/Direction		**8,419**
Avg Vehicles/Hour/Direction		351

Traffic Data Year = ***2023***

Proejct Traffic Backgrond Plus Project ADT	AADT Total	Total Truck	Trucks by Axle 2	3	4	5
SR-87 NB Ramps/Notre Dame Avenue and Julian Street/St. J	15,885	558	439	62	17	39
			78.81%	11.07%	3.10%	7.02%
Percent of Total Vehicles		3.51%	2.77%	0.39%	0.11%	0.25%

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

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - On-Ramp Northbound S.R. 87
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = **2029** 13.315

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	Line Area: Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
DPM_RAM	On-Ramp NB SR 87	NB	2	196.2	0.12	13.3	43.7	3.4	25	16,838	2,612	28,120	3.101E-09	2.287E-09	6.8	3.16

Emission Factors - DPM

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.00034			

Emisson Factors from CT-EMFAC2021

2029
Hourl

Hour

2029 Hourly Traffic Volumes and DPM Emissions - DPM_RAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	4.00%	674	7.78E-06	9	6.43%	1083	1.25E-05	17	5.58%	940	1.09E-05
2	2.65%	446	5.15E-06	10	7.39%	1244	1.44E-05	18	3.16%	532	6.15E-06
3	2.87%	484	5.59E-06	11	6.37%	1073	1.24E-05	19	2.20%	371	4.29E-06
4	3.27%	550	6.35E-06	12	6.99%	1177	1.36E-05	20	0.85%	143	1.66E-06
5	2.08%	351	4.05E-06	13	6.32%	1064	1.23E-05	21	3.05%	513	5.93E-06
6	3.32%	560	6.46E-06	14	6.20%	1045	1.21E-05	22	4.23%	713	8.23E-06
7	6.09%	1026	1.18E-05	15	5.13%	864	9.98E-06	23	2.59%	436	5.04E-06
8	4.46%	751	8.67E-06	16	3.89%	656	7.57E-06	24	0.85%	142	1.64E-06
								Total		16,838	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - On-Ramp Northbound S.R. 87
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2029

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
PM25_RAM	On-Ramp NB SR 87	NB	2	196.2	0.12	13.3	44	1.3	25	16,838	2,612	28,120	1.514E-08	1.116E-08	2.6	1.21

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.001665			

2029
Hourl

Emisson Factors from CT-EMFAC2021

Hour

2029 Hourly Traffic Volumes and PM2.5 Emissions - PM25_RAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	194	1.09E-05	9	7.11%	1198	6.75E-05	17	7.40%	1245	7.02E-05
2	0.42%	70	3.95E-06	10	4.39%	739	4.17E-05	18	8.18%	1378	7.77E-05
3	0.40%	68	3.81E-06	11	4.67%	786	4.43E-05	19	5.70%	960	5.41E-05
4	0.26%	44	2.45E-06	12	5.89%	991	5.59E-05	20	4.28%	720	4.06E-05
5	0.50%	84	4.72E-06	13	6.15%	1036	5.84E-05	21	3.25%	548	3.09E-05
6	0.90%	151	8.53E-06	14	6.03%	1016	5.73E-05	22	3.30%	556	3.13E-05
7	3.79%	638	3.60E-05	15	7.01%	1181	6.66E-05	23	2.46%	415	2.34E-05
8	7.76%	1307	7.37E-05	16	7.14%	1203	6.78E-05	24	1.86%	314	1.77E-05
								Total		16,838	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - On-Ramp Northbound S.R. 87
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2029

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
TEXH_RAM	On-Ramp NB SR 87	NB	2	196.2	0.12	13.3	44	1.3	25	16,838	2,612	28,120	2.181E-07	1.608E-07	2.6	1.21

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.02398			

2029
Hourl

Emisson Factors from CT-EMFAC2021

Hour

2029 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_RAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	194	1.57E-04	9	7.11%	1198	9.73E-04	17	7.40%	1245	1.01E-03
2	0.42%	70	5.69E-05	10	4.39%	739	6.00E-04	18	8.18%	1378	1.12E-03
3	0.40%	68	5.49E-05	11	4.67%	786	6.38E-04	19	5.70%	960	7.79E-04
4	0.26%	44	3.53E-05	12	5.89%	991	8.05E-04	20	4.28%	720	5.85E-04
5	0.50%	84	6.79E-05	13	6.15%	1036	8.41E-04	21	3.25%	548	4.45E-04
6	0.90%	151	1.23E-04	14	6.03%	1016	8.25E-04	22	3.30%	556	4.51E-04
7	3.79%	638	5.18E-04	15	7.01%	1181	9.59E-04	23	2.46%	415	3.37E-04
8	7.76%	1307	1.06E-03	16	7.14%	1203	9.77E-04	24	1.86%	314	2.55E-04
								Total		16,838	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - On-Ramp Northbound S.R. 87
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2029

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
TEVAP_RAM	On-Ramp NB SR 87	NB	2	196.2	0.12	13.3	44	1.3	25	16,838	2,612	28,120	3.266E-07	2.408E-07	2.6	1.21
							75.4									

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Emissions per Vehicle per Hour (g/hour)	0.89782			
Emissions per Vehicle per Mile (g/VMT)	0.03591			

Emisson Factors from CT-EMFAC2021

2029 Hourl

Hour	
8.47E-01	1

2029 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_RAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	194	2.35E-04	9	7.11%	1198	1.46E-03	17	7.40%	1245	1.51E-03
2	0.42%	70	8.52E-05	10	4.39%	739	8.99E-04	18	8.18%	1378	1.68E-03
3	0.40%	68	8.22E-05	11	4.67%	786	9.55E-04	19	5.70%	960	1.17E-03
4	0.26%	44	5.29E-05	12	5.89%	991	1.21E-03	20	4.28%	720	8.76E-04
5	0.50%	84	1.02E-04	13	6.15%	1036	1.26E-03	21	3.25%	548	6.66E-04
6	0.90%	151	1.84E-04	14	6.03%	1016	1.24E-03	22	3.30%	556	6.76E-04
7	3.79%	638	7.76E-04	15	7.01%	1181	1.44E-03	23	2.46%	415	5.04E-04
8	7.76%	1307	1.59E-03	16	7.14%	1203	1.46E-03	24	1.86%	314	3.81E-04
								Total		16,838	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - On-Ramp Northbound S.R. 87
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2029

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
FUG_RAM	On-Ramp NB SR 87	NB	2	196.2	0.12	13.3	44	1.3	25	16,838	2,612	28,120	2.072E-07	1.528E-07	2.6	1.21

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00210			
Brake Wear - Emissions per Vehicle (g/VMT)	0.00535			
Road Dust - Emissions per Vehicle (g/VMT)	0.01533			
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.02279			

Emisson Factors from CT-EMFAC2021

2029 Hourl

Hour	
5.38E-01	1
1.95E-01	2
1.88E-01	3

2029 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_RAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	194	1.49E-04	9	7.11%	1198	9.24E-04	17	7.40%	1245	9.61E-04
2	0.42%	70	5.41E-05	10	4.39%	739	5.70E-04	18	8.18%	1378	1.06E-03
3	0.40%	68	5.22E-05	11	4.67%	786	6.06E-04	19	5.70%	960	7.40E-04
4	0.26%	44	3.36E-05	12	5.89%	991	7.65E-04	20	4.28%	720	5.56E-04
5	0.50%	84	6.45E-05	13	6.15%	1036	7.99E-04	21	3.25%	548	4.23E-04
6	0.90%	151	1.17E-04	14	6.03%	1016	7.84E-04	22	3.30%	556	4.29E-04
7	3.79%	638	4.92E-04	15	7.01%	1181	9.11E-04	23	2.46%	415	3.20E-04
8	7.76%	1307	1.01E-03	16	7.14%	1203	9.28E-04	24	1.86%	314	2.42E-04
								Total		16,838	

Arbor, 255 W. Julian Street, San Jose, CA - On-Ramp NB SR 87 Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
On-Site 2nd (7.0m) & 3rd (10.7m) Floor Receptor Heights

Emission Year	2029
Receptor Information	Maximum On-Site Receptor
Number of Receptors	115
Receptor Height	2nd (7.0m) & 3rd (10.7m) Floors
Receptor Distances	7m grid spacing in building area

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

On-Site Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3) DPM	Exhaust TOG	Evaporative TOG	
2013-2017	0.0012	0.0773	0.1157	2nd Floor
2013-2017	0.0008	0.0322	0.0482	3rd Floor

On-Site PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3) Total PM2.5	Fugitive PM2.5	Vehicle PM2.5	
2013-2017	0.0788	0.0734	0.0054	2nd Floor
2013-2017	0.0328	0.0305	0.0022	3rd Floor

Arbor, 255 W. Julian Street, San Jose, CA - On-Ramp NB SR 87 Cancer Risk & PM2.5
Impacts at On-Site 2nd Floor Receptors - 7.0m receptor heights
30 Year Residential Exposure

Cancer Risk Calculation Method

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

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

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	0.25	-0.25 - 0*	2029	10	0.0012	0.0773	0.1157	0.016	0.006	0.0005	0.02
1	1	0 - 1	2029	10	0.0012	0.0773	0.1157	0.191	0.072	0.0064	0.27
2	1	1 - 2	2030	10	0.0012	0.0773	0.1157	0.191	0.072	0.0064	0.27
3	1	2 - 3	2031	3	0.0012	0.0773	0.1157	0.030	0.011	0.0010	0.04
4	1	3 - 4	2032	3	0.0012	0.0773	0.1157	0.030	0.011	0.0010	0.04
5	1	4 - 5	2033	3	0.0012	0.0773	0.1157	0.030	0.011	0.0010	0.04
6	1	5 - 6	2034	3	0.0012	0.0773	0.1157	0.030	0.011	0.0010	0.04
7	1	6 - 7	2035	3	0.0012	0.0773	0.1157	0.030	0.011	0.0010	0.04
8	1	7 - 8	2036	3	0.0012	0.0773	0.1157	0.030	0.011	0.0010	0.04
9	1	8 - 9	2037	3	0.0012	0.0773	0.1157	0.030	0.011	0.0010	0.04
10	1	9 - 10	2038	3	0.0012	0.0773	0.1157	0.030	0.011	0.0010	0.04
11	1	10 - 11	2039	3	0.0012	0.0773	0.1157	0.030	0.011	0.0010	0.04
12	1	11 - 12	2040	3	0.0012	0.0773	0.1157	0.030	0.011	0.0010	0.04
13	1	12 - 13	2041	3	0.0012	0.0773	0.1157	0.030	0.011	0.0010	0.04
14	1	13 - 14	2042	3	0.0012	0.0773	0.1157	0.030	0.011	0.0010	0.04
15	1	14 - 15	2043	3	0.0012	0.0773	0.1157	0.030	0.011	0.0010	0.04
16	1	15 - 16	2044	3	0.0012	0.0773	0.1157	0.030	0.011	0.0010	0.04
17	1	16-17	2045	1	0.0012	0.0773	0.1157	0.003	0.001	0.0001	0.00
18	1	17-18	2046	1	0.0012	0.0773	0.1157	0.003	0.001	0.0001	0.00
19	1	18-19	2047	1	0.0012	0.0773	0.1157	0.003	0.001	0.0001	0.00
20	1	19-20	2048	1	0.0012	0.0773	0.1157	0.003	0.001	0.0001	0.00
21	1	20-21	2049	1	0.0012	0.0773	0.1157	0.003	0.001	0.0001	0.00
22	1	21-22	2050	1	0.0012	0.0773	0.1157	0.003	0.001	0.0001	0.00
23	1	22-23	2051	1	0.0012	0.0773	0.1157	0.003	0.001	0.0001	0.00
24	1	23-24	2052	1	0.0012	0.0773	0.1157	0.003	0.001	0.0001	0.00
25	1	24-25	2053	1	0.0012	0.0773	0.1157	0.003	0.001	0.0001	0.00
26	1	25-26	2054	1	0.0012	0.0773	0.1157	0.003	0.001	0.0001	0.00
27	1	26-27	2055	1	0.0012	0.0773	0.1157	0.003	0.001	0.0001	0.00
28	1	27-28	2056	1	0.0012	0.0773	0.1157	0.003	0.001	0.0001	0.00
29	1	28-29	2057	1	0.0012	0.0773	0.1157	0.003	0.001	0.0001	0.00
30	1	29-30	2058	1	0.0012	0.0773	0.1157	0.003	0.001	0.0001	0.00
Total Increased Cancer Risk								0.86	0.328	0.029	**1.22**

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.0002	0.07	0.08

* Third trimester of pregnancy

Arbor, 255 W. Julian Street, San Jose, CA - On-Ramp NB SR 87 Cancer Risk & PM2.5
Impacts at On-Site 3rd Floor Receptors - 10.7m receptor heights
30 Year Residential Exposure

Cancer Risk Calculation Method

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

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

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	TOTAL
0	0.25	-0.25 - 0*	2029	10	0.0008	0.0322	0.0482	0.010	0.002	0.0002	0.01
1	1	0 - 1	2029	10	0.0008	0.0322	0.0482	0.123	0.030	0.0027	0.16
2	1	1 - 2	2030	10	0.0008	0.0322	0.0482	0.123	0.030	0.0027	0.16
3	1	2 - 3	2031	3	0.0008	0.0322	0.0482	0.019	0.005	0.0004	0.02
4	1	3 - 4	2032	3	0.0008	0.0322	0.0482	0.019	0.005	0.0004	0.02
5	1	4 - 5	2033	3	0.0008	0.0322	0.0482	0.019	0.005	0.0004	0.02
6	1	5 - 6	2034	3	0.0008	0.0322	0.0482	0.019	0.005	0.0004	0.02
7	1	6 - 7	2035	3	0.0008	0.0322	0.0482	0.019	0.005	0.0004	0.02
8	1	7 - 8	2036	3	0.0008	0.0322	0.0482	0.019	0.005	0.0004	0.02
9	1	8 - 9	2037	3	0.0008	0.0322	0.0482	0.019	0.005	0.0004	0.02
10	1	9 - 10	2038	3	0.0008	0.0322	0.0482	0.019	0.005	0.0004	0.02
11	1	10 - 11	2039	3	0.0008	0.0322	0.0482	0.019	0.005	0.0004	0.02
12	1	11 - 12	2040	3	0.0008	0.0322	0.0482	0.019	0.005	0.0004	0.02
13	1	12 - 13	2041	3	0.0008	0.0322	0.0482	0.019	0.005	0.0004	0.02
14	1	13 - 14	2042	3	0.0008	0.0322	0.0482	0.019	0.005	0.0004	0.02
15	1	14 - 15	2043	3	0.0008	0.0322	0.0482	0.019	0.005	0.0004	0.02
16	1	15 - 16	2044	3	0.0008	0.0322	0.0482	0.019	0.005	0.0004	0.02
17	1	16-17	2045	1	0.0008	0.0322	0.0482	0.002	0.001	0.0000	0.00
18	1	17-18	2046	1	0.0008	0.0322	0.0482	0.002	0.001	0.0000	0.00
19	1	18-19	2047	1	0.0008	0.0322	0.0482	0.002	0.001	0.0000	0.00
20	1	19-20	2048	1	0.0008	0.0322	0.0482	0.002	0.001	0.0000	0.00
21	1	20-21	2049	1	0.0008	0.0322	0.0482	0.002	0.001	0.0000	0.00
22	1	21-22	2050	1	0.0008	0.0322	0.0482	0.002	0.001	0.0000	0.00
23	1	22-23	2051	1	0.0008	0.0322	0.0482	0.002	0.001	0.0000	0.00
24	1	23-24	2052	1	0.0008	0.0322	0.0482	0.002	0.001	0.0000	0.00
25	1	24-25	2053	1	0.0008	0.0322	0.0482	0.002	0.001	0.0000	0.00
26	1	25-26	2054	1	0.0008	0.0322	0.0482	0.002	0.001	0.0000	0.00
27	1	26-27	2055	1	0.0008	0.0322	0.0482	0.002	0.001	0.0000	0.00
28	1	27-28	2056	1	0.0008	0.0322	0.0482	0.002	0.001	0.0000	0.00
29	1	28-29	2057	1	0.0008	0.0322	0.0482	0.002	0.001	0.0000	0.00
30	1	29-30	2058	1	0.0008	0.0322	0.0482	0.002	0.001	0.0000	0.00
Total Increased Cancer Risk								0.56	0.137	0.012	**0.71**

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.0002	0.03	0.03

* Third trimester of pregnancy

W. Julian Street/W. St. James Street Emissions 2029 and Health Risk Calculations

Analysis Year = ***2029***

Vehicle Type	2023 Caltrans Vehicles (veh/day)	2029 Vehicles (veh/day)
Truck 1 (MDT)	390	413
Truck 2 (HDT)	105	111
Non-Truck	13,591	14,406
Total	**14,085**	**14,930**

Increase From 2023	1.06
Vehicles/Direction	**7,465**
Avg Vehicles/Hour/Direction	311

Traffic Data Year = ***2023***

Proejct Traffic Backgrond Plus Project ADT		Total	Trucks by Axle			
	AADT Total	Truck	2	3	4	5
W. St James ST / Terraine ST	14,085	494	390	55	15	35
			78.81%	11.07%	3.10%	7.02%
Percent of Total Vehicles		3.51%	2.77%	0.39%	0.11%	0.25%

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

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - W. St. James Street / W. Julaian Street
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = **2029** 13.315

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	Line Area					(Sigma z) Initial Vertical Dimension
											Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	
DPM_JAM	W. St. James Street / W. Julaian Street Eastbound	EB	2	662.3	0.41	13.3	43.7	3.4	25	7,465	8,819	94,923	1.375E-09	1.014E-09	6.8	3.16
DPM_JAM	W. St. James Street / W. Julaian Street Westbound	WB	2	546.8	0.34	13.3	43.7	3.4	25	7,465	7,281	78,369	1.375E-09	1.014E-09	6.8	3.16
									Total	14,930						

Emission Factors - DPM

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.00034			

Emisson Factors from CT-EMFAC2021

2029
Hourl
Hour

2029 Hourly Traffic Volumes and DPM Emissions - DPM_JAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	4.00%	299	1.16E-05	9	6.43%	480	1.87E-05	17	5.58%	417	1.63E-05
2	2.65%	198	7.71E-06	10	7.39%	551	2.15E-05	18	3.16%	236	9.20E-06
3	2.87%	214	8.36E-06	11	6.37%	476	1.85E-05	19	2.20%	165	6.41E-06
4	3.27%	244	9.51E-06	12	6.99%	522	2.03E-05	20	0.85%	64	2.48E-06
5	2.08%	156	6.07E-06	13	6.32%	472	1.84E-05	21	3.05%	228	8.87E-06
6	3.32%	248	9.67E-06	14	6.20%	463	1.81E-05	22	4.23%	316	1.23E-05
7	6.09%	455	1.77E-05	15	5.13%	383	1.49E-05	23	2.59%	193	7.54E-06
8	4.46%	333	1.30E-05	16	3.89%	291	1.13E-05	24	0.85%	63	2.46E-06
								Total		7,465	

2029 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_JAM

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	4.00%	299	9.61E-06	9	6.43%	480	1.54E-05	17	5.58%	417	1.34E-05
2	2.65%	198	6.36E-06	10	7.39%	551	1.77E-05	18	3.16%	236	7.60E-06
3	2.87%	214	6.90E-06	11	6.37%	476	1.53E-05	19	2.20%	165	5.30E-06
4	3.27%	244	7.85E-06	12	6.99%	522	1.68E-05	20	0.85%	64	2.05E-06
5	2.08%	156	5.01E-06	13	6.32%	472	1.52E-05	21	3.05%	228	7.33E-06
6	3.32%	248	7.99E-06	14	6.20%	463	1.49E-05	22	4.23%	316	1.02E-05
7	6.09%	455	1.46E-05	15	5.13%	383	1.23E-05	23	2.59%	193	6.23E-06
8	4.46%	333	1.07E-05	16	3.89%	291	9.36E-06	24	0.85%	63	2.03E-06
								Total		7,465	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - W. St. James Street / W. Julaian Street
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2029

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
PM25_JAM	W. St. James Street / W. Julaian Street Eastbound	EB	2	662.3	0.41	13.3	44	1.3	25	7,465	8,819	94,923	6.713E-09	4.950E-09	2.6	1.21
PM25_JAM	W. St. James Street / W. Julaian Street Westbound	WB	2	546.8	0.34	13.3	44	1.3	25	7,465	7,281	78,369	6.713E-09	4.950E-09	2.6	1.21
									Total	14,930						

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.001665			

Emisson Factors from CT-EMFAC2021

2029
Hourl

Hour

2029 Hourly Traffic Volumes and PM2.5 Emissions - PM25_JAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	86	1.63E-05	9	7.11%	531	1.01E-04	17	7.40%	552	1.05E-04
2	0.42%	31	5.91E-06	10	4.39%	328	6.24E-05	18	8.18%	611	1.16E-04
3	0.40%	30	5.70E-06	11	4.67%	348	6.63E-05	19	5.70%	425	8.10E-05
4	0.26%	19	3.67E-06	12	5.89%	440	8.37E-05	20	4.28%	319	6.08E-05
5	0.50%	37	7.06E-06	13	6.15%	459	8.74E-05	21	3.25%	243	4.62E-05
6	0.90%	67	1.28E-05	14	6.03%	450	8.57E-05	22	3.30%	246	4.69E-05
7	3.79%	283	5.38E-05	15	7.01%	524	9.97E-05	23	2.46%	184	3.50E-05
8	7.76%	580	1.10E-04	16	7.14%	533	1.01E-04	24	1.86%	139	2.65E-05
								Total		7,465	

2029 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM25_JAM

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	86	1.35E-05	9	7.11%	531	8.35E-05	17	7.40%	552	8.68E-05
2	0.42%	31	4.88E-06	10	4.39%	328	5.15E-05	18	8.18%	611	9.60E-05
3	0.40%	30	4.71E-06	11	4.67%	348	5.47E-05	19	5.70%	425	6.69E-05
4	0.26%	19	3.03E-06	12	5.89%	440	6.91E-05	20	4.28%	319	5.02E-05
5	0.50%	37	5.83E-06	13	6.15%	459	7.22E-05	21	3.25%	243	3.82E-05
6	0.90%	67	1.05E-05	14	6.03%	450	7.08E-05	22	3.30%	246	3.87E-05
7	3.79%	283	4.44E-05	15	7.01%	524	8.23E-05	23	2.46%	184	2.89E-05
8	7.76%	580	9.11E-05	16	7.14%	533	8.38E-05	24	1.86%	139	2.18E-05
								Total		7,465	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - W. St. James Street / W. Julaian Street
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = **2029**

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
TEXH_RAM	W. St. James Street / W. Julaian Street Eastbound	EB	2	662.3	0.41	13.3	44	1.3	25	7,465	8,819	94,923	9.670E-08	7.130E-08	2.6	1.21
TEXH_Main	W. St. James Street / W. Julaian Street Westbound	WB	2	546.8	0.34	13.3	44	1.3	25	7,465	7,281	78,369	9.670E-08	7.130E-08	2.6	1.21
									Total	14,930						

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.02398			

Emisson Factors from CT-EMFAC2021

2029
Hourl

Hour

2029 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_RAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	86	2.35E-04	9	7.11%	531	1.46E-03	17	7.40%	552	1.51E-03
2	0.42%	31	8.52E-05	10	4.39%	328	8.98E-04	18	8.18%	611	1.67E-03
3	0.40%	30	8.22E-05	11	4.67%	348	9.55E-04	19	5.70%	425	1.17E-03
4	0.26%	19	5.29E-05	12	5.89%	440	1.20E-03	20	4.28%	319	8.75E-04
5	0.50%	37	1.02E-04	13	6.15%	459	1.26E-03	21	3.25%	243	6.66E-04
6	0.90%	67	1.84E-04	14	6.03%	450	1.24E-03	22	3.30%	246	6.75E-04
7	3.79%	283	7.75E-04	15	7.01%	524	1.44E-03	23	2.46%	184	5.04E-04
8	7.76%	580	1.59E-03	16	7.14%	533	1.46E-03	24	1.86%	139	3.81E-04
								Total		7,465	

2029 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH_Main

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	86	1.94E-04	9	7.11%	531	1.20E-03	17	7.40%	552	1.25E-03
2	0.42%	31	7.03E-05	10	4.39%	328	7.41E-04	18	8.18%	611	1.38E-03
3	0.40%	30	6.78E-05	11	4.67%	348	7.88E-04	19	5.70%	425	9.63E-04
4	0.26%	19	4.37E-05	12	5.89%	440	9.95E-04	20	4.28%	319	7.23E-04
5	0.50%	37	8.39E-05	13	6.15%	459	1.04E-03	21	3.25%	243	5.50E-04
6	0.90%	67	1.52E-04	14	6.03%	450	1.02E-03	22	3.30%	246	5.58E-04
7	3.79%	283	6.40E-04	15	7.01%	524	1.19E-03	23	2.46%	184	4.16E-04
8	7.76%	580	1.31E-03	16	7.14%	533	1.21E-03	24	1.86%	139	3.15E-04
								Total		7,465	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - W. St. James Street / W. Julaian Street
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2029

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
TEVAP_RAM	W. St. James Street / W. Julaian Street Eastbound	EB	2	662.3	0.41	13.3	44	1.3	25	7,465	8,819	94,923	1.448E-07	1.068E-07	2.6	1.21
TEVAP_Main	W. St. James Street / W. Julaian Street Westbound	WB	2	546.8	0.34	13.3	44	1.3	25	7,465	7,281	78,369	1.448E-07	1.068E-07	2.6	1.21
									Total	14,930						

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Emissions per Vehicle per Hour (g/hour)	0.89782			
Emissions per Vehicle per Mile (g/VMT)	0.03591			

Emisson Factors from CT-EMFAC2021

2029
Hourl

Hour
1.27E+00 1

2029 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_RAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	86	3.52E-04	9	7.11%	531	2.18E-03	17	7.40%	552	2.27E-03
2	0.42%	31	1.28E-04	10	4.39%	328	1.34E-03	18	8.18%	611	2.51E-03
3	0.40%	30	1.23E-04	11	4.67%	348	1.43E-03	19	5.70%	425	1.75E-03
4	0.26%	19	7.92E-05	12	5.89%	440	1.80E-03	20	4.28%	319	1.31E-03
5	0.50%	37	1.52E-04	13	6.15%	459	1.89E-03	21	3.25%	243	9.97E-04
6	0.90%	67	2.75E-04	14	6.03%	450	1.85E-03	22	3.30%	246	1.01E-03
7	3.79%	283	1.16E-03	15	7.01%	524	2.15E-03	23	2.46%	184	7.54E-04
8	7.76%	580	2.38E-03	16	7.14%	533	2.19E-03	24	1.86%	139	5.71E-04
								Total		7,465	

2029 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP_Main

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	86	2.91E-04	9	7.11%	531	1.80E-03	17	7.40%	552	1.87E-03
2	0.42%	31	1.05E-04	10	4.39%	328	1.11E-03	18	8.18%	611	2.07E-03
3	0.40%	30	1.02E-04	11	4.67%	348	1.18E-03	19	5.70%	425	1.44E-03
4	0.26%	19	6.54E-05	12	5.89%	440	1.49E-03	20	4.28%	319	1.08E-03
5	0.50%	37	1.26E-04	13	6.15%	459	1.56E-03	21	3.25%	243	8.23E-04
6	0.90%	67	2.27E-04	14	6.03%	450	1.53E-03	22	3.30%	246	8.35E-04
7	3.79%	283	9.58E-04	15	7.01%	524	1.77E-03	23	2.46%	184	6.23E-04
8	7.76%	580	1.96E-03	16	7.14%	533	1.81E-03	24	1.86%	139	4.71E-04
								Total		7,465	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - W. St. James Street / W. Julaian Street
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = **2029**

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
FUG_RAM	W. St. James Street / W. Julaian Street Eastbound	EB	2	662.3	0.41	13.3	44	1.3	25	7,465	8,819	94,923	9.187E-08	6.774E-08	2.6	1.21
FUG_Main	W. St. James Street / W. Julaian Street Westbound	WB	2	546.8	0.34	13.3	44	1.3	25	7,465	7,281	78,369	9.187E-08	6.774E-08	2.6	1.21
									Total	14,930						

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00210			
Brake Wear - Emissions per Vehicle (g/VMT)	0.00535			
Road Dust - Emissions per Vehicle (g/VMT)	0.01533			
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.02279			

Emisson Factors from CT-EMFAC2021

2029 Hourl	
	Hour
8.05E-01	1
2.91E-01	2
2.81E-01	3

2029 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_RAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	86	2.23E-04	9	7.11%	531	1.38E-03	17	7.40%	552	1.44E-03
2	0.42%	31	8.09E-05	10	4.39%	328	8.53E-04	18	8.18%	611	1.59E-03
3	0.40%	30	7.81E-05	11	4.67%	348	9.07E-04	19	5.70%	425	1.11E-03
4	0.26%	19	5.03E-05	12	5.89%	440	1.14E-03	20	4.28%	319	8.32E-04
5	0.50%	37	9.66E-05	13	6.15%	459	1.20E-03	21	3.25%	243	6.33E-04
6	0.90%	67	1.75E-04	14	6.03%	450	1.17E-03	22	3.30%	246	6.42E-04
7	3.79%	283	7.36E-04	15	7.01%	524	1.36E-03	23	2.46%	184	4.79E-04
8	7.76%	580	1.51E-03	16	7.14%	533	1.39E-03	24	1.86%	139	3.62E-04
								Total		7,465	

2029 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG_Main

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	86	1.85E-04	9	7.11%	531	1.14E-03	17	7.40%	552	1.19E-03
2	0.42%	31	6.68E-05	10	4.39%	328	7.05E-04	18	8.18%	611	1.31E-03
3	0.40%	30	6.44E-05	11	4.67%	348	7.49E-04	19	5.70%	425	9.15E-04
4	0.26%	19	4.15E-05	12	5.89%	440	9.45E-04	20	4.28%	319	6.87E-04
5	0.50%	37	7.98E-05	13	6.15%	459	9.88E-04	21	3.25%	243	5.22E-04
6	0.90%	67	1.44E-04	14	6.03%	450	9.69E-04	22	3.30%	246	5.30E-04
7	3.79%	283	6.08E-04	15	7.01%	524	1.13E-03	23	2.46%	184	3.95E-04
8	7.76%	580	1.25E-03	16	7.14%	533	1.15E-03	24	1.86%	139	2.99E-04
								Total		7,465	

Arbor, 255 W. Julian Street, San Jose, CA - W. St James ST / W Julian ST Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
On-Site 2nd (7.0m) & 3rd (10.7m) Floor Receptor Heights

Emission Year	2029
Receptor Information	Maximum On-Site Receptor
Number of Receptors	115
Receptor Height	2nd (7.0m) & 3rd (10.7m) Floors
Receptor Distances	7m grid spacing in building area

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

On-Site Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)			
	DPM	Exhaust TOG	Evaporative TOG	
2013-2017	0.0006	0.0322	0.0483	2nd Floor
2013-2017	0.0004	0.0181	0.0270	3rd Floor

On-Site PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)			
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5	
2013-2017	0.0329	0.0306	0.0022	2nd Floor
2013-2017	0.0184	0.0172	0.0013	3rd Floor

Arbor, 255 W. Julian Street, San Jose, CA - W. St James ST / W Julian ST Cancer Risk & PM2.5
Impacts at On-Site 2nd Floor Receptors - 7.0m receptor heights
30 Year Residential Exposure

Cancer Risk Calculation Method

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

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

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	0.25	-0.25 - 0*	2029	10	0.0006	0.0322	0.0483	0.008	0.003	0.0002	0.01
1	1	0 - 1	2029	10	0.0006	0.0322	0.0483	0.097	0.030	0.0027	0.13
2	1	1 - 2	2030	10	0.0006	0.0322	0.0483	0.097	0.030	0.0027	0.13
3	1	2 - 3	2031	3	0.0006	0.0322	0.0483	0.015	0.005	0.0004	0.02
4	1	3 - 4	2032	3	0.0006	0.0322	0.0483	0.015	0.005	0.0004	0.02
5	1	4 - 5	2033	3	0.0006	0.0322	0.0483	0.015	0.005	0.0004	0.02
6	1	5 - 6	2034	3	0.0006	0.0322	0.0483	0.015	0.005	0.0004	0.02
7	1	6 - 7	2035	3	0.0006	0.0322	0.0483	0.015	0.005	0.0004	0.02
8	1	7 - 8	2036	3	0.0006	0.0322	0.0483	0.015	0.005	0.0004	0.02
9	1	8 - 9	2037	3	0.0006	0.0322	0.0483	0.015	0.005	0.0004	0.02
10	1	9 - 10	2038	3	0.0006	0.0322	0.0483	0.015	0.005	0.0004	0.02
11	1	10 - 11	2039	3	0.0006	0.0322	0.0483	0.015	0.005	0.0004	0.02
12	1	11 - 12	2040	3	0.0006	0.0322	0.0483	0.015	0.005	0.0004	0.02
13	1	12 - 13	2041	3	0.0006	0.0322	0.0483	0.015	0.005	0.0004	0.02
14	1	13 - 14	2042	3	0.0006	0.0322	0.0483	0.015	0.005	0.0004	0.02
15	1	14 - 15	2043	3	0.0006	0.0322	0.0483	0.015	0.005	0.0004	0.02
16	1	15 - 16	2044	3	0.0006	0.0322	0.0483	0.015	0.005	0.0004	0.02
17	1	16-17	2045	1	0.0006	0.0322	0.0483	0.002	0.001	0.0000	0.00
18	1	17-18	2046	1	0.0006	0.0322	0.0483	0.002	0.001	0.0000	0.00
19	1	18-19	2047	1	0.0006	0.0322	0.0483	0.002	0.001	0.0000	0.00
20	1	19-20	2048	1	0.0006	0.0322	0.0483	0.002	0.001	0.0000	0.00
21	1	20-21	2049	1	0.0006	0.0322	0.0483	0.002	0.001	0.0000	0.00
22	1	21-22	2050	1	0.0006	0.0322	0.0483	0.002	0.001	0.0000	0.00
23	1	22-23	2051	1	0.0006	0.0322	0.0483	0.002	0.001	0.0000	0.00
24	1	23-24	2052	1	0.0006	0.0322	0.0483	0.002	0.001	0.0000	0.00
25	1	24-25	2053	1	0.0006	0.0322	0.0483	0.002	0.001	0.0000	0.00
26	1	25-26	2054	1	0.0006	0.0322	0.0483	0.002	0.001	0.0000	0.00
27	1	26-27	2055	1	0.0006	0.0322	0.0483	0.002	0.001	0.0000	0.00
28	1	27-28	2056	1	0.0006	0.0322	0.0483	0.002	0.001	0.0000	0.00
29	1	28-29	2057	1	0.0006	0.0322	0.0483	0.002	0.001	0.0000	0.00
30	1	29-30	2058	1	0.0006	0.0322	0.0483	0.002	0.001	0.0000	0.00
Total Increased Cancer Risk								0.44	0.137	0.012	**0.59**

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.0001	0.03	0.03

* Third trimester of pregnancy

Arbor, 255 W. Julian Street, San Jose, CA - W. St James ST / W Julian ST Cancer Risk & PM2.5
Impacts at On-Site 3rd Floor Receptors - 10.7m receptor heights
30 Year Residential Exposure

Cancer Risk Calculation Method

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

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

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	0.25	-0.25 - 0*	2029	10	0.0004	0.0181	0.0270	0.006	0.001	0.0001	0.01
1	1	0 - 1	2029	10	0.0004	0.0181	0.0270	0.067	0.017	0.0015	0.09
2	1	1 - 2	2030	10	0.0004	0.0181	0.0270	0.067	0.017	0.0015	0.09
3	1	2 - 3	2031	3	0.0004	0.0181	0.0270	0.011	0.003	0.0002	0.01
4	1	3 - 4	2032	3	0.0004	0.0181	0.0270	0.011	0.003	0.0002	0.01
5	1	4 - 5	2033	3	0.0004	0.0181	0.0270	0.011	0.003	0.0002	0.01
6	1	5 - 6	2034	3	0.0004	0.0181	0.0270	0.011	0.003	0.0002	0.01
7	1	6 - 7	2035	3	0.0004	0.0181	0.0270	0.011	0.003	0.0002	0.01
8	1	7 - 8	2036	3	0.0004	0.0181	0.0270	0.011	0.003	0.0002	0.01
9	1	8 - 9	2037	3	0.0004	0.0181	0.0270	0.011	0.003	0.0002	0.01
10	1	9 - 10	2038	3	0.0004	0.0181	0.0270	0.011	0.003	0.0002	0.01
11	1	10 - 11	2039	3	0.0004	0.0181	0.0270	0.011	0.003	0.0002	0.01
12	1	11 - 12	2040	3	0.0004	0.0181	0.0270	0.011	0.003	0.0002	0.01
13	1	12 - 13	2041	3	0.0004	0.0181	0.0270	0.011	0.003	0.0002	0.01
14	1	13 - 14	2042	3	0.0004	0.0181	0.0270	0.011	0.003	0.0002	0.01
15	1	14 - 15	2043	3	0.0004	0.0181	0.0270	0.011	0.003	0.0002	0.01
16	1	15 - 16	2044	3	0.0004	0.0181	0.0270	0.011	0.003	0.0002	0.01
17	1	16-17	2045	1	0.0004	0.0181	0.0270	0.001	0.000	0.0000	0.00
18	1	17-18	2046	1	0.0004	0.0181	0.0270	0.001	0.000	0.0000	0.00
19	1	18-19	2047	1	0.0004	0.0181	0.0270	0.001	0.000	0.0000	0.00
20	1	19-20	2048	1	0.0004	0.0181	0.0270	0.001	0.000	0.0000	0.00
21	1	20-21	2049	1	0.0004	0.0181	0.0270	0.001	0.000	0.0000	0.00
22	1	21-22	2050	1	0.0004	0.0181	0.0270	0.001	0.000	0.0000	0.00
23	1	22-23	2051	1	0.0004	0.0181	0.0270	0.001	0.000	0.0000	0.00
24	1	23-24	2052	1	0.0004	0.0181	0.0270	0.001	0.000	0.0000	0.00
25	1	24-25	2053	1	0.0004	0.0181	0.0270	0.001	0.000	0.0000	0.00
26	1	25-26	2054	1	0.0004	0.0181	0.0270	0.001	0.000	0.0000	0.00
27	1	26-27	2055	1	0.0004	0.0181	0.0270	0.001	0.000	0.0000	0.00
28	1	27-28	2056	1	0.0004	0.0181	0.0270	0.001	0.000	0.0000	0.00
29	1	28-29	2057	1	0.0004	0.0181	0.0270	0.001	0.000	0.0000	0.00
30	1	29-30	2058	1	0.0004	0.0181	0.0270	0.001	0.000	0.0000	0.00
Total Increased Cancer Risk								0.31	0.077	0.007	**0.39**

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.0001	0.02	0.02

* Third trimester of pregnancy

N. Market Street/Coleman Avenue Emissions 2029 and Health Risk Calculations

Analysis Year = ***2029***

Vehicle Type	2023 Caltrans Vehicles (veh/day)	2029 Vehicles (veh/day)
Truck 1 (MDT)	563	597
Truck 2 (HDT)	151	161
Non-Truck	19,645	20,824
Total	**20,360**	**21,582**
Increase From 2023		1.06
Vehicles/Direction		**10,791**
Avg Vehicles/Hour/Direction		450

Traffic Data Year = ***2023***

Proejct Traffic Backgrond Plus Project ADT		Total	Trucks by Axle			
	AADT Total	Truck	2	3	4	5
Coleman Avenue/Market Street and Julian Street	20,360	715	563	79	22	50
			78.81%	11.07%	3.10%	7.02%
Percent of Total Vehicles		3.51%	2.77%	0.39%	0.11%	0.25%

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

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - Market Street / Coleman Ave
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = **2029** 13.315

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	Line Area: Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
DPM_MAR	Market Street / Coleman Avenue Northbound	NB	2	677.2	0.42	13.3	43.7	3.4	25	10,791	9,017	97,059	1.987E-09	1.465E-09	6.8	3.16
DPM_MAR	Market Street / Coleman Avenue Southbound	SB	2	694.2	0.43	13.3	43.7	3.4	25	10,791	9,243	99,495	1.987E-09	1.465E-09	6.8	3.16
									Total	21,582						

Emission Factors - DPM

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.00034			

Emisson Factors from CT-EMFAC2021

2029
Hourl
Hour

2029 Hourly Traffic Volumes and DPM Emissions - DPM_MAR

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	4.00%	432	1.72E-05	9	6.43%	694	2.77E-05	17	5.58%	603	2.40E-05
2	2.65%	286	1.14E-05	10	7.39%	797	3.18E-05	18	3.16%	341	1.36E-05
3	2.87%	310	1.24E-05	11	6.37%	688	2.74E-05	19	2.20%	238	9.48E-06
4	3.27%	353	1.41E-05	12	6.99%	755	3.01E-05	20	0.85%	92	3.66E-06
5	2.08%	225	8.97E-06	13	6.32%	682	2.72E-05	21	3.05%	329	1.31E-05
6	3.32%	359	1.43E-05	14	6.20%	669	2.67E-05	22	4.23%	457	1.82E-05
7	6.09%	657	2.62E-05	15	5.13%	554	2.21E-05	23	2.59%	280	1.11E-05
8	4.46%	481	1.92E-05	16	3.89%	420	1.67E-05	24	0.85%	91	3.63E-06
								Total		10,791	

2029 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_MAR

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	4.00%	432	1.76E-05	9	6.43%	694	2.83E-05	17	5.58%	603	2.46E-05
2	2.65%	286	1.17E-05	10	7.39%	797	3.26E-05	18	3.16%	341	1.39E-05
3	2.87%	310	1.27E-05	11	6.37%	688	2.81E-05	19	2.20%	238	9.72E-06
4	3.27%	353	1.44E-05	12	6.99%	755	3.08E-05	20	0.85%	92	3.76E-06
5	2.08%	225	9.19E-06	13	6.32%	682	2.79E-05	21	3.05%	329	1.34E-05
6	3.32%	359	1.47E-05	14	6.20%	669	2.74E-05	22	4.23%	457	1.87E-05
7	6.09%	657	2.69E-05	15	5.13%	554	2.26E-05	23	2.59%	280	1.14E-05
8	4.46%	481	1.97E-05	16	3.89%	420	1.72E-05	24	0.85%	91	3.73E-06
								Total		10,791	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - Market Street / Coleman Ave
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2029

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	Line Area: Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
PM25_MAR	Market Street / Coleman Avenue Northbound	NB	2	677.2	0.42	13.3	44	1.3	25	10,791	9,017	97,059	9.704E-09	7.155E-09	2.6	1.21
PM25_MAR	Market Street / Coleman Avenue Southbound	SB	2	694.2	0.43	13.3	44	1.3	25	10,791	9,243	99,495	9.704E-09	7.155E-09	2.6	1.21
									Total	21,582						

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.001665			

Emisson Factors from CT-EMFAC2021

2029
Hourl

Hour

2029 Hourly Traffic Volumes and PM2.5 Emissions - PM25_MAR

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	124	2.41E-05	9	7.11%	768	1.49E-04	17	7.40%	798	1.55E-04
2	0.42%	45	8.74E-06	10	4.39%	474	9.22E-05	18	8.18%	883	1.72E-04
3	0.40%	43	8.43E-06	11	4.67%	503	9.80E-05	19	5.70%	615	1.20E-04
4	0.26%	28	5.43E-06	12	5.89%	635	1.24E-04	20	4.28%	461	8.98E-05
5	0.50%	54	1.04E-05	13	6.15%	664	1.29E-04	21	3.25%	351	6.83E-05
6	0.90%	97	1.89E-05	14	6.03%	651	1.27E-04	22	3.30%	356	6.93E-05
7	3.79%	409	7.95E-05	15	7.01%	757	1.47E-04	23	2.46%	266	5.17E-05
8	7.76%	838	1.63E-04	16	7.14%	771	1.50E-04	24	1.86%	201	3.91E-05
								Total		10,791	

2029 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM25_MAR

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	124	2.47E-05	9	7.11%	768	1.53E-04	17	7.40%	798	1.59E-04
2	0.42%	45	8.96E-06	10	4.39%	474	9.45E-05	18	8.18%	883	1.76E-04
3	0.40%	43	8.64E-06	11	4.67%	503	1.00E-04	19	5.70%	615	1.23E-04
4	0.26%	28	5.56E-06	12	5.89%	635	1.27E-04	20	4.28%	461	9.21E-05
5	0.50%	54	1.07E-05	13	6.15%	664	1.32E-04	21	3.25%	351	7.00E-05
6	0.90%	97	1.93E-05	14	6.03%	651	1.30E-04	22	3.30%	356	7.10E-05
7	3.79%	409	8.15E-05	15	7.01%	757	1.51E-04	23	2.46%	266	5.30E-05
8	7.76%	838	1.67E-04	16	7.14%	771	1.54E-04	24	1.86%	201	4.01E-05
								Total		10,791	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - Market Street / Coleman Ave
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = **2029**

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
TEXH_MAR	Market Street / Coleman Avenue Northbound	NB	2	677.2	0.42	13.3	44	1.3	25	10,791	9,017	97,059	1.398E-07	1.031E-07	2.6	1.21
TEXH_MAR	Market Street / Coleman Avenue Southbound	SB	2	694.2	0.43	13.3	44	1.3	25	10,791	9,243	99,495	1.398E-07	1.031E-07	2.6	1.21
									Total	21,582						

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.02398			

Emisson Factors from CT-EMFAC2021

2029
Hourl

Hour

2029 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_MAR

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	124	3.48E-04	9	7.11%	768	2.15E-03	17	7.40%	798	2.24E-03
2	0.42%	45	1.26E-04	10	4.39%	474	1.33E-03	18	8.18%	883	2.47E-03
3	0.40%	43	1.21E-04	11	4.67%	503	1.41E-03	19	5.70%	615	1.72E-03
4	0.26%	28	7.82E-05	12	5.89%	635	1.78E-03	20	4.28%	461	1.29E-03
5	0.50%	54	1.50E-04	13	6.15%	664	1.86E-03	21	3.25%	351	9.84E-04
6	0.90%	97	2.72E-04	14	6.03%	651	1.83E-03	22	3.30%	356	9.98E-04
7	3.79%	409	1.15E-03	15	7.01%	757	2.12E-03	23	2.46%	266	7.45E-04
8	7.76%	838	2.35E-03	16	7.14%	771	2.16E-03	24	1.86%	201	5.63E-04
								Total		10,791	

2029 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH_MAR

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	124	3.56E-04	9	7.11%	768	2.21E-03	17	7.40%	798	2.29E-03
2	0.42%	45	1.29E-04	10	4.39%	474	1.36E-03	18	8.18%	883	2.54E-03
3	0.40%	43	1.24E-04	11	4.67%	503	1.45E-03	19	5.70%	615	1.77E-03
4	0.26%	28	8.01E-05	12	5.89%	635	1.83E-03	20	4.28%	461	1.33E-03
5	0.50%	54	1.54E-04	13	6.15%	664	1.91E-03	21	3.25%	351	1.01E-03
6	0.90%	97	2.79E-04	14	6.03%	651	1.87E-03	22	3.30%	356	1.02E-03
7	3.79%	409	1.17E-03	15	7.01%	757	2.17E-03	23	2.46%	266	7.63E-04
8	7.76%	838	2.41E-03	16	7.14%	771	2.21E-03	24	1.86%	201	5.78E-04
								Total		10,791	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - Market Street / Coleman Ave
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2029

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
TEVAP_MAR	Market Street / Coleman Avenue Northbound	NB	2	677.2	0.42	13.3	44	1.3	25	10,791	9,017	97,059	2.093E-07	1.543E-07	2.6	1.21
TEVAP_MAR	Market Street / Coleman Avenue Southbound	SB	2	694.2	0.43	13.3	44	1.3	25	10,791	9,243	99,495	2.093E-07	1.543E-07	2.6	1.21
									Total	21,582						

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Emissions per Vehicle per Hour (g/hour)	0.89782			
Emissions per Vehicle per Mile (g/VMT)	0.03591			

Emisson Factors from CT-EMFAC2021

2029
Hourl

Hour
1.87E+00 1

2029 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_MAR

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	124	5.21E-04	9	7.11%	768	3.22E-03	17	7.40%	798	3.35E-03
2	0.42%	45	1.88E-04	10	4.39%	474	1.99E-03	18	8.18%	883	3.71E-03
3	0.40%	43	1.82E-04	11	4.67%	503	2.11E-03	19	5.70%	615	2.58E-03
4	0.26%	28	1.17E-04	12	5.89%	635	2.67E-03	20	4.28%	461	1.94E-03
5	0.50%	54	2.25E-04	13	6.15%	664	2.79E-03	21	3.25%	351	1.47E-03
6	0.90%	97	4.07E-04	14	6.03%	651	2.73E-03	22	3.30%	356	1.49E-03
7	3.79%	409	1.72E-03	15	7.01%	757	3.18E-03	23	2.46%	266	1.12E-03
8	7.76%	838	3.52E-03	16	7.14%	771	3.24E-03	24	1.86%	201	8.44E-04
								Total		10,791	

2029 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP_MAR

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	124	5.34E-04	9	7.11%	768	3.30E-03	17	7.40%	798	3.43E-03
2	0.42%	45	1.93E-04	10	4.39%	474	2.04E-03	18	8.18%	883	3.80E-03
3	0.40%	43	1.86E-04	11	4.67%	503	2.17E-03	19	5.70%	615	2.65E-03
4	0.26%	28	1.20E-04	12	5.89%	635	2.73E-03	20	4.28%	461	1.99E-03
5	0.50%	54	2.31E-04	13	6.15%	664	2.86E-03	21	3.25%	351	1.51E-03
6	0.90%	97	4.17E-04	14	6.03%	651	2.80E-03	22	3.30%	356	1.53E-03
7	3.79%	409	1.76E-03	15	7.01%	757	3.26E-03	23	2.46%	266	1.14E-03
8	7.76%	838	3.60E-03	16	7.14%	771	3.32E-03	24	1.86%	201	8.65E-04
								Total		10,791	

Arbor, 255 W. Julian Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - Market Street / Coleman Ave
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = **2029**

											Line Area					
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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
FUG_MAR	Market Street / Coleman Avenue Northbound	NB	2	677.2	0.42	13.3	44	1.3	25	10,791	9,017	97,059	1.328E-07	9.792E-08	2.6	1.21
FUG_MAR	Market Street / Coleman Avenue Southbound	SB	2	694.2	0.43	13.3	44	1.3	25	10,791	9,243	99,495	1.328E-07	9.792E-08	2.6	1.21
									Total	21,582						

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	25			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00210			
Brake Wear - Emissions per Vehicle (g/VMT)	0.00535			
Road Dust - Emissions per Vehicle (g/VMT)	0.01533			
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.02279			

Emisson Factors from CT-EMFAC2021

2029 Hourl	
	Hour
1.19E+00	1
4.31E-01	2
4.15E-01	3

2029 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_MAR

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	124	3.30E-04	9	7.11%	768	2.04E-03	17	7.40%	798	2.13E-03
2	0.42%	45	1.20E-04	10	4.39%	474	1.26E-03	18	8.18%	883	2.35E-03
3	0.40%	43	1.15E-04	11	4.67%	503	1.34E-03	19	5.70%	615	1.64E-03
4	0.26%	28	7.43E-05	12	5.89%	635	1.69E-03	20	4.28%	461	1.23E-03
5	0.50%	54	1.43E-04	13	6.15%	664	1.77E-03	21	3.25%	351	9.35E-04
6	0.90%	97	2.58E-04	14	6.03%	651	1.73E-03	22	3.30%	356	9.48E-04
7	3.79%	409	1.09E-03	15	7.01%	757	2.02E-03	23	2.46%	266	7.08E-04
8	7.76%	838	2.23E-03	16	7.14%	771	2.05E-03	24	1.86%	201	5.35E-04
								Total		10,791	

2029 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG_MAR

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	124	3.39E-04	9	7.11%	768	2.10E-03	17	7.40%	798	2.18E-03
2	0.42%	45	1.23E-04	10	4.39%	474	1.29E-03	18	8.18%	883	2.41E-03
3	0.40%	43	1.18E-04	11	4.67%	503	1.37E-03	19	5.70%	615	1.68E-03
4	0.26%	28	7.61E-05	12	5.89%	635	1.73E-03	20	4.28%	461	1.26E-03
5	0.50%	54	1.46E-04	13	6.15%	664	1.81E-03	21	3.25%	351	9.59E-04
6	0.90%	97	2.65E-04	14	6.03%	651	1.78E-03	22	3.30%	356	9.72E-04
7	3.79%	409	1.12E-03	15	7.01%	757	2.07E-03	23	2.46%	266	7.25E-04
8	7.76%	838	2.29E-03	16	7.14%	771	2.10E-03	24	1.86%	201	5.49E-04
								Total		10,791	

Arbor, 255 W. Julian Street, San Jose, CA - Market ST / Coleman Ave Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
On-Site 2nd (7.0m) & 3rd (10.7m) Floor Receptor Heights

Emission Year	2029
Receptor Information	Maximum On-Site Receptor
Number of Receptors	115
Receptor Height	2nd (7.0m) & 3rd (10.7m) Floors
Receptor Distances	7m grid spacing in building area
Meteorological Conditions	
BAQMD San Jose Airport Met Data	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Wind Direction	Variable

On-Site Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3) DPM	Exhaust TOG	Evaporative TOG	
2013-2017	0.0002	0.0087	0.0131	2nd Floor
2013-2017	0.0002	0.0077	0.0115	3rd Floor

On-Site PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3) Total PM2.5	Fugitive PM2.5	Vehicle PM2.5	
2013-2017	0.0089	0.0083	0.0006	2nd Floor
2013-2017	0.0078	0.0073	0.0005	3rd Floor

Arbor, 255 W. Julian Street, San Jose, CA - Market ST / Coleman Ave Cancer Risk & PM2.5
Impacts at On-Site 2nd Floor Receptors - 7.0m receptor heights
30 Year Residential Exposure

Cancer Risk Calculation Method

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

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

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	0.25	-0.25 - 0*	2029	10	0.0002	0.0087	0.0131	0.003	0.001	0.0001	0.00
1	1	0 - 1	2029	10	0.0002	0.0087	0.0131	0.031	0.008	0.0007	0.04
2	1	1 - 2	2030	10	0.0002	0.0087	0.0131	0.031	0.008	0.0007	0.04
3	1	2 - 3	2031	3	0.0002	0.0087	0.0131	0.005	0.001	0.0001	0.01
4	1	3 - 4	2032	3	0.0002	0.0087	0.0131	0.005	0.001	0.0001	0.01
5	1	4 - 5	2033	3	0.0002	0.0087	0.0131	0.005	0.001	0.0001	0.01
6	1	5 - 6	2034	3	0.0002	0.0087	0.0131	0.005	0.001	0.0001	0.01
7	1	6 - 7	2035	3	0.0002	0.0087	0.0131	0.005	0.001	0.0001	0.01
8	1	7 - 8	2036	3	0.0002	0.0087	0.0131	0.005	0.001	0.0001	0.01
9	1	8 - 9	2037	3	0.0002	0.0087	0.0131	0.005	0.001	0.0001	0.01
10	1	9 - 10	2038	3	0.0002	0.0087	0.0131	0.005	0.001	0.0001	0.01
11	1	10 - 11	2039	3	0.0002	0.0087	0.0131	0.005	0.001	0.0001	0.01
12	1	11 - 12	2040	3	0.0002	0.0087	0.0131	0.005	0.001	0.0001	0.01
13	1	12 - 13	2041	3	0.0002	0.0087	0.0131	0.005	0.001	0.0001	0.01
14	1	13 - 14	2042	3	0.0002	0.0087	0.0131	0.005	0.001	0.0001	0.01
15	1	14 - 15	2043	3	0.0002	0.0087	0.0131	0.005	0.001	0.0001	0.01
16	1	15 - 16	2044	3	0.0002	0.0087	0.0131	0.005	0.001	0.0001	0.01
17	1	16-17	2045	1	0.0002	0.0087	0.0131	0.001	0.000	0.0000	0.00
18	1	17-18	2046	1	0.0002	0.0087	0.0131	0.001	0.000	0.0000	0.00
19	1	18-19	2047	1	0.0002	0.0087	0.0131	0.001	0.000	0.0000	0.00
20	1	19-20	2048	1	0.0002	0.0087	0.0131	0.001	0.000	0.0000	0.00
21	1	20-21	2049	1	0.0002	0.0087	0.0131	0.001	0.000	0.0000	0.00
22	1	21-22	2050	1	0.0002	0.0087	0.0131	0.001	0.000	0.0000	0.00
23	1	22-23	2051	1	0.0002	0.0087	0.0131	0.001	0.000	0.0000	0.00
24	1	23-24	2052	1	0.0002	0.0087	0.0131	0.001	0.000	0.0000	0.00
25	1	24-25	2053	1	0.0002	0.0087	0.0131	0.001	0.000	0.0000	0.00
26	1	25-26	2054	1	0.0002	0.0087	0.0131	0.001	0.000	0.0000	0.00
27	1	26-27	2055	1	0.0002	0.0087	0.0131	0.001	0.000	0.0000	0.00
28	1	27-28	2056	1	0.0002	0.0087	0.0131	0.001	0.000	0.0000	0.00
29	1	28-29	2057	1	0.0002	0.0087	0.0131	0.001	0.000	0.0000	0.00
30	1	29-30	2058	1	0.0002	0.0087	0.0131	0.001	0.000	0.0000	0.00
Total Increased Cancer Risk								0.14	0.037	0.003	**0.18**

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.00004	0.01	0.01

* Third trimester of pregnancy

Arbor, 255 W. Julian Street, San Jose, CA - Market ST / Coleman Ave Cancer Risk & PM2.5
Impacts at On-Site 3rd Floor Receptors - 10.7m receptor heights
30 Year Residential Exposure

Cancer Risk Calculation Method

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

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

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	0.25	-0.25 - 0*	2029	10	0.0002	0.0077	0.0115	0.002	0.001	0.0001	0.00
1	1	0 - 1	2029	10	0.0002	0.0077	0.0115	0.026	0.007	0.0006	0.03
2	1	1 - 2	2030	10	0.0002	0.0077	0.0115	0.026	0.007	0.0006	0.03
3	1	2 - 3	2031	3	0.0002	0.0077	0.0115	0.004	0.001	0.0001	0.01
4	1	3 - 4	2032	3	0.0002	0.0077	0.0115	0.004	0.001	0.0001	0.01
5	1	4 - 5	2033	3	0.0002	0.0077	0.0115	0.004	0.001	0.0001	0.01
6	1	5 - 6	2034	3	0.0002	0.0077	0.0115	0.004	0.001	0.0001	0.01
7	1	6 - 7	2035	3	0.0002	0.0077	0.0115	0.004	0.001	0.0001	0.01
8	1	7 - 8	2036	3	0.0002	0.0077	0.0115	0.004	0.001	0.0001	0.01
9	1	8 - 9	2037	3	0.0002	0.0077	0.0115	0.004	0.001	0.0001	0.01
10	1	9 - 10	2038	3	0.0002	0.0077	0.0115	0.004	0.001	0.0001	0.01
11	1	10 - 11	2039	3	0.0002	0.0077	0.0115	0.004	0.001	0.0001	0.01
12	1	11 - 12	2040	3	0.0002	0.0077	0.0115	0.004	0.001	0.0001	0.01
13	1	12 - 13	2041	3	0.0002	0.0077	0.0115	0.004	0.001	0.0001	0.01
14	1	13 - 14	2042	3	0.0002	0.0077	0.0115	0.004	0.001	0.0001	0.01
15	1	14 - 15	2043	3	0.0002	0.0077	0.0115	0.004	0.001	0.0001	0.01
16	1	15 - 16	2044	3	0.0002	0.0077	0.0115	0.004	0.001	0.0001	0.01
17	1	16-17	2045	1	0.0002	0.0077	0.0115	0.000	0.000	0.0000	0.00
18	1	17-18	2046	1	0.0002	0.0077	0.0115	0.000	0.000	0.0000	0.00
19	1	18-19	2047	1	0.0002	0.0077	0.0115	0.000	0.000	0.0000	0.00
20	1	19-20	2048	1	0.0002	0.0077	0.0115	0.000	0.000	0.0000	0.00
21	1	20-21	2049	1	0.0002	0.0077	0.0115	0.000	0.000	0.0000	0.00
22	1	21-22	2050	1	0.0002	0.0077	0.0115	0.000	0.000	0.0000	0.00
23	1	22-23	2051	1	0.0002	0.0077	0.0115	0.000	0.000	0.0000	0.00
24	1	23-24	2052	1	0.0002	0.0077	0.0115	0.000	0.000	0.0000	0.00
25	1	24-25	2053	1	0.0002	0.0077	0.0115	0.000	0.000	0.0000	0.00
26	1	25-26	2054	1	0.0002	0.0077	0.0115	0.000	0.000	0.0000	0.00
27	1	26-27	2055	1	0.0002	0.0077	0.0115	0.000	0.000	0.0000	0.00
28	1	27-28	2056	1	0.0002	0.0077	0.0115	0.000	0.000	0.0000	0.00
29	1	28-29	2057	1	0.0002	0.0077	0.0115	0.000	0.000	0.0000	0.00
30	1	29-30	2058	1	0.0002	0.0077	0.0115	0.000	0.000	0.0000	0.00
Total Increased Cancer Risk								0.12	0.033	0.003	**0.15**

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.00003	0.01	0.01

* Third trimester of pregnancy

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



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


0.011701
Guadalupe Pkwy
W Julian St
W Saint James St
W St James St
W St. John St
N San Pedro St
Notre Dame Ave
N Almaden Blvd
Carlysle St
Gaskell St
Yerba Buena St
W Julian St
Delmas St
N Market St
Gaskell St
Gaskell St
Gaskell

BAAQMD RASTER Screening Data – Rail Line Hazard Index Impacts at the Cancer Risk MEI



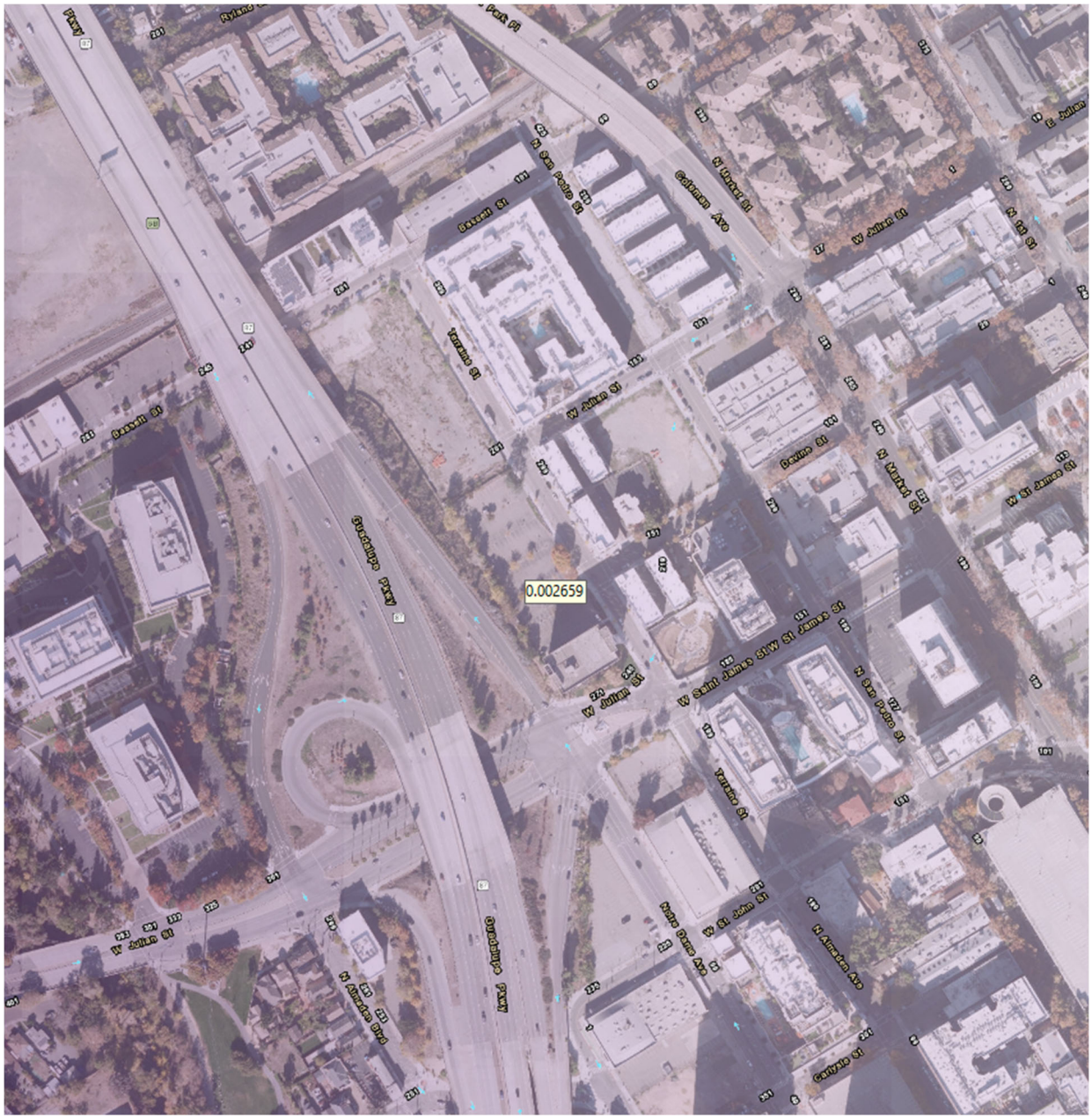
BAAQMD RASTER Screening Data – Rail Line Cancer Risk Impacts at the Project Site



BAAQMD RASTER Screening Data – Rail Line $PM_{2.5}$ Concentration Impacts at the Project Site



BAAQMD RASTER Screening Data – Rail Line Hazard Index Impacts at the Project Site



Bay Area Air Quality Management District

Risk & Hazard Stationary Source Inquiry Form

This form is required when users request stationary source data from BAAQMD

This form is to be used with the BAAQMD's Google Earth stationary source screening tables.

Click here for guidance on coducting risk & hazard screening, including roadways & freeways, refer to the District's Risk & Hazard Analysis flow chart.

Click here for District's Recommended Methods for Screening and Modeling Local Risks and Hazards document.

Table A: Requester Contact Information

Date of Request	**3/7/2025**
Contact Name	Jordyn Bauer
Affiliation	Illingworth & Rodkin, Inc.
Phone	707-794-0400 x106
Email	jbauer@illingworthrodkin.com
Project Name	Arbor
Address	255 W Julian St
City	San Jose
County	Santa Clara
Type (residential, commercial, mixed use, industrial, etc.)	MU
Project Size (# of units or building square feet)	585 units, 13k retail
Comments:	

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

1. Complete all the contact and project information requested in **Table A** ncomplete 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** lue section only.

6. Note that a small percentage of the stationa sources ve 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 MEIs

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
900	20402	FreeSlate Inc	415 Oakmead Parkway	1.34	--	--		Generator		2022 Dataset	0.04	0.05	#VALUE!	#VALUE!
400	21746	San Jose Fire Dept FS #1	225 N Market Street	0.1	--	--		Generator		2022 Dataset	0.16	0.02	#VALUE!	#VALUE!
140	17788	City Heights At Pellier Park	175 W Saint James St	5.25	--	0.01		Generator		2022 Dataset	0.58	3.05	#VALUE!	0.01
980	24637	The Sobrato Organization	333rd & 373 West Julian S	1.06	--	--		Generator		2022 Dataset	0.04	0.04	#VALUE!	#VALUE!
1000	23706	AXIS HOA	38 N Almaden Blvd	32.21	0.01	0.04		Generator		2022 Dataset	0.04	1.29	0.0004	0.002
650	22757	Centerra Apartments	77 N Almaden Avenue	0.15	--	--		Generator		2022 Dataset	0.08	0.01	#VALUE!	#VALUE!
1000	24161	The Sobrato Organization	353 W Julian Street	0.68	--	--		Generator		2022 Dataset	0.04	0.03	#VALUE!	#VALUE!
915	200627	First Community Housing	201 BASSETT ST	14.06	--	0.02		Generator		2022 Dataset	0.04	0.56	#VALUE!	0.001

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

Project Site

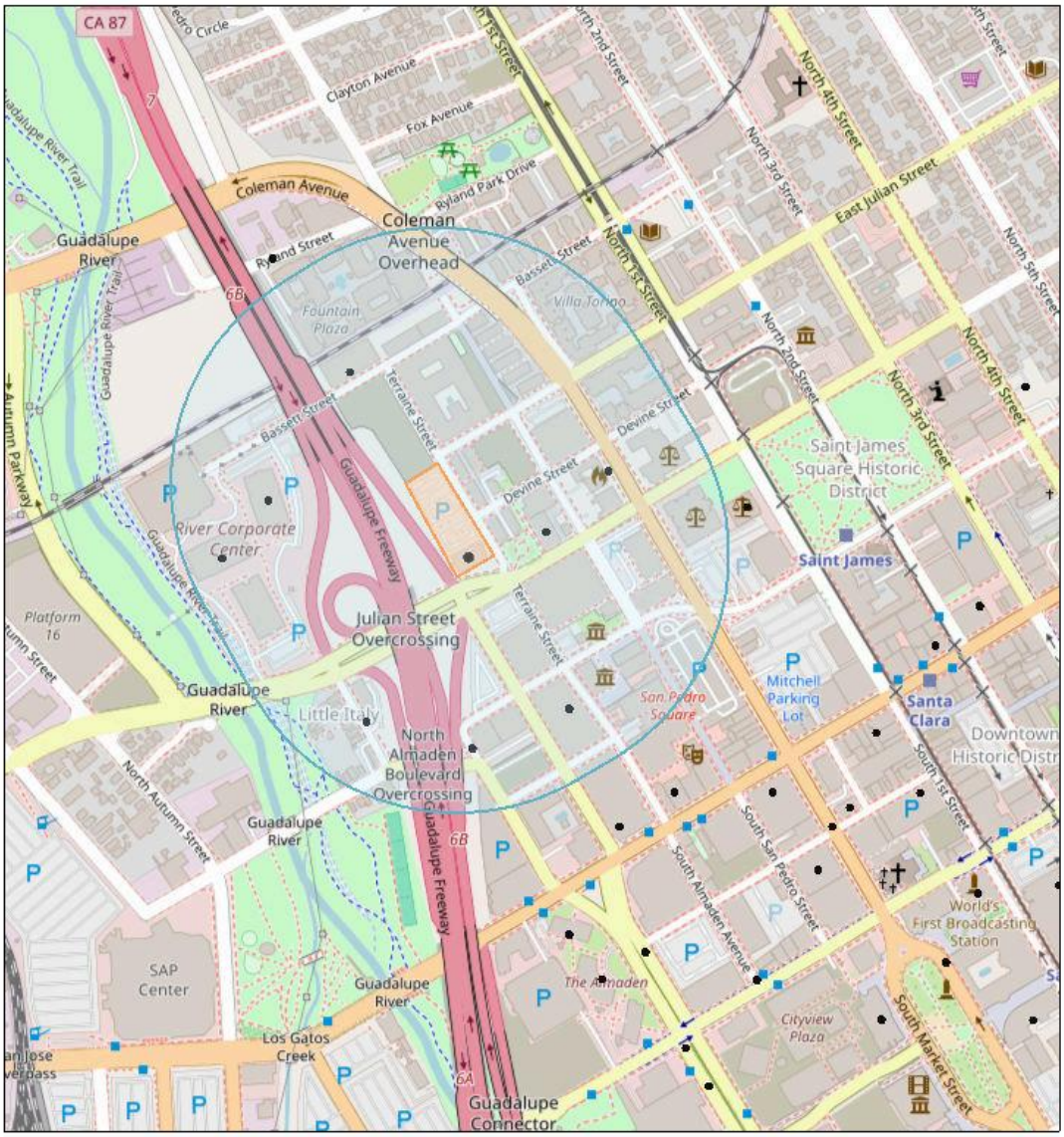
Distance from Receptor (feet) or MEI[1]	FACID (Plant No.)	Distance Adjustment Multiplier	Adjusted Cancer Risk Estimate	Adjusted Hazard Risk	Adjusted PM2.5
515	20402	0.10	0.13	#VALUE!	#VALUE!
500	21746	0.12	0.01	#VALUE!	#VALUE!
250	17788	0.28	1.47	#VALUE!	0.003
730	24637	0.07	0.07	#VALUE!	#VALUE!
1000	23706	0.04	1.29	0.0004	0.002
750	22757	0.07	0.01	#VALUE!	#VALUE!
715	24161	0.07	0.05	#VALUE!	#VALUE!
500	200627	0.12	1.69	#VALUE!	0.002

Screening Report

Area of Interest (AOI) Information

Area : 4,465,334.44 ft²

Mar 7 2025 13:51:21 Pacific Standard Time



Permitted Stationary Sources

1:9,028

0 0.05 0.1 0.2 mi

0 0.07 0.15 0.3 km

Map data © OpenStreetMap contributors, CC-BY-SA

Summary

Name	Count	Area(ft²)	Length(ft)
Permitted Stationary Sources	8	N/A	N/A

Permitted Stationary Sources

#	Address	Cancer_Ris	Chronic_Ha	City	County
1	415 Oakmead Parkway	1.34	0.00	Sunnyvale	Santa Clara
2	225 N Market Street	0.10	0.00	San Jose	Santa Clara
3	175 W Saint James St	5.25	0.00	San Jose	Santa Clara
4	333rd & 373 West Julian St	1.06	0.00	San Jose	Santa Clara
5	38 N Almaden Blvd	32.21	0.01	San Jose	Santa Clara
6	77 N Almaden Avenue	0.15	0.00	San Jose	Santa Clara
7	353 W Julian Street	0.68	0.00	San Jose	Santa Clara
8	201 BASSETT ST	14.06	0.00	San Jose	Santa Clara

#	Details	Facility_I	Facility_N	Latitude	Longitude
1	Generator	20402	FreeSlate Inc	37.34	-121.90
2	Generator	21746	San Jose Fire Dept FS #1	37.34	-121.89
3	Generator	17788	City Heights At Pellier Park	37.34	-121.90
4	Generator	24637	The Sobrato Organization	37.34	-121.90
5	Generator	23706	AXIS HOA	37.34	-121.90
6	Generator	22757	Centerra Apartments	37.34	-121.90
7	Generator	24161	The Sobrato Organization	37.34	-121.90
8	Generator	200627	First Community Housing	37.34	-121.90

#	NAICS	NAICS_Indu	NAICS_Sect	NAICS_Subs	PM25
1	541720	Research and Development in the Social Sciences and Humanities	Professional, Scientific, and Technical Services	Professional, Scientific, and Technical Services	0.00
2	922160	Fire Protection	Public Administration	Justice, Public Order, and Safety Activities	0.00
3	531110	Lessors of Residential Buildings and Dwellings	Real Estate and Rental and Leasing	Real Estate	0.01
4	921190	Other General Government Support	Public Administration	Executive, Legislative, and Other General Government Support	0.00
5	813990	Other Similar Organizations (except Business, Professional, Labor, and Political Organizations)	Other Services (except Public Administration)	Religious, Grantmaking, Civic, Professional, and Similar Organizations	0.04
6	531120	Lessors of Nonresidential Buildings (except Miniwarehouses)	Real Estate and Rental and Leasing	Real Estate	0.00
7	238210	Electrical Contractors and Other Wiring Installation Contractors	Construction	Specialty Trade Contractors	0.00
8	522110	Commercial Banking	Finance and Insurance	Credit Intermediation and Related Activities	0.02

#	State	Zip	Count
1	CA	94085	1
2	CA	95110	1
3	CA	95112	1
4	CA	95110	1
5	CA	95113	1
6	CA	95112	1
7	CA	95110	1
8	CA	95110	1

NOTE: A larger buffer than 1,000 may be warranted depending on proximity to significant sources.