439 & 451 S. 4TH STREET AIR QUALITY ASSESSMENT

San José, California

March 18, 2022
Revised March 1, 2023

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: #15-122

Introduction

The purpose of this report is to address air quality and community health risk impacts associated with the proposed residential project located at 431 & 439 S. 4th Street in San José, California. The air quality impacts from this project would be associated with the demolition of the existing land uses, 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 project health risk impacts (construction and operation) and the impacts 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 0.52-acre project site, which is located on two parcels, is currently developed with a three-story apartment complex on the northern parcel and a two-story residence on the southern parcel. The proposed project would demolish the existing buildings and parking areas and construct a 25-story high-rise multi-family residential building totaling 448,474 square feet (sf). The 210 residential units would be located on the 5th-25th floors. The project would include an underground parking garage and four floors of above-grade parking, which would offer 168 parking spaces. Additionally, a 1,000-kilowatt (kW) generator would be located on the first floor and a 150 horsepower (HP) fire pump would be located on the basement floor of the building. The project is within the San José Downtown Strategy 2040 Plan area.

Setting

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

Air Pollutants of Concern

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

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

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

region-wide (or cumulative) emissions and localized emissions. High particulate matter levels aggravate respiratory and cardiovascular diseases, reduce lung function, increase mortality (e.g., lung cancer), and result in reduced lung function growth in children.

Toxic Air Contaminants

Toxic air contaminants (TAC) are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer) and include, but are not limited to, the criteria air pollutants. TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., diesel particulate matter [DPM] near a freeway). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, State, and federal level.

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

Sensitive Receptors

There are groups of people more affected by air pollution than others. CARB has identified the following persons who are most likely to be affected by air pollution: children under 16, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, elementary schools, and parks. For cancer risk assessments, children are the most sensitive receptors, since they are more susceptible to cancer causing TACs. Residential locations are assumed to include infants and small children. The closest sensitive receptors to the project site would be the residences in the adjacent multi-family building to the north of the site. There are more sensitive receptors at farther distances. In addition, there are children at the Norte Dame High School (ages 14 - 18) southwest of the project site. There will also be future sensitive receptors in the upper floors of the adjacent The Mark residential building to the south of the project site. This analysis is based on the assumption that the buildings to the south are still occupied and any reference to The Mark is for informational purposes. The project would introduce new sensitive receptors (i.e., residents) to the area.

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

Regulatory Setting

Federal Regulations

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.[3]

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

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

State Regulations

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

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

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 equipment with newer equipment) or retrofit existing equipment in order to achieve specified fleet-averaged emission rates. Implementation of this regulation, in conjunction with stringent federal off-road equipment engine emission limits for new vehicles, will significantly reduce emissions of DPM and NO_X.

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.[5] The program examines TAC emissions from point sources, area sources, and on-road and off-road mobile sources with an emphasis on diesel exhaust, which is a major contributor to airborne health risk in California. The CARE program is an on-going program that encourages community involvement and input. The technical analysis portion of the CARE program is being implemented in three phases that includes an assessment of the sources of TAC emissions, modeling and measurement

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

programs to estimate concentrations of TAC, and an assessment of exposures and health risks. Throughout the program, information derived from the technical analyses will be used to focus emission reduction measures in areas with high TAC exposures and high density of sensitive populations. Risk reduction activities associated with the CARE program are focused on the most at-risk communities in the Bay Area. 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 CalEnviroScreen score at or above the 70th percentile, or (ii) within 1,000 feet of any such census tract.[6] The BAAQMD has identified six communities as impacted: Concord, Richmond/San Pablo, Western Alameda County, San José, Redwood City/East Palo Alto, and Eastern San Francisco. The project site is in the center of the San José CARE area but not within a BAAQMD overburdened area as identified by CalEnviroScreen as the Project site is scored at the 65th percentile.

The BAAQMD California Environmental Quality Act (*CEQA) Air Quality Guidelines*[7] were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process consistent with CEQA requirements including thresholds of significance, mitigation measures, and background air quality information. They also include assessment methodologies for air toxics, odors, and greenhouse gas emissions. *Attachment 1* includes detailed community risk modeling methodology.

BAAQMD Rules and Regulations

Combustion equipment associated with the proposed project that includes new diesel engines to power generators and fire pumps would establish new sources of particulate matter and gaseous emissions. Emissions would primarily result from the testing of the emergency backup generators. 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 9-7: 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

[6] See BAAQMD: https://www.baaqmd.gov/~/media/dotgov/files/rules/reg-2-permits/2021-amendments/documents/20210722_01_appendixd_mapsofoverburdenedcommunities-pdf.pdf?la=en , accessed 10/1/2021.
[7] Bay Area Air Quality Management District, 2017. *CEQA Air Quality Guidelines*. May.

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.

BACT for Diesel Generator Engines

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

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

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

Offsets

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

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. Project plans do not depict fireplaces.

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

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

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

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

San José Envision 2040 General Plan

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

Applicable Goals – Air Pollutant Emission Reduction

Goal MS-10 Minimize emissions from new development.

Applicable Policies – Air Pollutant Emission Reduction

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

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

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

Applicable Goals – Toxic Air Contaminants

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

Applicable Policies – Toxic Air Contaminants

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

MS-11.5 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-11.7 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.

Downtown Strategy 2040 Plan

The San José Downtown Strategy (DTS) 2040 Plan 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 Downtown Strategy 2000 would be maintained. The integrated Final Environmental Impact Report was published December 2018.

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.

Traffic-related 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 Downtown Strategy 2040 and General Plan policies. All feasible and applicable measures will be required as part of project design or as conditions of approval.

Significance Thresholds

In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA and these significance thresholds were contained in the District's 2011 CEQA Air Quality Guidelines. These thresholds were designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA. The thresholds were challenged through a series of court challenges and were mostly upheld. BAAQMD updated the CEQA Air Quality Guidelines in 2017 to include the latest significance thresholds, which were used in this analysis and are summarized in Table 1. Impacts exceeding the thresholds are considered potentially significant. Note that the DTS Plan Draft Environmental Impact Report (DEIR) evaluated traffic-related emissions of criteria air pollutants (and their precursors) and GHGs from planned development that includes the Proposed Project. Stationary source operational emissions, if any are proposed as part of the project, would still be required to be analyzed. Operational emissions from the Proposed Project are predicted in this assessment.

Table 1. BAAQMD Air Quality Exceedance 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	Not Applicable	
Health Risks and Hazards	**Single Sources Within 1,000-foot Zone of Influence**	**Combined Sources (Cumulative from all sources within 1,000-foot zone of influence)**	
Excess Cancer Risk	10 per one million	100 per one million	
Hazard Index	1.0	10.0	
Incremental annual $PM_{2.5}$	0.3 µg/m^3	0.8 µg/m^3	

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*.[8] 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. Plans must show consistency with the control measures listed within the Clean Air Plan. At the project-level, there are no consistency measures or thresholds. The proposed project would not conflict with the latest Clean Air planning efforts since 1) the project is included in the adopted San José Downtown Strategy (DTS) 2040 Plan, 2) project would have construction and operational emissions below the BAAQMD thresholds (see Impact 2 below), 3) the project would be considered urban infill, 4)

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

the project would be located near employment centers, 5) 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

The California Emissions Estimator Model (CalEEMod) Version 2020.4.0 was used to estimate emissions from on-site construction activity, construction vehicle trips, and evaporative emissions. The project land use types and size, and anticipated construction schedule were input to CalEEMod. The CARB EMission FACtors 2021 (EMFAC2021) model was used to predict emissions from construction traffic, which includes worker travel, vendor trucks, and haul trucks.[9] The CalEEMod model output along with construction inputs are included in *Attachment 2* and EMFAC2021 vehicle emissions modeling outputs are included in *Attachment 3*.

CalEEMod Inputs

Land Use Inputs

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

Table 2. Summary of Project Land Use Inputs

Project Land Uses	Size	Units	Square Feet	Acreage
Apartments High Rise	210	Dwelling Units	376,323	0.52
Enclosed Parking with Elevator	168	Parking Spaces	72,151	

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.

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

The CalEEMod model generates a default set of construction assumptions for "typical construction site scenarios"; however, these are not appropriate for a project like this that involves demolition, excavation, and extensive vertical construction on a relatively small site.[10] For this project, the construction build-out scenario, including equipment list and schedule, were based on data provided by the project applicant. The project construction equipment worksheet provided by the applicant included the schedule for each phase (included in *Attachment 2*). Within each phase, the quantity of equipment to be used along with the average hours per day and total number of workdays was provided. Since different equipment would have different estimates of the working days per phase, the hours per day for each phase was computed by dividing the total number of hours that the equipment would be used by the total number of days in that phase. The construction schedule assumed that the earliest possible start date would be January 2023[11] and the project would be built out over a period of approximately 23 months or 495 construction workdays. The earliest year of operation was assumed to be 2025.

Construction Traffic Emissions

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

The latest version of the CalEEMod model is based on the older version of the CARB EMFAC2017 motor vehicle emission factor model. This model has been superseded by the EMFAC2021 model; however, CalEEMod has not been updated to include EMFAC2021. 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

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

[11] Although project construction starting in January 2023 is not possible at this point, analyzing construction emissions for January 2023 would be more conservative. This is because the earlier start date assumes older construction equipment usage which have higher emission concentrations.

from the years 2023-2024 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 3. Construction Traffic Data Used for EMFAC2021 Model Runs

CalEEMod Run/Land Uses and Construction Phase	Trips by Trip Type			Notes
	Total Worker[1]	Total Vendor[1]	Total Haul[2]	
Vehicle mix[1]	50% LDA 25% LDT1 25% LDT2	50% MHDT 50% HHDT	100% HHDT	
Trip Length (miles)	10.8	7.3	20.0 (Demo/Soil) 7.3 (Cement/Asphalt)	CalEEMod default distance with 5-min truck idle time.
Demolition	300	-	99	21,792-sf existing building and 70 tons of pavement demolition. CalEEMod default worker trips.
Site Preparation	40	-	-	CalEEMod default worker trips.
Grading	1,495	-	1,150	9,200-cy of soil export. CalEEMod default worker trips.
Trenching/Foundation	250	-	-	CalEEMod default worker trips.
Building Construction	27,300	5,100	4,600	2,300 cement truck round trips. CalEEMod default worker and vendor trips.
Architectural Coating	10,800	-	-	CalEEMod default worker trips.
Paving	450	-	24	100-cy asphalt. CalEEMod default worker trips.
Notes: [1] Based on 2023-2024 EMFAC2021 light-duty vehicle fleet mix for Santa Clara County. [2] Includes demolition and grading trips estimated by CalEEMod based on amount of material to be removed. Cement and asphalt trips estimated based on data provided by the applicant.				

Summary of Computed Construction 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 4. Construction Period Emissions

Year	ROG	NOx	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
Construction Emissions Per Year (Tons)				
2023	0.77	1.61	0.08	0.07
2024	2.27	1.41	0.06	0.05
Average Daily Construction Emissions Per Year (pounds/day)				
2023 (261 construction workdays)	5.93	12.33	0.61	0.53
2024 (234 construction workdays)	19.37	12.02	0.53	0.46
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 community 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 DPM and fugitive dust (i.e., $PM_{2.5}$) emissions from construction are recommended to 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 (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) 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 and visible dust extends beyond site boundaries.

9. Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction adjacent to sensitive receptors. 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. Avoid tracking of visible soil material on to public roadways by employing the following measures if necessary: (1) Site accesses to a distance of 100 feet from public paved roads shall be treated with a 6 to 12-inch compacted layer of wood chips, mulch, or gravel and (2) washing truck tires and construction equipment of prior to leaving the site.

13. 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.

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 traffic related emissions was addressed in the DTS DEIR and found to be significant and unavoidable for the entire plan. Traffic-related emissions from the project were computed in this assessment. Operational air emissions from the project would be generated primarily from autos driven by future residents. 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 input to CalEEMod as described above for the construction period modeling.

Model Year

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

Traffic Information

CalEEMod allows the user to enter specific vehicle trip generation rates. Therefore, the project-specific daily trip generation rate provided by the traffic consultant was entered into the model.[12] The proposed project would produce 644 daily trips after a *Location-Based Vehicle Mode Share Reduction* and *Project-Specific Trip Reduction.* The daily trip generation was calculated using the size of the project and the adjusted total automobile trips. The Saturday and Sunday trip rates were adjusted by multiplying the ratio of the CalEEMod default rates for Saturday and Sunday trips to the default weekday rate with the project-specific daily weekday trip rate. The default trip lengths and trip types specified by CalEEMod were used.

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 2020.4.0, new emission factors have been produced by CARB. EMFAC2021 became available for use in January 2021. It includes the latest data on California's car and truck fleets and travel activity. The CalEEMod vehicle emission factors and fleet mix were updated with the emission rates and fleet mix from EMFAC2021, which were adjusted with the CARB EMFAC off-model adjustment factors. On road emission rates from 2022-2023 Santa Clara County were used (See *Attachment 3*). More details about the updates in emissions calculation methodologies and data are available in the EMFAC2021 Technical Support Document.[13]

Project Generators and Fire Pump

The project proposes to include one 1,000-kilowatt (kW) emergency generator powered by a an estimated 1,340-horsepower (hp) diesel engine on the ground floor and a fire pump with a 150 hp diesel engine in the basement level. The diesel engines would be tested periodically and power the buildings and fire pump in the event of a power failure. For modeling purposes, it was assumed

[12] Hexagon Transportation Consultants, Inc., *South Fourth Street Residential Local Transportation Analysis,* December 3, 2021.
[13] See CARB 2021: https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-modeling-tools-emfac

that the engines 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 engines would typically run for less than one hour. The engines would be required to meet CARB and EPA emission standards and consume commercially available California low-sulfur diesel fuel. Additionally, the generators would have to meet BAAQMD BACT requirements for IC Engine-Compression Ignition: Stationary Emergency, non-Agricultural, non-direct drive fire pump sources. Based on the size of the larger generator, this one would include emission limits similar to U.S. EPA Tier 4 engines. The generators' emissions were modeled using CalEEMod.

Energy

CalEEMod defaults for energy use were used, which include the 2019 Title 24 Building Standards. GHG emissions modeling includes those indirect emissions from electricity consumption. The electricity produced emission rate was modified in CalEEMod. An emission factor of 178 pounds of CO_2 per megawatt of electricity produced was entered into CalEEMod, which is based on San Jose Clean Energy's 2020 emissions rate.[14]

Additionally, the City of San José passed an ordinance in December 2020 that prohibits the use of natural gas infrastructure in most new buildings.[15] This ordinance applies to most new construction starting August 1, 2021. Given that the proposed building will be primarily residential use, it is assumed that no natural gas will be consumed by the project.

Other Inputs

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

Existing Uses

The site currently consists of a three-story apartment complex and a two-story residence. These uses produce low operational emissions which would not considerably offset emissions from the proposed project. In addition, no project-specific trip generation rates for the existing land uses from the project's traffic report were available for this assessment. Therefore, the emissions from the existing uses were not considered.

Summary of Computed Operational Emissions

Annual emissions were predicted using CalEEMod and daily emissions were estimating assuming 365 days of operation. Table 5 shows average daily construction emissions of ROG, NO_X, total

[14] San Jose Clean Energy Website, Standard Greensource service. Web: https://sanjosecleanenergy.org/commercial-rates/
[15] City of San Jose, 2020. "Expand Natural Gas Ban", December. Web: https://www.sanjoseca.gov/Home/Components/News/News/2210/4699

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}	$PM_{2.5}$
2025 Annual Project Operational Emissions (*tons/year*)	2.22	0.32	0.51	0.14
BAAQMD Thresholds (tons /year)	*10 tons*	*10 tons*	*15 tons*	*10 tons*
Exceed Threshold?	*No*	*No*	*No*	*No*
2025 Daily Project Operational Emissions (*pounds/day*)[1]	12.16	1.75	2.77	0.75
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 community risk can occur either by introducing a new source of TACs with the potential to adversely affect existing sensitive receptors in the project vicinity or by significantly exacerbating existing cumulative TAC impacts. This project would introduce new sources of TACs during construction (i.e., on-site construction and truck hauling emissions) and operation (i.e., stationary and mobile sources).

Project construction activity would generate dust and equipment exhaust that would affect nearby sensitive receptors. The project would also include the installation of a stand-by emergency generator and a fire pump powered by diesel engines, which would produce TAC and air pollutant emissions. Traffic generated by the project would consist of mostly light-duty gasoline-powered vehicles, which would produce TAC and air pollutant emissions.

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

Community Risk Methodology for Construction and Operation

Community risk impacts were addressed by predicting increased cancer risk, the increase in annual $PM_{2.5}$ concentrations and computing the Hazard Index (HI) for non-cancer health risks. The risk impacts from the project are the combination of risks from construction and operation sources. These sources include on-site construction activity, construction truck hauling, project generators, 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,[16] 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

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

entirety of the project. The project maximally exposed individual (MEI) is identified as the sensitive receptor that is most impacted by the project's construction and operation.

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

Modeled Sensitive Receptors

Receptors for this assessment included locations where sensitive populations would be present for extended periods of time (i.e., chronic exposures). This includes the adjacent existing residences surrounding the site, as shown in Figure 1. Residential receptors at The Mark were modeled for informational purposes. Residential receptors are assumed to include all receptor groups (i.e., third trimester, infants, children, and adults) with almost continuous exposure to project emissions. Community risks were also computed for students at Notre Dame High School (ages 14-18).

Community Risks from Project Construction

Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known TAC. These exhaust air pollutant emissions would not be considered to contribute substantially to existing or projected air quality violations. Construction exhaust emissions may still pose health risks for sensitive receptors such as surrounding residents. The primary community risk impact issue associated with construction emissions are cancer risk and exposure to $PM_{2.5}$. Diesel exhaust 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 $PM_{2.5}$.[17] This assessment included dispersion modeling to predict the offsite and onsite concentrations resulting from project construction, so that increased cancer risks and non-cancer health effects could be evaluated.

Construction Emissions

The CalEEMod and EMFAC2021 models provided total annual PM_{10} exhaust emissions (assumed to be DPM) for the off-road construction equipment and for exhaust emissions from on-road vehicles, with total emissions from all construction stages of 0.12 tons (242 pounds). The on-road emissions are a result of haul truck travel during demolition and grading activities, worker travel, and vendor deliveries during construction. A trip length of half a mile was used to represent vehicle travel while at or near the construction site. Fugitive $PM_{2.5}$ dust emissions were calculated by CalEEMod as 0.03 tons (66 pounds) for the overall construction period.

Dispersion Modeling

The U.S. EPA AERMOD dispersion model was used to predict DPM and $PM_{2.5}$ concentrations at sensitive receptors (residences, schools) in the vicinity of the project construction area. The AERMOD dispersion model is a BAAQMD-recommended model for use in modeling analysis of

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

these types of emission activities for CEQA projects.[18,19] 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 a series of point sources with a nine-foot release height (construction equipment exhaust stack height) placed at 16 feet (5 meters) intervals throughout the construction site. This resulted in 79 individual point sources being used to represent mobile equipment DPM exhaust emissions in the construction area, with DPM emissions occurring throughout the project construction site. In addition, the following stack parameters were used: a vertical release, a stack diameter of 2.5 inches, an exhaust temperature of 918˚F, and an exit velocity of 309 feet per second. Since these are point sources, plume rise is calculated by the AERMOD dispersion model. Emissions from vehicle travel on- and off-site were also distributed among the point sources throughout the site. The locations of the point sources used for the modeling are identified in Figure 1.

For modeling fugitive $PM_{2.5}$ emissions, an area source with near-ground level release height of 7 feet (2 meters) was assumed. 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 construction site, the effects of building downwash on the construction equipment exhaust plumes were included in the modeling analysis. The locations of the point sources used for the modeling and the buildings that were evaluated for potential downwash effects are identified in Figure 1.

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 Monday through Friday between 8:00 a.m. to 5:00 p.m. when the majority of construction activity would occur per the project applicant's construction schedule. Annual DPM and $PM_{2.5}$ concentrations from construction activities during the 2023-2024 period were calculated using the model. DPM and $PM_{2.5}$ concentrations were calculated at nearby sensitive receptor locations.

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

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

Receptor heights of 5 feet (1.5 meters), 15 feet (4.5 meters), and 25 feet (7.6 meters) were used to represent the breathing heights of sensitive receptors on the first through third floors in the single- and multi-family residences near the site.[20, 21] Receptor heights of 5 feet (1.5 meter) were also used to represent the breathing height of the students at the high school. Receptors we also placed at 32 feet (9.8 meters) and 43 feet (13.1 meters) representing the breathing heights of sensitive receptors on the third and fourth floors (first and second residential levels) in the future The Mark building. Residential receptors at The Mark were modeled for informational purposes.

Summary of Construction Community Risk Impacts

The maximum increased cancer risks were calculated using the modeled TAC concentrations combined with the OEHHA guidance for age sensitivity factors and exposure parameters as recommended by BAAQMD, as described in *Attachment 1*. Non-cancer health hazards and maximum $PM_{2.5}$ concentrations were also calculated and identified. Age-sensitivity factors reflect the greater sensitivity of infants and small children to cancer causing TACs. Third trimester, infant, child, and adult exposures were assumed to occur at all residences during the entire construction period. Students at the high school were assumed to be between the ages of 14 and 18 years old. The child (ages 2 through 16 years old) cancer risk parameters were used to calculate the increased cancer risk for the high school students.

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

The maximum modeled annual DPM and $PM_{2.5}$ concentrations at nearby sensitive receptors were used to identify the MEIs. Results of this assessment indicated that the construction MEIs were located at two different locations on two different levels. The $PM_{2.5}$ concentration MEI was located on the first floor (5 feet above ground) at the adjacent single-family home to the south of the site, while the cancer risk MEI was located on the second floor (15 feet above ground) at the adjacent multi-family townhome to the south $PM_{2.5}$ concentration MEI. The locations of the construction MEIs and nearby sensitive receptors are shown in Figure 1. Table 6 lists the community risks from construction at the location of the construction MEIs. *Attachment 4* to this report includes the emission calculations used for the construction modeling and the cancer risk calculations.

Health risk and hazard levels from project construction were also calculated for the future The Mark receptors adjacent to the south of the project site. The Mark MEI receptor was located on the third floor (32 feet above ground – first residential level) of the northeastern unit. Residential receptors at The Mark were modeled for informational purposes.

Additionally, modeling was conducted to predict the cancer risks, non-cancer health hazards, and maximum $PM_{2.5}$ concentrations associated with construction activities at the nearby high school. The maximum increased cancer risks were adjusted using child exposure parameters. The

[20] BAAQMD, 2012, *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0.* May. Web: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/risk-modeling-approach-may-2012.pdf?la=en
[21] BAAQMD, 2020, *BAAQMD Health Risk Assessment Modeling Protocol.* December. Web: https://www.baaqmd.gov/~/media/files/ab617-community-health/facility-risk-reduction/documents/baaqmd_hra_modeling_protocol-pdf.pdf?la=en

uncontrolled cancer risks, $PM_{2.5}$ concentrations, and HIs at the nearby high school would not exceed their respective BAAQMD single-source significance thresholds, as shown in Table 6.

Figure 1. Locations of Project Construction Site, Modeled DPM Point Sources, Buildings Evaluated for Downwash Effects, Project Stationary Sources, Off-Site Sensitive Receptors, and Maximum TAC Impact (MEIs)

Community Risks from Project Operation – Traffic and Stationary Sources

Operation of the project would have long-term emissions from mobile sources (i.e., traffic) and stationary sources (i.e., generator/fire pump). 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 Traffic

Diesel powered vehicles are the primary concern with local traffic-generated TAC impacts. Per BAAQMD recommended risks and methodology, a road with less than 10,000 total vehicle per

day is considered a low-impact source of TACs.[22] This project would generate 644 daily trips[23] dispersed on the roadway system with a majority of the trips being from light-duty vehicles (i.e., passenger automobiles), which is a fraction of 10,000 daily vehicles. In addition, projects with the potential to cause or contribute to increased cancer risk from traffic include those that have attract high numbers of diesel-powered on road trucks or use off-road diesel equipment on site, such as a distribution center, a quarry, or a manufacturing facility, may potentially expose existing or future planned receptors to substantial cancer risk levels and/or health hazards. This is not a project of concern for non-BAAQMD permitted mobile sources. Therefore, emissions from project traffic are considered negligible and were not included in this analysis.

Project Stand-By Generator and Fire Pump

As stated before, the project would include one 1,000-kW (approximately 1,340-HP) stand-by generator with diesel engine and a fire pump with a 150-HP diesel engine. The generator would be located on the ground floor with the exhaust stacks releasing on the rooftop of the building, while the diesel fire pump engine would be in the basement with the exhaust stacks releasing at the top of the ground floor. Operation of a diesel generator 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 be run for less than one hour under light engine loads. The generator engines would be required to meet EPA emission standards and consume commercially available low sulfur diesel fuel. Additionally, the generators would have to meet BAAQMD BACT requirements for IC Engine-Compression Ignition: Stationary Emergency, non-Agricultural, non-direct drive fire pump sources. Based on the size of the larger generator, it would include emission limits similar to U.S. EPA Tier 4 engines. The emissions from the operation of the generator and fire pump were calculated using the CalEEMod model.

Diesel engines are subject to CARB's Stationary Diesel Airborne Toxics Control Measure (ATCM) and require permits from the BAAQMD, since the engines are larger than 50-HP. As part of the BAAQMD permit requirements for toxics screening analysis, the engine emissions will have to meet Best Available Control Technology for Toxics (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). Sources of air pollutant emissions complying with all applicable BAAQMD regulations generally will not be considered to have a significant air quality community risk impact.

To estimate potential increased cancer risks and $PM_{2.5}$ impacts from operation of the generator and fire pump, the U.S. EPA AERMOD dispersion model was used to calculate the maximum annual DPM concentration at off-site sensitive receptor locations (nearby residences and school). Emissions of DPM were based on PM_{10} exhaust emissions predicted by CalEEMod for operation of the project stationary sources. The same receptors, breathing heights, and BAAQMD San José International Airport meteorological data used in the construction dispersion modeling were used

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

[23] Hexagon Transportation Consultants, Inc., *South Fourth Street Residential Local Transportation Analysis,* December 3, 2021.

for the generator modeling. Stack parameters (exhaust flow rate, and exhaust gas temperature) for modeling the generator was based on BAAQMD default parameters for emergency generators[24] except for the height which was placed on the roof of the project site for the larger generator and the top of the ground floor for the fire pump. 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 MEI, the cancer risks were also adjusted for exposure duration to account for the MEI being exposed to construction for the first 2 years of the 30-year period. The generator exposure duration was adjusted for 28 years of exposure. Cancer risk adjustments were also made for the high school receptors, which would be exposed to 2 years of construction activity and 2 years of generator/fire pump operation. Table 6 lists the community risks from the stand-by diesel generator and fire pump at the location of residential MEIs, The Mark MEI, and maximum school receptor. The emissions and health risk calculations for the proposed generator are included in *Attachment 4*.

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

The cumulative risk impacts from a project are the combination of construction and operation sources. These sources include on-site construction activity and project generator/fire pump. The project impact is computed by adding the construction cancer risk for an infant/child to the increased cancer risk for the project operational conditions for the generators at the MEIs over a 30-year period. The project MEI is identified as the sensitive receptor that is most impacted by the project's construction and operation.

For this project, the sensitive receptors identified in Figure 1 as the construction MEIs are also the project MEIs (i.e., combined construction and operational exposure). Health risk impacts would be much less if that project is not occupied during construction of this project. The MEIs would be exposed to emissions from 2 years of project construction and 28 years of project operation (includes stand-by generator/fire pump operation). The cancer risks from construction and operation of the project were summed together. Unlike the increased maximum cancer risk, the annual $PM_{2.5}$ concentration and HI risks are not additive but based on an annual maximum risk for the entirety of the project.

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. Also, the unmitigated maximum cancer risks and annual $PM_{2.5}$ concentration from construction activities at The Mark MEI location 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 annual non-cancer hazards at the MEI from project construction and operation activities would be below the single-source significance thresholds. Additionally, none of the unmitigated risks and hazards at the maximum high school receptor would exceed the BAAQMD single-source significance thresholds.

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

Table 6. Construction and Operation Risk Impacts

Source		Cancer Risk* (per million)	Annual $PM_{2.5}$* ($\mu g/m^3$)	Hazard Index
Existing (Non-Mark) Sensitive Receptor				
Project Construction (Years 0-2)	Unmitigated	**103.35 (infant)**	**1.12**	0.07
	Mitigated**	3.95 (infant)	0.21	<0.01
Project Generator and Fire Pump, 1,000-kW, 1,340-HP and 150-HP (Years 3-30)		0.51 (child)	<0.01	<0.01
Total/Maximum Project Impact (Years 0-30)	Unmitigated	**103.86**	**1.12**	0.07
	Mitigated**	4.46	0.21	<0.01
BAAQMD Single-Source Threshold		***10***	***0.3***	***1.0***
Exceed Threshold?	Unmitigated	***Yes***	***Yes***	*No*
	Mitigated**	*No*	*No*	*No*
The Mark Sensitive Receptor				
Project Construction (Years 0-2)	Unmitigated	**157.00 (infant)**	**0.60**	0.10
	Mitigated**	6.01 (infant)	0.04	<0.01
Project Generator and Fire Pump, 1,000-kW, 1,340-HP and 150-HP (Years 3-30)		1.69 (child)	<0.01	<0.01
Total/Maximum Project Impact (Years 0-30)	Unmitigated	**165.29**	**0.60**	0.10
	Mitigated**	7.70	0.04	<0.01
BAAQMD Single-Source Threshold		***10***	***0.3***	***1.0***
Exceed Threshold?	Unmitigated	***Yes***	***Yes***	*No*
	Mitigated**	*No*	*No*	*No*
Notre Dame High School Child Receptor				
Project Construction (Years 0-2)	Unmitigated	0.87 (child)	0.01	<0.01
Project Generator (Years 3-4)		<0.01 (child)	<0.01	<0.01
Unmitigated Total/Maximum Project (Years 0-4)	Unmitigated	<0.88	0.01	<0.01
BAAQMD Single-Source Threshold		***10***	***0.3***	***1.0***
Exceed Threshold?	Unmitigated	*No*	*No*	*No*

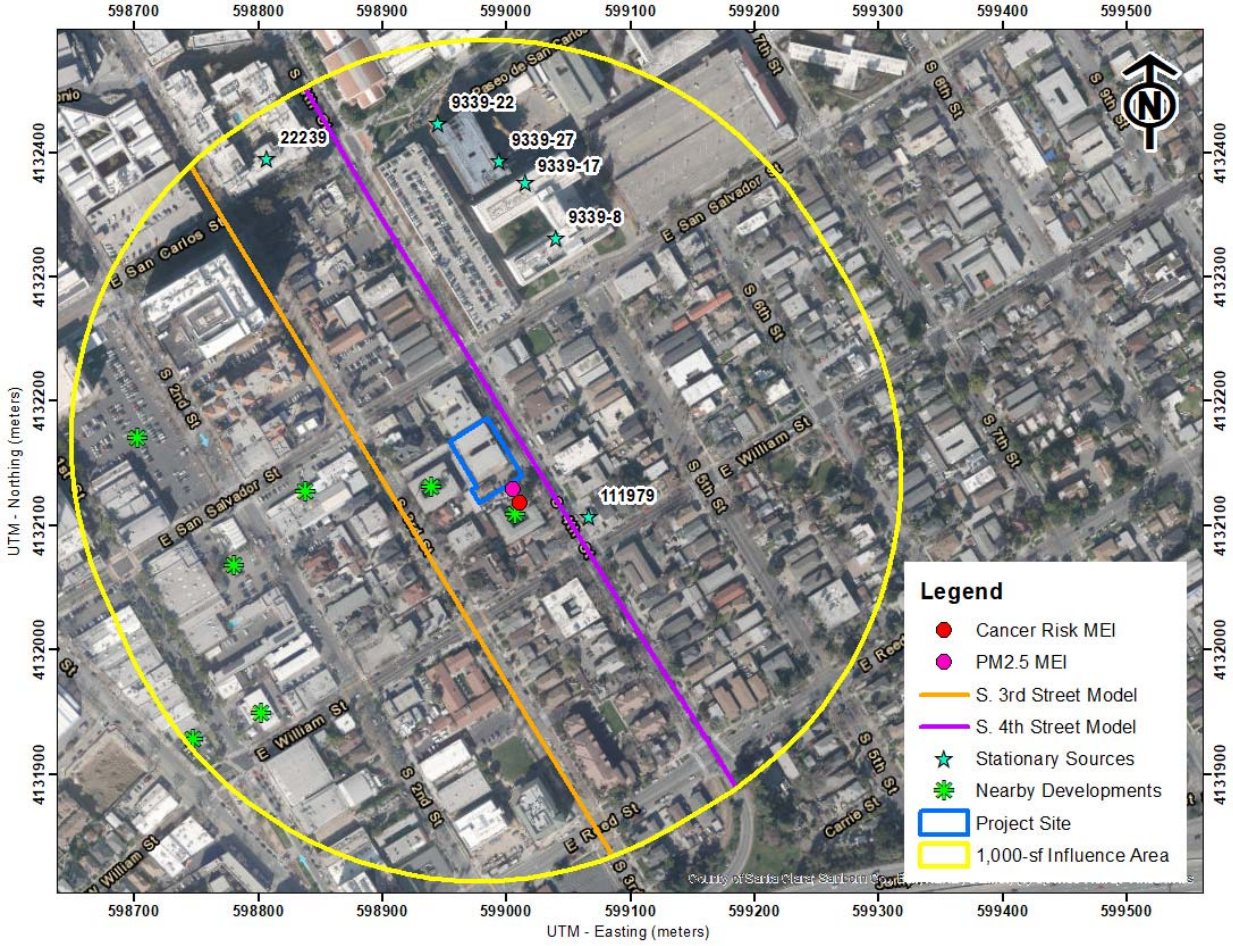
* Maximum cancer risk and maximum $PM_{2.5}$ concentration occur at different receptors on different levels.
** Construction equipment with Tier 4 final engines, electric portable equipment, electric aerial lifts, electric cranes, and enhanced BMPs as Mitigation Measures.

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

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

A review of the project area based on provided traffic information indicated that traffic on S. 3rd Street and S. 4th Street would exceed 10,000 vehicles per day. Other nearby streets would have less than 10,000 vehicles per day. A review of BAAQMD's stationary source map website identified six stationary sources with the potential to affect the project MEI. In addition, there are several development projects whose construction would contribute to the cumulative risk. The risk impacts from these developments are included within the analysis. Figure 2 shows the location of the sources affecting the MEIs. Community risk impacts from these sources upon the MEIs are reported in Table 7. Details of the modeling and community risk calculations are included in *Attachment 5.*

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



Local Roadways – S. 3rd Street and S. 4th Street

A refined analysis of potential health impacts from vehicle traffic on S. 3rd Street and S. 4th Street was conducted. The refined analysis involved predicting emissions for the traffic volume and mix of vehicle types on the roadway near the project site and using an atmospheric dispersion model to predict exposure to TACs. The associated cancer risks are then computed based on the modeled exposures. *Attachment 1* includes a description of how community risk impacts, including cancer risk are computed.

Emission Rates

This analysis involved the development of DPM, organic TACs, and $PM_{2.5}$ emissions for traffic on both roadways using the Caltrans version of the EMFAC2017 emissions model, known as CT-EMFAC2017. CT-EMFAC2017 provides emission factors for mobile source criteria pollutants and TACs, including DPM. Emission processes modeled include running exhaust for DPM, $PM_{2.5}$ and total organic compounds (e.g., TOG), running evaporative losses for TOG, and tire and brake wear and fugitive road dust for $PM_{2.5}$. All $PM_{2.5}$ emissions from all vehicles were used, rather than just the $PM_{2.5}$ fraction from diesel powered vehicles, because all vehicle types (i.e., gasoline and

diesel powered) produce $PM_{2.5}$. Additionally, $PM_{2.5}$ emissions from vehicle tire and brake wear and from re-entrained roadway dust were included in these emissions. DPM emissions are projected to decrease in the future and are reflected in the CT-EMFAC2017 emissions data. Inputs to the model include region (i.e., Santa Clara County), type of road (i.e., major/collector), truck percentage for non-state highways in Santa Clara County (3.51 percent),[25] traffic mix assigned by CT-EMFAC2017 for the county, year of analysis (2023 – construction start year), and season (annual).

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

The average daily traffic (ADT) for S. 3rd Street and S. 4th Street was calculated based on AM and PM peak-hour background plus project traffic volumes for the nearby roadway provided by the project's traffic data.[26] The calculated ADT on S. 3rd Street would be 12,607 and on S. 4th Street would be 11,455. Average hourly traffic distributions for Santa Clara County roadways were developed using the EMFAC model,[27] which were then applied to the ADT volumes to obtain estimated hourly traffic volumes and emissions for the roadway. For all hours of the day, other than during peak a.m. and p.m. periods, average speeds of 30 miles-per-hour (mph) on S. 3rd Street and S. 4th Street were assumed for all vehicles based on posted speed limit signs on the roadways. Traffic speeds during the peak a.m. and p.m. periods were assumed to be 10 miles per hour slower (i.e., 20 mph) to account for congestion and the amount of access in the area.

Dispersion Modeling

Dispersion modeling of TAC and $PM_{2.5}$ emissions was conducted using the EPA AERMOD air quality dispersion model, which is recommended by the BAAQMD for this type of analysis.[28,29] TAC and $PM_{2.5}$ emissions from traffic on the roadways within 1,000 feet of the project site were evaluated. Emissions from vehicle traffic were modeled in AERMOD using a series of area sources along a line (line area sources), with line segments used for the travel directions on each roadway. The same meteorological data and off-site sensitive receptors used in the previous dispersion modeling were used in the roadway modeling. Other inputs to the model included road geometry,

[25] BAAQMD, 2012, *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0.* May. Web: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/risk-modeling-approach-may-2012.pdf?la=en
[26] Hexagon Transportation Consultants, Inc., *South Fourth Street Residential Local Transportation Analysis,* December 3, 2021.
[27] The Burden output from EMFAC2007, a previous version of CARB's EMFAC model, was used for this since the current web-based version of EMFAC2014 does not include Burden type output with hour by hour traffic volume information.
[28] BAAQMD, 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
[29] BAAQMD, 2020, *BAAQMD Health Risk Assessment Modeling Protocol.* December. Web: https://www.baaqmd.gov/~/media/files/ab617-community-health/facility-risk-reduction/documents/baaqmd_hra_modeling_protocol-pdf.pdf?la=en

hourly traffic emissions, and receptor locations. Annual TAC and $PM_{2.5}$ concentrations for 2023 from traffic on the roadways were calculated using the model. Concentrations were calculated at the project MEIs with receptor heights of 5 feet (1.5 meters) and 15 feet (4.5 meters) to represent the breathing heights of residents on the first and second floors in the single- and multi-family units.

Figure 2 shows the roadway segments modeled and residential MEI receptor locations 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 5*.

Stationary Sources

Permitted stationary sources of air pollution near the project site were identified using BAAQMD's *Permitted Stationary Sources 2018* geographic information system (GIS) website.[30] This mapping tool identifies the location of nearby stationary sources and their estimated risk and hazard impacts, including emissions and adjustments to account for new OEHHA guidance. Six sources were identified using this tool with five sources being diesel generators and one being a gas dispensing facility. A Stationary Source Information Form (SSIF) containing the identified sources was prepared and submitted to BAAQMD. BAAQMD provided updated emissions data and risk values.[31]

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

Construction Risk Impacts from Nearby Developments

From the City's website,[32] the following planned or approved projects are located within 1,000 feet of the proposed project:

- **The Mark Residential Tower** – this project is located at 459 and 475 South 4th Street, which are the two adjacent properties to the south of the project site. This approved project would include the construction of a 20-story multi-family residential building. To analyze the most conservative construction health risk scenario for the proposed project, it was assumed the construction for The Mark would be completed prior to construction of the proposed project and sensitive receptors would occupy The Mark by the time the proposed project would begin construction. Therefore, this would not result in a cumulative construction impact.

- **MVP** – this project includes mixed-use buildings at 420 South 2nd Street and 420 South 3rd Street and is currently in the planning review phase. The 20-story mixed-use building at 420 3rd Street would consist of 152 residential units and approximately 3,000 square feet

[30] BAAQMD, https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=2387ae674013413f987b1071715daa65
[31] Correspondence with Areana Flores, MSc, Environmental Planner, BAAQMD, February 9, 2021.
[32] City of San Jose, Private / Key Economic Development Projects Map, Web: https://gis.sanjoseca.gov/maps/devprojects/

of retail space, while two mixed-use towers with up to 254 residential units and approximately 8,000 square feet of ground floor commercial space is proposed at 420 2nd Street. Sensitive receptors directly impacted by both construction sites would include the receptors to the north and south of both sites. While the construction schedule is unknown at this time, construction could occur simultaneously.

- **BoTown Project** – this project is located at 409 South 2nd Street and would consist of a 29-story building with 250 residential units and 7,645 square feet of commercial space. This project site would be about 580 feet west of the proposed project site and is currently in the planning review phase. While the construction schedule is unknown at this time, construction could occur simultaneously.

- **Valley Title** – this project is located at 345 South 2nd Street, approximately 610 feet northwest of the proposed project site. This proposed office building would be 20 stories tall with 1.39 million square feet of commercial office with ground floor retail space. This project is currently in the planning review phase. While the construction schedule is unknown at this time, construction could occur simultaneously.

- **San José Stage/Home 2 Hotel** – this project is located at 490 South 1st Street, approximately 800 feet southwest of the proposed project site. This hotel would include 144 rooms and a 22,102 square-foot theater. This project is currently in the planning review phase. While the construction schedule is unknown at this time, construction could occur simultaneously.

- **Gateway Tower** – this project is located at 455-493South 1st Street, approximately 985 feet southwest of the proposed project site. This 25-story building would include 300 residential units and 4,850 square feet of ground floor retail. This project has been approved, but construction has not yet started. While the construction schedule is unknown at this time, construction could occur simultaneously.

The mitigated construction risks and hazard impact values for certain developments were available from their air quality technical reports either conducted by *Illingworth & Rodin, Inc*. or on the City of San José Environmental Review website for Active EIRs,[33] Completed EIRs,[34] or Negative Declaration / Initial Studies.[35] For developments that did not have available construction impact results at the time of this study, it was assumed the construction risks would be less than the BAAQMD single-source thresholds for community risks and hazards. If the nearby developments were more than 500 feet from the project site, the construction risks were assumed to be half of the BAAQMD single-source thresholds due to the distance and dispersion between the source and receptors. For the purpose of this analysis, it was conservatively assumed the entire construction period from the proposed project would overlap with the nearby developments' construction schedule and that the year of construction with highest $PM_{2.5}$ concentrations would all occur in the

[33] City of San José, *Active EIRs*, https://www.sanjoseca.gov/your-government/departments/planning-building-code-enforcement/planning-division/environmental-planning/environmental-review/active-eirs
[34] City of San José, *Completed EIRs*, https://www.sanjoseca.gov/your-government/departments/planning-building-code-enforcement/planning-division/environmental-planning/environmental-review/completed-eirs
[35] City of San José, *Negative Declaration / Initial Studies*, https://www.sanjoseca.gov/your-government/departments/planning-building-code-enforcement/planning-division/environmental-planning/environmental-review/negative-declaration-initial-studies

same year. This approach provides an overestimate of the community 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 MEI. 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 community risk impacts at the sensitive receptors most affected by project construction and operation (i.e., the project MEIs). Table 8 reports community risk impacts at The Mark MEI. The project would have an exceedance with respect to community risk caused by project construction and operation activities, since the unmitigated maximum cancer risk and annual $PM_{2.5}$ concentration exceed the BAAQMD single-source thresholds. The combined unmitigated maximum cancer risk and annual $PM_{2.5}$ concentration would also exceed the BAAQMD cumulative-source thresholds. With the implementation of *Mitigation Measure AQ-1 and AQ-2*, the project's cancer risk and $PM_{2.5}$ concentration would be lowered to a level below the single-source thresholds and the combined unmitigated and mitigated cancer risk would be lowered to a level below the cumulative-source threshold. However, the combined annual $PM_{2.5}$ concentration, which includes unmitigated and mitigated impacts, would exceed its cumulative thresholds due to the concentration from the existing TAC sources and simultaneous construction of nearby developments. The cumulative threshold would be exceeded in the case where all construction activity occurs simultaneously. The HI, unmitigated and mitigated, does not exceed the single or cumulative thresholds.

Table 1. Cumulative Community Risk Impacts at the Location of the Project MEIs

Source		Cancer Risk* (per million)	Annual $PM_{2.5}$* ($\mu g/m^3$)	Hazard Index
Project Impacts				
Total/Maximum Project Impact	Unmitigated	**103.86**	**1.12**	0.07
	Mitigated	4.46	0.21	<0.01
BAAQMD Single-Source Threshold		***10***	***0.3***	***1.0***
Exceed Threshold?	Unmitigated	***Yes***	***Yes***	*No*
	Mitigated	*No*	*No*	*No*
Cumulative Operational Sources				
S. 3rd Street , ADT 12,607		0.93	0.08	<0.01
S. 4th Street , ADT 11,455		1.39	0.11	<0.01
G&K Management (Facility ID #22239, Generator), MEIs at 1,000 feet		0.04	--	--
Super Gas & Mart (Facility ID #111979, Gas Station), MEIs at 135 feet		0.86	-	<0.01
San Jose State University (Facility ID #9339-17, Generator), MEIs at 505 feet		1.39	<0.01	<0.01
San Jose State University (Facility ID #9339-22, Generator), MEIs at 950 feet		0.01	--	--
San Jose State University (Facility ID #9339-27, Generator), MEIs at 810 feet		0.37	<0.01	<0.01
San Jose State University (Facility ID #9339-8, Generator), MEIs at 505 feet		<0.01	--	--
Cumulative Temporary Construction Sources				
MVP Mitigated Construction Emissions – adjacent west and 225 feet west		<10.0	<0.30	<1.00
BoTown Mitigated Construction Emissions – 580 feet west		<10.0	<0.08	<0.01
Valley Title Mitigated Construction Emissions – 610 feet northwest		<8.21	<0.09	<0.01
San José Stage/Home 2 Hotel Mitigated Construction Emissions – 800 feet southwest		<3.20	<0.17	<0.01
Gateway Tower Mitigated Construction Emissions – 985 feet southwest		<6.50	<0.10	<0.01
Combined Sources	Unmitigated	**<146.77**	**<2.07**	<1.16
	Mitigated	<47.37	**<1.16**	<1.10
BAAQMD Cumulative Source Threshold		***100***	***0.8***	***10.0***
Exceed Threshold?	Unmitigated	***Yes***	***Yes***	*No*
	Mitigated	*No*	***Yes***	*No*

* Maximum cancer risk and maximum $PM_{2.5}$ concentration occur at different receptors on different levels.

Table 8. Cumulative Community Risk Impacts at the Location of The Mark MEI

Source		Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Project Impacts				
Total/Maximum Project Impact	Unmitigated	**165.29**	**0.60**	0.10
	Mitigated	7.70	0.04	<0.01
BAAQMD Single-Source Threshold		***10***	***0.3***	***1.0***
Exceed Threshold?	Unmitigated	***Yes***	***Yes***	*No*
	Mitigated	*No*	*No*	*No*
Cumulative Operational Sources				
S. 3rd Street , ADT 12,607		0.54	0.04	<0.01
S. 4th Street , ADT 11,455		0.67	0.04	<0.01
G&K Management (Facility ID #22239, Generator), MEI at 1,000 feet		0.04	--	--
Super Gas & Mart (Facility ID #111979, Gas Station), MEI at 135 feet		0.86	-	<0.01
San Jose State University (Facility ID #9339-17, Generator), MEI at 505 feet		1.39	<0.01	<0.01
San Jose State University (Facility ID #9339-22, Generator), MEI at 950 feet		0.01	--	--
San Jose State University (Facility ID #9339-27, Generator), MEI at 810 feet		0.37	<0.01	<0.01
San Jose State University (Facility ID #9339-8, Generator), MEI at 505 feet		<0.01	--	--
Cumulative Temporary Construction Sources				
MVP Mitigated Construction Emissions – adjacent west and 225 feet west		<10.0	<0.30	<1.00
BoTown Mitigated Construction Emissions – 580 feet west		<10.0	<0.08	<0.01
Valley Title Mitigated Construction Emissions – 610 feet northwest		<8.21	<0.09	<0.01
San José Stage/Home 2 Hotel Mitigated Construction Emissions – 800 feet southwest		<3.20	<0.17	<0.01
Gateway Tower Mitigated Construction Emissions – 985 feet southwest		<6.50	<0.10	<0.01
Combined Sources	Unmitigated	**<207.09**	**<1.44**	<1.19
	Mitigated	<49.50	**<0.88**	<1.10
BAAQMD Cumulative Source Threshold		***100***	***0.8***	***10.0***
Exceed Threshold?	Unmitigated	***Yes***	***Yes***	*No*
	Mitigated	*No*	***Yes***	*No*

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

Implement a feasible plan to reduce diesel particulate matter emissions by 90 percent or greater such that increased cancer risk and annual $PM_{2.5}$ concentrations from construction would be reduced below TAC significance levels 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 PM (PM_{10} and $PM_{2.5}$), if feasible, otherwise,

    a. If use of Tier 4 equipment is not available, alternatively use equipment that meets U.S. EPA emission standards for Tier 3 engines and include particulate matter emissions control equivalent to CARB Level 3 verifiable diesel emission control devices that altogether achieve a 90 percent or greater reduction in particulate matter exhaust in comparison to uncontrolled equipment; alternatively (or in combination).

    b. Use of alternatively fueled or electric-powered equipment.

2. Provide line power to the site during the early phases of construction to minimize the use of diesel-powered stationary and portable equipment, such as cranes, aerial lifts, cement and mortar mixers, concentrate/industrial saws, air compressors, and welders.

Alternatively, the applicant could develop a separate feasible plan that reduces on- and near-site construction diesel particulate matter emissions by 90 percent or greater. Such a plan would have to be reviewed and approved by the City.

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, electric cranes, aerial lifts, cement and mortar mixers, concentrate/industrial saws, air compressors, and welders were used, along with enhanced BAAQMD best management practices for construction were included. With these measures implemented, the project's total cancer risk levels (assuming infant exposure during construction) would be reduced by 96 percent to 4.46 chances per million at the Project MEI and by 95 percent to 7.70 chances per million at The Mark MEI. The project's annual $PM_{2.5}$ concentrations would be reduced by 82 percent to 0.21 $\mu g/m^3$ at the Project MEI and by 93 percent to 0.04 $\mu g/m^3$ at The Mark MEI. The project's health risk impacts would no longer exceed the BAAQMD single-source significance thresholds. This would reduce the cumulative cancer risk and to less than 47.37 chances per million and the cumulative $PM_{2.5}$ concentration risk to less than 1.16 $\mu g/m^3$ at the Project MEI and to less than 49.50 chances per million and the cumulative $PM_{2.5}$ concentration risk to less than 0.88 $\mu g/m^3$ at The Mark MEI. The $PM_{2.5}$ concentration would still exceed the cumulative threshold due to the overwhelming contribution of non-project sources.

Mitigation Measure AQ-1 and *AQ-2* represent the best available measures to reduce project construction period emissions. The $PM_{2.5}$ concentration from existing sources alone exceeds the cumulative threshold at 0.95 μg/m^3. Cumulative risks exceed the $PM_{2.5}$ concentration threshold because of the influence from local roadways and the overwhelming influence of the potentially simultaneous nearby developments at the MEIs. The project's mitigated $PM_{2.5}$ concentration represents 18 percent of the total mitigated cumulative concentration. In addition, according to BAAQMD health risks would be less-than-significant to the MEIs if the risks from the project are reduced below the single-source thresholds.[36] Therefore, the project would not substantially contribute to the total cumulative $PM_{2.5}$ concentration. The project would not be cumulatively considerable and no additional mitigation would be required on the part of the project to mitigate the exceedance of the cumulative source threshold for annual $PM_{2.5}$ concentration. Note that the project would apply best practices in reducing construction emissions, including those of $PM_{2.5}$.

[36] Correspondence with Areana Flores, MSc, Environmental Planner, BAAQMD, February 23, 2021.

Non-CEQA: On-Site Community Risk Assessment for TAC Sources - New Project Residences

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 required when new residential are proposed near existing sources of TACs. 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 impact from project construction, a health risk assessment was completed to assess the impact that existing TAC sources would have on the new proposed sensitive receptors (residents) that that project would introduce. The same TAC sources identified above were used in this health risk assessment.[37] Figure 3 shows the on-site sensitive receptors in relation to the nearby TAC sources. All on-site community task results are listed in Table 9. *Attachment 5* includes the dispersion modeling and risk calculations for TAC source impacts upon the proposed on-site sensitive receptors.

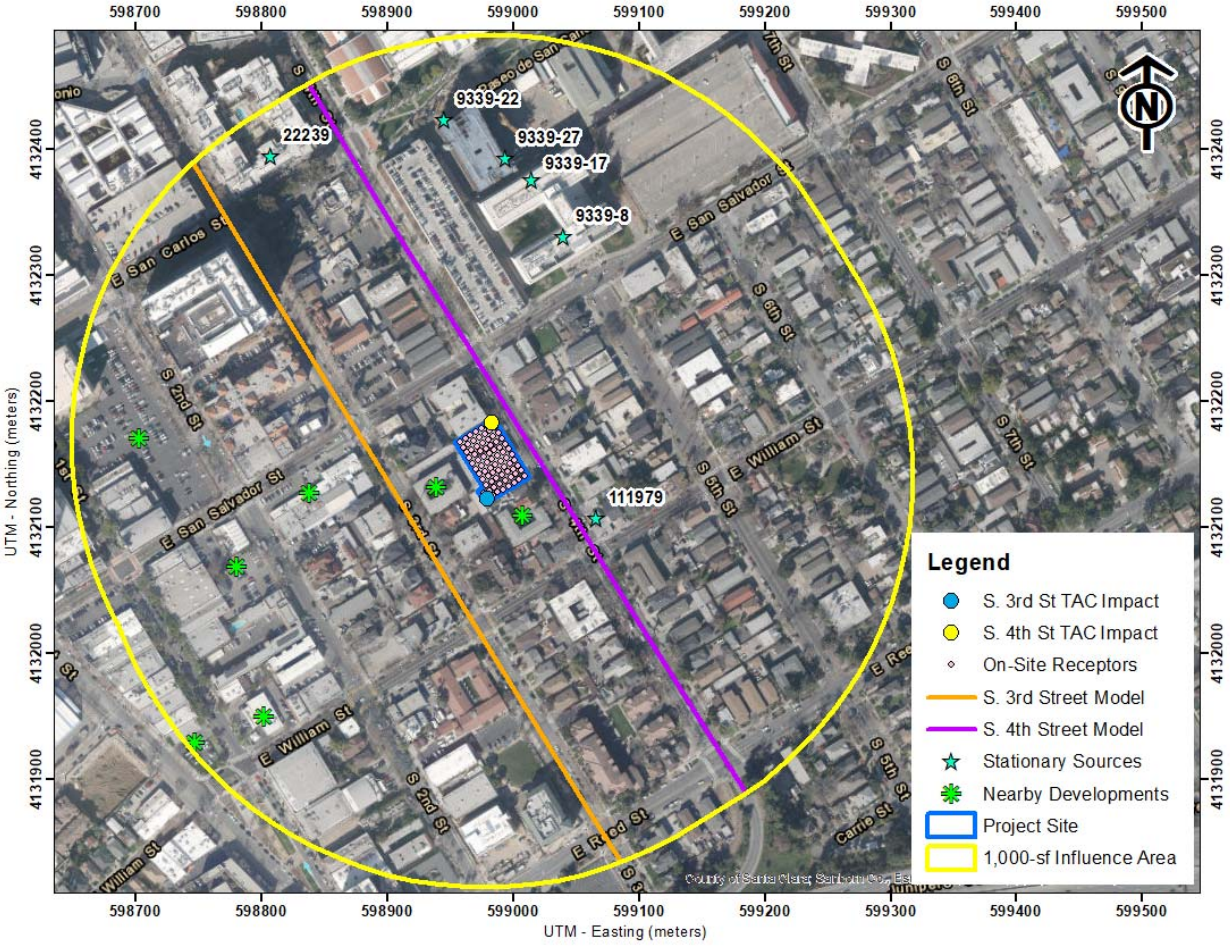
Local Roadways – S. 3rd Street and S. 4th Street

The roadway analysis for the project residents was conducted in the same manner as described above for the off-site MEI. However, year 2025 (operational year) emission factors were conservatively assumed as being representative of future conditions, instead of 2023 (construction year). An analysis based on 2025 resulted in an ADT on S. 3rd Street of 12,854 and 11,679 on S. 4th Street. The project set of receptors were placed within the project site and were spaced every 16 feet (5 meters). Roadway impacts were modeled at receptor heights of 50 feet (15.2 meters) and 60 feet (18.3 meters) representing sensitive receptors on the fifth and sixth floors (first and second project residential levels). Project sensitive receptors higher than the sixth floor would have roadway impacts less than those on the sixth floor. The portions of S. 3rd Street and S. 4th Street included in the modeling are shown in Figure 3 along with the project site and on-site 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 third trimester pregnancy and infants/children and were assumed to be in the new building area for 24 hours per day for 350 days per year. The highest impacts from S. 3rd Street occurred at the fifth-floor (first residential level) receptor in the southwest corner of the proposed project closest to the roadway. The highest impacts from S. 4th Street occurred at the fifth-floor (first residential level) receptor in the northeast corner of the proposed project closest to the roadway. Cancer risks associated with the roadways are greatest closest to the roadways and decrease with distance from the roads. The roadways' community risk impacts at the project site are shown in Table 9. Details of the emission calculations, dispersion modeling, and cancer risk calculations for the roadways are contained in *Attachment 5.*

[37] 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 existing environment on a project are excluded from CEQA.

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



Stationary Sources

The stationary source screening analysis for the new project sensitive receptors was conducted in the same manner as described above for the project MEI. Table 9 shows the health risk assessment results from the stationary sources.

Construction Risk Impacts from Nearby Developments

The same mitigated construction risks from the nearby developments were included in the cumulative table for the on-site project sensitive receptors. However, the on-site project sensitive receptors would only be exposed to a portion of the construction from the nearby developments, as opposed to the project MEI which could be exposed to the entire portion of the nearby developments' construction. Therefore, the construction risks from the nearby developments would be lower at the proposed on-site project sensitive receptors.

Cumulative Community Health Risk at Project Site

Community risk impacts from the combined sources upon the project site are reported in Table 9. The TAC sources are compared against the BAAQMD single-source threshold and then combined and compared against the BAAQMD cumulative-source threshold. As shown, the maximum cancer risk, annual $PM_{2.5}$ concentrations, and HI from the nearby fixed sources (roadways and stationary sources) do not exceed the single-source thresholds and the combined fixed group alone would not exceed the cumulative thresholds. The maximum cancer risk, annual $PM_{2.5}$ concentrations, and HI from nearby temporary sources (nearby developments construction) would not exceed the single-source thresholds, but the combined temporary group alone would almost exceed the $PM_{2.5}$ concentration threshold. Given that the construction of nearby developments is temporary, the construction schedule for many of these developments are unknown and may not overlap with this project, and the nearby developments impact results at the project site would be less than what is shown in the table, no additional project design features (i.e., air filtration) would be recommended since the project would comply with City policies over the lifetime of the project.

Table 9. Impacts from Combined Sources to Project Site Receptors

Source	Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Fixed Operational Sources			
S. 3rd Street , ADT 12,854	0.35	0.03	<0.01
S. 4th Street , ADT 11,679	0.25	0.02	<0.01
G&K Management (Facility ID #22239, Generator), Project Site at 840 feet	0.05	--	--
Super Gas & Mart (Facility ID #111979, Gas Station), Project Site at 155 feet	0.72	-	<0.01
San Jose State University (Facility ID #9339-17, Generator), Project Site at 360 feet	2.09	<0.01	<0.01
San Jose State University (Facility ID #9339-22, Generator), Project Site at 785 feet	0.02	--	--
San Jose State University (Facility ID #9339-27, Generator), Project Site at 660 feet	0.50	<0.01	<0.01
San Jose State University (Facility ID #9339-8, Generator), Project Site at 360 feet	<0.01	--	--
Temporary Construction Sources			
MVP Mitigated Construction Emissions – adjacent west and 225 feet west	<10.0	<0.30	<1.00
BoTown Mitigated Construction Emissions – 580 feet west	<10.0	<0.08	<0.01
Valley Title Mitigated Construction Emissions – 610 feet northwest	<8.21	<0.09	<0.01
San José Stage/Home 2 Hotel Mitigated Construction Emissions – 800 feet southwest	<3.20	<0.17	<0.01
Gateway Tower Mitigated Construction Emissions – 985 feet southwest	<6.50	<0.10	<0.01
BAAQMD Single-Source Threshold	***10***	***0.3***	***1.0***
Exceed Threshold?	*No*	*No*	*No*
Cumulative Total	<41.90	**<0.81**	<1.09
BAAQMD Cumulative Source Threshold	***100***	***0.8***	***10.0***
Exceed Threshold?	*No*	***Yes***	*No*

Supporting Documentation

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

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

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

Attachment 4 is the project health risk assessment. This includes the summary of the dispersion modeling and the cancer risk calculations for construction and operation. The AERMOD dispersion modeling files for this assessment, which are quite voluminous, are available upon request and would be provided in digital format.

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

Attachment 1: Health Risk Calculation Methodology

Health Risk Calculation Methodology

A health risk assessment (HRA) for exposure to Toxic Air Contaminates (TACs) requires the application of a risk characterization model to the results from the air dispersion model to estimate potential health risk at each sensitive receptor location. The State of California Office of Environmental Health Hazard Assessment (OEHHA) and California Air Resources Board (CARB) develop recommended methods for conducting health risk assessments. The most recent OEHHA risk assessment guidelines were published in February of 2015.[38] These guidelines incorporate substantial changes designed to provide for enhanced protection of children, as required by State law, compared to previous published risk assessment guidelines. CARB has provided additional guidance on implementing OEHHA's recommended methods.[39] This HRA used the 2015 OEHHA risk assessment guidelines and CARB guidance. The BAAQMD has adopted recommended procedures for applying the newest OEHHA guidelines as part of Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants.[40] Exposure parameters from the OEHHA guidelines and the recent BAAQMD HRA Guidelines were used in this evaluation.

Cancer Risk

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

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

[38] 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.
[39] CARB, 2015. *Risk Management Guidance for Stationary Sources of Air Toxics*. July 23.
[40] BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*. December 2016.

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

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

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

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

Where:

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

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

Where:

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

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

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

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

* For worker exposures (adult) the exposure duration and frequency are 25 years 250 days/year and FAH is not applicable.

Non-Cancer Hazards

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

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

Annual $PM_{2.5}$ Concentrations

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

Attachment 2: CalEEMod Input Assumptions and Outputs

Air Quality/Noise Construction Information Data Request

Project Name: 439 & 451 S 4th street apartments

Complete ALL Portions in Yellow

See Equipment Type TAB for type, horsepower and load factor

Project Size
- 210 Dwelling Units
- 0.52 total project acres disturbed
- 355,593 s.f. residential
- 0 s.f. retail
- 730 s.f. office/commercial: office + confference room
- 20,000 s.f. other, specify: amenity, circulation
- 72,151 s.f. parking garage — 168 spaces
- 0 s.f. parking lot — 0 spaces

Construction Hours 8 am to 5 pm

Pile Driving? Y/N? Y

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

IF YES (if BOTH separate values) -->

Kilowatts/Horsepower: ____Fuel Pump - 150HP and Generator - 1000KW_____

Fuel Type: _____Diesel_____

Location in project (Plans Desired if Available): Ground floor

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	Annual Hours	HP hrs	Comments
	Demolition	**Start Date:**	**1/2/2023**	**Total phase:1**	**20**				**Overall Import/Export Volumes**
		End Date:	**1/27/2023**						
1	Concrete/Industrial Saws	81	0.73	8	20	8	160	9,461	**Demolition Volume**
1	Excavators	158	0.38	8	20	8	160	9,606	Square footage of buildings to be demolished
2	Rubber-Tired Dozers	247	0.4	8	20	8	320	31,616	(*or* total tons to be hauled)
2	Tractors/Loaders/Backhoes	97	0.37	8	20	8	320	11,485	_21792_ square feet *or*
									_?_ Hauling volume (tons)
									Any pavement demolished and hauled?_70_ tons
	Site Preparation	**Start Date:**	**1/30/2023**	**Total phase:1**	**5**				
		End Date:	**2/3/2023**						
	Graders	187	0.41			0	0	-	
1	Rubber Tired Dozers	247	0.4	8	5	8	40	3,952	
2	Tractors/Loaders/Backhoes	97	0.37	8	5	8	80	2,871	
	Grading / Excavation	**Start Date:**	**2/6/2023**	**Total phase:**	**90**				
		End Date:	**7/14/2023**						**Soil Hauling Volume**
1	Excavators	158	0.38	8	90	8	720	43,229	Export volume = _9200_ cubic yards?
	Graders	187	0.41			0	0	-	Import volume = _0_ cubic yards?
1	Rubber Tired Dozers	247	0.4	8	10	0.88888889	80	7,904	
1	Concrete/Industrial Saws	81	0.73	8	10	0.88888889	80	4,730	
2	Tractors/Loaders/Backhoes	97	0.37	8	90	8	1440	51,682	
	Other Equipment?								
	Trenching/Foundation	**Start Date:**	**7/17/2023**	**Total phase:**	**25**				
		End Date:	**8/18/2023**						
3	Tractor/Loader/Backhoe	97	0.37	8	20	6.4	480	17,227	
1	Excavators	158	0.38	8	5	1.6	40	2,402	
	Other Equipment?								
	Building - Exterior	**Start Date:**	**8/20/2023**	**Total phase:**	**150**				**Cement Trucks? _2300_ Total Round-Trips**
		End Date:	**1/15/2024**						
1	Cranes	231	0.29	8	150	8	1200	80,388	Electric? (Y/N) _N__ Otherwise assumed diesel
4	Forklifts	89	0.2	8	150	8	4800	85,440	Liquid Propane (LPG)? (Y/N) _N__ Otherwise Assumed diesel
	Generator Sets	84	0.74			0	0	-	Or temporary line power? (Y/N) _Y__
2	Tractors/Loaders/Backhoes	97	0.37	4	150	4	1200	43,068	
4	Welders	46	0.45	4	150	4	2400	49,680	
	Other Equipment?					0			
Building - Interior/Architectural Coatin		**Start Date:**	**10/2/2023**	**Total phase:**	**300**				
		End Date:	**11/29/2024**						
3	Air Compressors	78	0.48	8	300	8	7200	269,568	
5	Aerial Lift	62	0.31	8	300	8	12000	230,640	
	Other Equipment?								
	Paving	**Start Date:**	**1/2/2024**	**Total phase:**	**30**				
		Start Date:	**2/13/2024**						
1	Cement and Mortar Mixers	9	0.56	8	25	6.66666667	200	1,008	
2	Pavers	130	0.42	8	25	6.66666667	400	21,840	**Asphalt? __100_ cubic yards or ____ round trips?**
2	Paving Equipment	132	0.36	8	10	2.66666667	160	7,603	
1	Rollers	80	0.38	8	15	4	120	3,648	
	Tractors/Loaders/Backhoes	97	0.37			0	0	-	
	Other Equipment?								
	Additional Phases	**Start Date:**		**Total phase:**					
		Start Date:							

Equipment types listed in "Equipment Types" worksheet tab.

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

It is assumed that water trucks would be used during grading

Add or subtract phases and equipment, as appropriate

Modify horepower or load factor, as appropriate

Complete one sheet for each project component

Traffic Consultant Trip Gen						CalEEMod Default		
Land Use		Size	Daily Trips	New Trips	Weekday Trip Gen	Weekday	Sat	Sun
Apartmetns High Rise	DU	210	935	644	***3.07***	4.45	4.53	3.59
Location Based Vehicle Mode Share Reduction	29%		*-271*			*Rev*	***3.12***	***2.47***
Project Specific Trip Reduction	3%		*-20*					

Table 2
Project Trip Generation Estimates

Land Use	Size	Daily Rate	Daily Trips	AM Peak Hour Pk-Hr Rate	AM In	AM Out	AM Total	PM Peak Hour Pk-Hr Rate	PM In	PM Out	PM Total
Apartments [1]	210 DU	4.45	935	0.31	16	49	65	0.36	46	30	76
Location-Based Vehicle Mode Share (29%) [2]			*(271)*		*(5)*	*(14)*	*(19)*		*(13)*	*(9)*	*(22)*
Project-Specific Trip Reduction (3%) [3]			*(20)*		*0*	*(1)*	*(1)*		*(1)*	*(1)*	*(2)*
Net Project Trips:			**844**		**11**	**34**	**45**		**32**	**20**	**52**

Notes:

[1] Trip generation based on average rates contained in the *ITE Trip Generation Manual, 10th Edition*, for Multifamily Housing High-Rise (Land Use 222) located in a General Urban/Suburban setting. Rates are expressed in trips per dwelling unit (DU).

[2] A 29% reduction was applied based on the location-based vehicle mode share percentage outputs (Table 6 of the *TA Handbook*) produced from the San Jose Travel Demand Model for the place type Central City Urban.

[3] A 3% reduction was applied based on the external trip adjustments obtained from the City's VMT Evaluation Tool due to the increased residential density for the site as a result of the project.

Construction Criteria Air Pollutants						
Unmitigated	ROG	NOX	PM10 Exhaust	PM2.5 Exhaust	**CO2e**	
Year	Tons				MT	
Construction Equipment						
2023	0.74	1.45	0.07	0.06	248.11	
2024	2.24	1.27	0.05	0.05	270.89	
EMFAC						
2023	0.03	0.16	0.01	0.005	158.08	
2024	0.03	0.14	0.01	0.004	139.45	
Total Construction Emissions by Year						
2023	0.77	1.61	0.08	0.07	406.19	
2024	2.27	1.41	0.06	0.05	410.33	
	Total Construction Emissions					
Tons	3.04	3.02	0.14	0.12	816.53	
Pounds/Workdays	*Average Daily Emissions*				Workdays	
2023	5.93	12.33	0.61	0.53		**261**
2024	19.37	12.02	0.53	0.46		**234**
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**		
	Total Construction Emissions					
Pounds	25.30	24.36	1.14	0.99	0.00	
Average	12.29	12.19	0.57	0.50	0.00	495.00
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**		

Operational Criteria Air Pollutants						
Unmitigated	ROG	NOX	Total PM10	Total PM2.5		
Year	Tons					
Total	2.22	0.32	0.51	0.14		
	Existing Use Emissions					
Total						
	Net Annual Operational Emissions					
Tons/year	2.22	0.32	0.51	0.14		
Threshold - Tons/year	**10.0**	**10.0**	**15.0**	**10.0**		
	Average Daily Emissions					
Pounds Per Day	12.16	1.75	2.77	0.75		
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**		

Category	**CO2e**			
	Project	Existing	Project 2030	Existing
Area	2.61			
Energy	98.39			
Mobile	496.62			
Waste	48.58			
Water	16.91			
TOTAL	663.10	0.00	0.00	0.00
Net GHG Emissions		663.10		0.00
Service Population	659.40			
Per Capita Emissions		1.01		0.00

	210	units
CA DOF 2020 =	3.14	pphh

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

439 & 451 South 4th Street Apartments, 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	168.00	Space	0.00	72,151.00	0
Apartments High Rise	210.00	Dwelling Unit	0.52	376,323.00	601

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2025
Utility Company	San Jose Clean Energy				
CO2 Intensity (lb/MWhr)	178	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SJCE = 178

Land Use - Provided land use - construction worksheet

Construction Phase - Applicant 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 - EMFAC2021 0 trips adjustment, pavemtn demo = 70 tons, building const = 2,300 cement truck round trips, paving = 100-cy asphalt

Date: 3/8/2022 1:15 PM

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

Demolition - existing building demo = 21,792-sf

Grading - grading = 9,200-cy export

Vehicle Trips - Traffic provided trip gen w/ reductions

Vehicle Emission Factors - EMFAC2021 vechile emissions factors Santa Clara Co 2025

Woodstoves - No fireplaces

Energy Use - Reach code - no natural gas, convert to electricity

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

Construction Off-road Equipment Mitigation - Enhanced BMPs, Tier 4 final mitigation, electric portable, aerial lifts, and crane

Fleet Mix - EMFAC2021 fleet mix Santa Clara Co 2025

Stationary Sources - Emergency Generators and Fire Pumps - one 1,000-kw, 1,340-hp diesel generator, 50 hr/yr, one 150-hp fire pump

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	FuelType	Diesel	Electrical
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	FuelType	Diesel	Electrical
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
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
tblConstructionPhase	NumDays	5.00	300.00
tblConstructionPhase	NumDays	100.00	150.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	2.00	115.00
tblConstructionPhase	NumDays	5.00	30.00
tblConstructionPhase	NumDays	1.00	5.00
tblEnergyUse	NT24E	3,054.10	3,055.00
tblEnergyUse	NT24NG	3,155.00	0.00
tblEnergyUse	T24E	70.89	72.42
tblEnergyUse	T24NG	5,226.68	0.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	31.50	0.00
tblFireplaces	NumberNoFireplace	8.40	0.00
tblFireplaces	NumberWood	35.70	0.00
tblFleetMix	HHD	6.3770e-003	7.4400e-003
tblFleetMix	HHD	6.3770e-003	7.4400e-003

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

tblFleetMix	LDA	0.57	0.53
tblFleetMix	LDA	0.57	0.53
tblFleetMix	LDT1	0.06	0.04
tblFleetMix	LDT1	0.06	0.04
tblFleetMix	LDT2	0.19	0.23
tblFleetMix	LDT2	0.19	0.23
tblFleetMix	LHD1	0.02	0.02
tblFleetMix	LHD1	0.02	0.02
tblFleetMix	LHD2	5.1580e-003	5.7400e-003
tblFleetMix	LHD2	5.1580e-003	5.7400e-003
tblFleetMix	MCY	0.02	0.02
tblFleetMix	MCY	0.02	0.02
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MH	2.7200e-003	2.5850e-003
tblFleetMix	MH	2.7200e-003	2.5850e-003
tblFleetMix	MHD	8.0300e-003	9.4250e-003
tblFleetMix	MHD	8.0300e-003	9.4250e-003
tblFleetMix	OBUS	8.9300e-004	1.0570e-003
tblFleetMix	OBUS	8.9300e-004	1.0570e-003
tblFleetMix	SBUS	9.0000e-004	6.8400e-004
tblFleetMix	SBUS	9.0000e-004	6.8400e-004
tblFleetMix	UBUS	3.7200e-004	4.1300e-004
tblFleetMix	UBUS	3.7200e-004	4.1300e-004
tblGrading	MaterialExported	0.00	9,200.00
tblLandUse	LandUseSquareFeet	67,200.00	72,151.00
tblLandUse	LandUseSquareFeet	210,000.00	376,323.00
tblLandUse	LotAcreage	1.51	0.00
tblLandUse	LotAcreage	3.39	0.52

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
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	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	6.70
tblOffRoadEquipment	UsageHours	4.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	6.70
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	6.00	0.90
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	807.98	178
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

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	150.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	HaulingTripNumber	99.00	0.00
tblTripsAndVMT	HaulingTripNumber	1,150.00	0.00
tblTripsAndVMT	VendorTripNumber	34.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	8.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	182.00	0.00
tblTripsAndVMT	WorkerTripNumber	36.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblVehicleEF	HHD	0.02	0.23
tblVehicleEF	HHD	0.05	0.12
tblVehicleEF	HHD	6.32	5.18
tblVehicleEF	HHD	0.41	0.76
tblVehicleEF	HHD	5.9250e-003	6.8500e-004
tblVehicleEF	HHD	1,030.26	813.97
tblVehicleEF	HHD	1,386.58	1,586.83
tblVehicleEF	HHD	0.05	0.02
tblVehicleEF	HHD	0.16	0.13
tblVehicleEF	HHD	0.22	0.25
tblVehicleEF	HHD	6.0000e-006	1.4000e-005
tblVehicleEF	HHD	5.35	4.06
tblVehicleEF	HHD	2.67	1.77
tblVehicleEF	HHD	2.32	2.75

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

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

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

tblVehicleEF	LDA	226.89	240.29
tblVehicleEF	LDA	48.21	62.25
tblVehicleEF	LDA	3.7350e-003	3.8850e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.03	0.03
tblVehicleEF	LDA	0.15	0.22
tblVehicleEF	LDA	0.04	7.1370e-003
tblVehicleEF	LDA	1.2360e-003	1.1200e-003
tblVehicleEF	LDA	1.6250e-003	1.8490e-003
tblVehicleEF	LDA	0.02	2.4980e-003
tblVehicleEF	LDA	1.1380e-003	1.0310e-003
tblVehicleEF	LDA	1.4940e-003	1.7000e-003
tblVehicleEF	LDA	0.03	0.26
tblVehicleEF	LDA	0.08	0.08
tblVehicleEF	LDA	0.03	0.00
tblVehicleEF	LDA	5.5720e-003	6.9420e-003
tblVehicleEF	LDA	0.03	0.20
tblVehicleEF	LDA	0.18	0.27
tblVehicleEF	LDA	2.2440e-003	2.3750e-003
tblVehicleEF	LDA	4.7700e-004	6.1500e-004
tblVehicleEF	LDA	0.03	0.26
tblVehicleEF	LDA	0.08	0.08
tblVehicleEF	LDA	0.03	0.00
tblVehicleEF	LDA	8.1000e-003	0.01
tblVehicleEF	LDA	0.03	0.20
tblVehicleEF	LDA	0.19	0.30
tblVehicleEF	LDT1	3.1240e-003	5.5770e-003
tblVehicleEF	LDT1	0.05	0.10
tblVehicleEF	LDT1	0.77	1.31

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

tblVehicleEF	LDT1	2.16	4.86
tblVehicleEF	LDT1	272.37	321.80
tblVehicleEF	LDT1	58.50	84.48
tblVehicleEF	LDT1	5.2980e-003	8.6270e-003
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.06	0.11
tblVehicleEF	LDT1	0.20	0.36
tblVehicleEF	LDT1	0.04	9.2190e-003
tblVehicleEF	LDT1	1.5310e-003	1.8130e-003
tblVehicleEF	LDT1	1.9900e-003	2.7500e-003
tblVehicleEF	LDT1	0.02	3.2270e-003
tblVehicleEF	LDT1	1.4090e-003	1.6690e-003
tblVehicleEF	LDT1	1.8300e-003	2.5290e-003
tblVehicleEF	LDT1	0.07	0.56
tblVehicleEF	LDT1	0.13	0.16
tblVehicleEF	LDT1	0.06	0.00
tblVehicleEF	LDT1	0.01	0.02
tblVehicleEF	LDT1	0.07	0.44
tblVehicleEF	LDT1	0.25	0.50
tblVehicleEF	LDT1	2.6950e-003	3.1810e-003
tblVehicleEF	LDT1	5.7900e-004	8.3500e-004
tblVehicleEF	LDT1	0.07	0.56
tblVehicleEF	LDT1	0.13	0.16
tblVehicleEF	LDT1	0.06	0.00
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.07	0.44
tblVehicleEF	LDT1	0.27	0.54
tblVehicleEF	LDT2	2.6570e-003	2.5920e-003
tblVehicleEF	LDT2	0.06	0.08

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

tblVehicleEF	LDT2	0.69	0.78
tblVehicleEF	LDT2	2.60	3.42
tblVehicleEF	LDT2	290.83	333.60
tblVehicleEF	LDT2	63.01	85.20
tblVehicleEF	LDT2	5.2770e-003	5.6510e-003
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.05	0.06
tblVehicleEF	LDT2	0.23	0.31
tblVehicleEF	LDT2	0.04	8.8600e-003
tblVehicleEF	LDT2	1.3020e-003	1.2920e-003
tblVehicleEF	LDT2	1.6610e-003	2.0610e-003
tblVehicleEF	LDT2	0.02	3.1010e-003
tblVehicleEF	LDT2	1.1980e-003	1.1890e-003
tblVehicleEF	LDT2	1.5270e-003	1.8950e-003
tblVehicleEF	LDT2	0.06	0.28
tblVehicleEF	LDT2	0.11	0.08
tblVehicleEF	LDT2	0.06	0.00
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.06	0.21
tblVehicleEF	LDT2	0.26	0.35
tblVehicleEF	LDT2	2.8770e-003	3.2980e-003
tblVehicleEF	LDT2	6.2400e-004	8.4200e-004
tblVehicleEF	LDT2	0.06	0.28
tblVehicleEF	LDT2	0.11	0.08
tblVehicleEF	LDT2	0.06	0.00
tblVehicleEF	LDT2	0.02	0.01
tblVehicleEF	LDT2	0.06	0.21
tblVehicleEF	LDT2	0.29	0.39
tblVehicleEF	LHD1	4.8220e-003	5.1940e-003

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

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

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

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

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

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

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

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

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

tblVehicleEF	MDV	351.34	401.56
tblVehicleEF	MDV	74.92	101.74
tblVehicleEF	MDV	6.9960e-003	7.5950e-003
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.06	0.09
tblVehicleEF	MDV	0.26	0.38
tblVehicleEF	MDV	0.04	8.9720e-003
tblVehicleEF	MDV	1.3680e-003	1.3100e-003
tblVehicleEF	MDV	1.7330e-003	2.0690e-003
tblVehicleEF	MDV	0.02	3.1400e-003
tblVehicleEF	MDV	1.2620e-003	1.2070e-003
tblVehicleEF	MDV	1.5940e-003	1.9020e-003
tblVehicleEF	MDV	0.07	0.34
tblVehicleEF	MDV	0.12	0.09
tblVehicleEF	MDV	0.06	0.00
tblVehicleEF	MDV	0.01	0.01
tblVehicleEF	MDV	0.06	0.26
tblVehicleEF	MDV	0.31	0.45
tblVehicleEF	MDV	3.4720e-003	3.9670e-003
tblVehicleEF	MDV	7.4100e-004	1.0060e-003
tblVehicleEF	MDV	0.07	0.34
tblVehicleEF	MDV	0.12	0.09
tblVehicleEF	MDV	0.06	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.06	0.26
tblVehicleEF	MDV	0.34	0.49
tblVehicleEF	MH	8.5740e-003	0.01
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	0.80	1.11

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

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

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

tblVehicleEF	MHD	3.6170e-003	0.01
tblVehicleEF	MHD	1.5120e-003	9.5360e-003
tblVehicleEF	MHD	8.8700e-003	8.3140e-003
tblVehicleEF	MHD	0.39	0.67
tblVehicleEF	MHD	0.21	0.30
tblVehicleEF	MHD	1.02	1.00
tblVehicleEF	MHD	70.85	158.59
tblVehicleEF	MHD	1,065.91	1,213.65
tblVehicleEF	MHD	8.98	8.21
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.14	0.16
tblVehicleEF	MHD	7.2880e-003	5.8580e-003
tblVehicleEF	MHD	0.40	0.86
tblVehicleEF	MHD	1.45	1.01
tblVehicleEF	MHD	1.70	1.40
tblVehicleEF	MHD	3.2300e-004	1.7620e-003
tblVehicleEF	MHD	0.13	0.05
tblVehicleEF	MHD	7.0640e-003	0.01
tblVehicleEF	MHD	1.1300e-004	1.0100e-004
tblVehicleEF	MHD	3.0900e-004	1.6850e-003
tblVehicleEF	MHD	0.06	0.02
tblVehicleEF	MHD	6.7520e-003	0.01
tblVehicleEF	MHD	1.0400e-004	9.3000e-005
tblVehicleEF	MHD	3.5500e-004	0.02
tblVehicleEF	MHD	0.02	5.6030e-003
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	1.8800e-004	0.00
tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	0.02	0.05

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

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

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

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

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

tblVehicleEF	SBUS	4.26	3.78
tblVehicleEF	SBUS	0.05	0.02
tblVehicleEF	SBUS	0.13	0.13
tblVehicleEF	SBUS	5.0100e-003	4.3540e-003
tblVehicleEF	SBUS	3.34	1.35
tblVehicleEF	SBUS	4.41	2.41
tblVehicleEF	SBUS	0.90	0.49
tblVehicleEF	SBUS	3.3290e-003	1.2090e-003
tblVehicleEF	SBUS	0.74	0.04
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	5.1000e-005	4.1000e-005
tblVehicleEF	SBUS	3.1850e-003	1.1550e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7110e-003	2.6430e-003
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	4.7000e-005	3.8000e-005
tblVehicleEF	SBUS	5.9800e-004	0.03
tblVehicleEF	SBUS	5.7950e-003	7.7750e-003
tblVehicleEF	SBUS	0.26	0.19
tblVehicleEF	SBUS	2.6700e-004	0.00
tblVehicleEF	SBUS	0.08	0.05
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	3.2940e-003	1.7180e-003
tblVehicleEF	SBUS	9.9090e-003	9.4580e-003
tblVehicleEF	SBUS	4.2000e-005	3.7000e-005
tblVehicleEF	SBUS	5.9800e-004	0.03
tblVehicleEF	SBUS	5.7950e-003	7.7750e-003

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

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

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

tblVehicleEF	UBUS	0.01	8.8540e-003
tblVehicleEF	UBUS	1.4000e-005	3.1000e-005
tblVehicleEF	UBUS	2.4000e-005	0.01
tblVehicleEF	UBUS	2.0100e-004	3.7860e-003
tblVehicleEF	UBUS	1.1000e-005	0.00
tblVehicleEF	UBUS	1.70	0.57
tblVehicleEF	UBUS	4.0000e-005	7.9870e-003
tblVehicleEF	UBUS	7.6430e-003	0.01
tblVehicleTrips	ST_TR	4.53	3.12
tblVehicleTrips	SU_TR	3.59	2.47
tblVehicleTrips	WD_TR	4.45	3.07
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
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					

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

2023	0.7396	1.4460	1.7405	2.8600e-003	0.0700	0.0680	0.1380	0.0319	0.0639	0.0958	0.0000	246.4930	246.4930	0.0647	0.0000	248.1108
2024	2.2367	1.2663	1.9363	3.1300e-003	0.0000	0.0516	0.0516	0.0000	0.0500	0.0500	0.0000	269.5707	269.5707	0.0527	0.0000	270.8885
Maximum	**2.2367**	**1.4460**	**1.9363**	**3.1300e-003**	**0.0700**	**0.0680**	**0.1380**	**0.0319**	**0.0639**	**0.0958**	**0.0000**	**269.5707**	**269.5707**	**0.0647**	**0.0000**	**270.8885**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.5966	0.0837	1.1154	1.5800e-003	0.0273	2.5800e-003	0.0299	6.2200e-003	2.5800e-003	8.8000e-003	0.0000	138.5118	138.5118	0.0448	0.0000	139.6318
2024	2.0922	0.0231	0.3280	4.3000e-004	0.0000	7.1000e-004	7.1000e-004	0.0000	7.1000e-004	7.1000e-004	0.0000	38.0273	38.0273	0.0123	0.0000	38.3348
Maximum	**2.0922**	**0.0837**	**1.1154**	**1.5800e-003**	**0.0273**	**2.5800e-003**	**0.0299**	**6.2200e-003**	**2.5800e-003**	**8.8000e-003**	**0.0000**	**138.5118**	**138.5118**	**0.0448**	**0.0000**	**139.6318**

	ROG	NOx	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	**9.66**	**96.06**	**60.74**	**66.44**	**61.01**	**97.25**	**83.87**	**80.50**	**97.11**	**93.48**	**0.00**	**65.79**	**65.79**	**51.37**	**0.00**	**65.71**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-2-2023**	**4-1-2023**	0.3637	0.0348
2	**4-2-2023**	**7-1-2023**	0.2054	0.0262
3	**7-2-2023**	**10-1-2023**	0.2877	0.0196
4	**10-2-2023**	**1-1-2024**	1.3149	0.6034
5	**1-2-2024**	**4-1-2024**	1.2657	0.6049

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

6	**4-2-2024**	**7-1-2024**	0.8503	0.5772
7	**7-2-2024**	**9-30-2024**	0.8503	0.5772
		Highest	1.3149	0.6049

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.7877	0.0180	1.5593	8.0000e-005		8.6500e-003	8.6500e-003		8.6500e-003	8.6500e-003	0.0000	2.5501	2.5501	2.4500e-003	0.0000	2.6112
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	97.2880	97.2880	0.0180	2.1900e-003	98.3904
Mobile	0.3698	0.2571	2.3564	5.2900e-003	0.4916	3.6800e-003	0.4953	0.1226	3.4300e-003	0.1260	0.0000	489.0821	489.0821	0.0269	0.0230	496.6177
Stationary	0.0611	0.0442	0.1625	2.9000e-004		2.4100e-003	2.4100e-003		2.4100e-003	2.4100e-003	0.0000	28.3694	28.3694	3.9800e-003	0.0000	28.4688
Waste						0.0000	0.0000		0.0000	0.0000	19.6089	0.0000	19.6089	1.1589	0.0000	48.5803
Water						0.0000	0.0000		0.0000	0.0000	4.8408	8.4151	13.2560	0.0182	0.0107	16.9050
Total	**2.2186**	**0.3192**	**4.0782**	**5.6600e-003**	**0.4916**	**0.0147**	**0.5063**	**0.1226**	**0.0145**	**0.1371**	**24.4498**	**625.7046**	**650.1543**	**1.2284**	**0.0359**	**691.5734**

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

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

Category	tons/yr										MT/yr					
Area	1.7877	0.0180	1.5593	8.0000e-005		8.6500e-003	8.6500e-003		8.6500e-003	8.6500e-003	0.0000	2.5501	2.5501	2.4500e-003	0.0000	2.6112
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	97.2880	97.2880	0.0180	2.1900e-003	98.3904
Mobile	0.3698	0.2571	2.3564	5.2900e-003	0.4916	3.6800e-003	0.4953	0.1226	3.4300e-003	0.1260	0.0000	489.0821	489.0821	0.0269	0.0230	496.6177
Stationary	0.0611	0.0442	0.1625	2.9000e-004		2.4100e-003	2.4100e-003		2.4100e-003	2.4100e-003	0.0000	28.3694	28.3694	3.9800e-003	0.0000	28.4688
Waste						0.0000	0.0000		0.0000	0.0000	19.6089	0.0000	19.6089	1.1589	0.0000	48.5803
Water						0.0000	0.0000		0.0000	0.0000	4.8408	8.4151	13.2560	0.0182	0.0107	16.9050
Total	**2.2186**	**0.3192**	**4.0782**	**5.6600e-003**	**0.4916**	**0.0147**	**0.5063**	**0.1226**	**0.0145**	**0.1371**	**24.4498**	**625.7046**	**650.1543**	**1.2284**	**0.0359**	**691.5734**

	ROG	NOx	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	1/2/2023	1/27/2023	5	20	
2	Site Preparation	Site Preparation	1/30/2023	2/3/2023	5	5	
3	Grading	Grading	2/6/2023	7/14/2023	5	115	
4	Trenching	Trenching	7/17/2023	8/18/2023	5	25	
5	Building Construction	Building Construction	8/20/2023	3/15/2024	5	150	
6	Architectural Coating	Architectural Coating	10/2/2023	11/22/2024	5	300	
7	Paving	Paving	1/2/2024	2/12/2024	5	30	

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

Acres of Grading (Site Preparation Phase): 2.5

Acres of Grading (Grading Phase): 6.47

Acres of Paving: 0

Residential Indoor: 762,054; Residential Outdoor: 254,018; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 4,329

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	1	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Graders	0	0.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	0.90	81	0.73
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	0	0.00	187	0.41
Grading	Rubber Tired Dozers	1	0.90	247	0.40
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Trenching	Excavators	1	1.60	158	0.38
Trenching	Tractors/Loaders/Backhoes	3	6.40	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	4	8.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	4.00	97	0.37
Building Construction	Welders	4	4.00	46	0.45
Architectural Coating	Aerial Lifts	5	8.00	63	0.31
Architectural Coating	Air Compressors	3	8.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.70	9	0.56

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

Paving	Pavers	2	6.70	130	0.42
Paving	Paving Equipment	2	2.70	132	0.36
Paving	Rollers	1	4.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	0.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	5	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	11	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	8	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	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 - 2023

Unmitigated Construction On-Site

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0107	0.0000	0.0107	1.6200e-003	0.0000	1.6200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0219	0.2146	0.1759	3.5000e-004		9.9800e-003	9.9800e-003		9.2800e-003	9.2800e-003	0.0000	30.3900	30.3900	8.3500e-003	0.0000	30.5989
Total	**0.0219**	**0.2146**	**0.1759**	**3.5000e-004**	**0.0107**	**9.9800e-003**	**0.0207**	**1.6200e-003**	**9.2800e-003**	**0.0109**	**0.0000**	**30.3900**	**30.3900**	**8.3500e-003**	**0.0000**	**30.5989**

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

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.1800e-003	0.0000	4.1800e-003	3.2000e-004	0.0000	3.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.4900e-003	0.0151	0.1627	2.8000e-004		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004	0.0000	25.0134	25.0134	8.0900e-003	0.0000	25.2157
Total	**3.4900e-003**	**0.0151**	**0.1627**	**2.8000e-004**	**4.1800e-003**	**4.6000e-004**	**4.6400e-003**	**3.2000e-004**	**4.6000e-004**	**7.8000e-004**	**0.0000**	**25.0134**	**25.0134**	**8.0900e-003**	**0.0000**	**25.2157**

Mitigated Construction Off-Site

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

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0164	0.0000	0.0164	8.4200e-003	0.0000	8.4200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4700e-003	0.0255	0.0189	4.0000e-005		1.1800e-003	1.1800e-003		1.0900e-003	1.0900e-003	0.0000	3.2435	3.2435	1.0500e-003	0.0000	3.2698
Total	**2.4700e-003**	**0.0255**	**0.0189**	**4.0000e-005**	**0.0164**	**1.1800e-003**	**0.0176**	**8.4200e-003**	**1.0900e-003**	**9.5100e-003**	**0.0000**	**3.2435**	**3.2435**	**1.0500e-003**	**0.0000**	**3.2698**

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

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.3900e-003	0.0000	6.3900e-003	1.6400e-003	0.0000	1.6400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5000e-004	1.9600e-003	0.0213	4.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	3.2435	3.2435	1.0500e-003	0.0000	3.2698
Total	**4.5000e-004**	**1.9600e-003**	**0.0213**	**4.0000e-005**	**6.3900e-003**	**6.0000e-005**	**6.4500e-003**	**1.6400e-003**	**6.0000e-005**	**1.7000e-003**	**0.0000**	**3.2435**	**3.2435**	**1.0500e-003**	**0.0000**	**3.2698**

Mitigated Construction Off-Site

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

3.4 Grading - 2023

Unmitigated Construction On-Site

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0429	0.0000	0.0429	0.0219	0.0000	0.0219	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0348	0.3285	0.4877	7.5000e-004		0.0160	0.0160		0.0148	0.0148	0.0000	65.8805	65.8805	0.0204	0.0000	66.3894
Total	**0.0348**	**0.3285**	**0.4877**	**7.5000e-004**	**0.0429**	**0.0160**	**0.0589**	**0.0219**	**0.0148**	**0.0366**	**0.0000**	**65.8805**	**65.8805**	**0.0204**	**0.0000**	**66.3894**

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

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0167	0.0000	0.0167	4.2600e-003	0.0000	4.2600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.7000e-003	0.0377	0.5194	7.1000e-004		1.1600e-003	1.1600e-003		1.1600e-003	1.1600e-003	0.0000	62.4025	62.4025	0.0202	0.0000	62.9070
Total	**8.7000e-003**	**0.0377**	**0.5194**	**7.1000e-004**	**0.0167**	**1.1600e-003**	**0.0179**	**4.2600e-003**	**1.1600e-003**	**5.4200e-003**	**0.0000**	**62.4025**	**62.4025**	**0.0202**	**0.0000**	**62.9070**

Mitigated Construction Off-Site

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

3.5 Trenching - 2023

Unmitigated Construction On-Site

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.0100e-003	0.0499	0.0751	1.1000e-004		2.4600e-003	2.4600e-003		2.2700e-003	2.2700e-003	0.0000	9.3418	9.3418	3.0200e-003	0.0000	9.4173
Total	**5.0100e-003**	**0.0499**	**0.0751**	**1.1000e-004**		**2.4600e-003**	**2.4600e-003**		**2.2700e-003**	**2.2700e-003**	**0.0000**	**9.3418**	**9.3418**	**3.0200e-003**	**0.0000**	**9.4173**

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

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

Category	tons/yr										MT/yr					
Off-Road	1.3000e-003	5.6300e-003	0.0801	1.1000e-004		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	9.3418	9.3418	3.0200e-003	0.0000	9.4173
Total	**1.3000e-003**	**5.6300e-003**	**0.0801**	**1.1000e-004**		**1.7000e-004**	**1.7000e-004**		**1.7000e-004**	**1.7000e-004**	**0.0000**	**9.3418**	**9.3418**	**3.0200e-003**	**0.0000**	**9.4173**

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 - 2023

Unmitigated Construction On-Site

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

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

Off-Road	0.0675	0.5715	0.5700	9.6000e-004		0.0277	0.0277		0.0259	0.0259	0.0000	80.4719	80.4719	0.0222	0.0000	81.0267
Total	**0.0675**	**0.5715**	**0.5700**	**9.6000e-004**		**0.0277**	**0.0277**		**0.0259**	**0.0259**	**0.0000**	**80.4719**	**80.4719**	**0.0222**	**0.0000**	**81.0267**

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	5.3800e-003	0.0233	0.3320	4.4000e-004		7.2000e-004	7.2000e-004		7.2000e-004	7.2000e-004	0.0000	38.5106	38.5106	0.0125	0.0000	38.8220

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

Total	**5.3800e-003**	**0.0233**	**0.3320**	**4.4000e-004**		**7.2000e-004**	**7.2000e-004**		**7.2000e-004**	**7.2000e-004**	**0.0000**	**38.5106**	**38.5106**	**0.0125**	**0.0000**	**38.8220**

Mitigated Construction Off-Site

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

3.6 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0364	0.3093	0.3271	5.5000e-004		0.0141	0.0141		0.0131	0.0131	0.0000	46.5934	46.5934	0.0128	0.0000	46.9129
Total	**0.0364**	**0.3093**	**0.3271**	**5.5000e-004**		**0.0141**	**0.0141**		**0.0131**	**0.0131**	**0.0000**	**46.5934**	**46.5934**	**0.0128**	**0.0000**	**46.9129**

Date: 3/8/2022 1:15 PM

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

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	3.1200e-003	0.0135	0.1922	2.5000e-004		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004	0.0000	22.3004	22.3004	7.2100e-003	0.0000	22.4807
Total	**3.1200e-003**	**0.0135**	**0.1922**	**2.5000e-004**		**4.2000e-004**	**4.2000e-004**		**4.2000e-004**	**4.2000e-004**	**0.0000**	**22.3004**	**22.3004**	**7.2100e-003**	**0.0000**	**22.4807**

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

Mitigated Construction Off-Site

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

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5772					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0305	0.2560	0.4129	6.6000e-004		0.0107	0.0107		0.0106	0.0106	0.0000	57.1653	57.1653	9.7400e-003	0.0000	57.4088
Total	**0.6078**	**0.2560**	**0.4129**	**6.6000e-004**		**0.0107**	**0.0107**		**0.0106**	**0.0106**	**0.0000**	**57.1653**	**57.1653**	**9.7400e-003**	**0.0000**	**57.4088**

Date: 3/8/2022 1:15 PM

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

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	0.5772					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.5772**	**0.0000**	**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 Off-Site

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

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

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.0869					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1053	0.8820	1.4928	2.3800e-003		0.0340	0.0340		0.0336	0.0336	0.0000	206.6746	206.6746	0.0348	0.0000	207.5443
Total	**2.1922**	**0.8820**	**1.4928**	**2.3800e-003**		**0.0340**	**0.0340**		**0.0336**	**0.0336**	**0.0000**	**206.6746**	**206.6746**	**0.0348**	**0.0000**	**207.5443**

Unmitigated Construction Off-Site

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
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	2.0869					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.0869**	**0.0000**	**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 Off-Site

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

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

3.8 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.1100e-003	0.0750	0.1165	1.9000e-004		3.5600e-003	3.5600e-003		3.2900e-003	3.2900e-003	0.0000	16.3027	16.3027	5.1500e-003	0.0000	16.4313
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.1100e-003**	**0.0750**	**0.1165**	**1.9000e-004**		**3.5600e-003**	**3.5600e-003**		**3.2900e-003**	**3.2900e-003**	**0.0000**	**16.3027**	**16.3027**	**5.1500e-003**	**0.0000**	**16.4313**

Unmitigated Construction Off-Site

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
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	2.2000e-003	9.5400e-003	0.1358	1.8000e-004		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004	0.0000	15.7269	15.7269	5.0900e-003	0.0000	15.8541
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.2000e-003**	**9.5400e-003**	**0.1358**	**1.8000e-004**		**2.9000e-004**	**2.9000e-004**		**2.9000e-004**	**2.9000e-004**	**0.0000**	**15.7269**	**15.7269**	**5.0900e-003**	**0.0000**	**15.8541**

Mitigated Construction Off-Site

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
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	0.3698	0.2571	2.3564	5.2900e-003	0.4916	3.6800e-003	0.4953	0.1226	3.4300e-003	0.1260	0.0000	489.0821	489.0821	0.0269	0.0230	496.6177
Unmitigated	0.3698	0.2571	2.3564	5.2900e-003	0.4916	3.6800e-003	0.4953	0.1226	3.4300e-003	0.1260	0.0000	489.0821	489.0821	0.0269	0.0230	496.6177

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments High Rise	644.70	655.20	518.70	1,450,895	1,450,895
Enclosed Parking with Elevator	0.00	0.00	0.00		
Total	644.70	655.20	518.70	1,450,895	1,450,895

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

4.4 Fleet Mix

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

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					

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	97.2880	97.2880	0.0180	2.1900e-003	98.3904
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	97.2880	97.2880	0.0180	2.1900e-003	98.3904
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments High Rise	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
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
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

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

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

Apartments High Rise	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
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
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	812461	65.5976	0.0122	1.4700e-003	66.3409
Enclosed Parking with Elevator	392501	31.6904	5.8800e-003	7.1000e-004	32.0495
Total		**97.2880**	**0.0180**	**2.1800e-003**	**98.3904**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	812461	65.5976	0.0122	1.4700e-003	66.3409

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

Enclosed Parking with Elevator	392501	31.6904	5.8800e-003	7.1000e-004	32.0495
Total		**97.2880**	**0.0180**	**2.1800e-003**	**98.3904**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.7877	0.0180	1.5593	8.0000e-005		8.6500e-003	8.6500e-003		8.6500e-003	8.6500e-003	0.0000	2.5501	2.5501	2.4500e-003	0.0000	2.6112
Unmitigated	1.7877	0.0180	1.5593	8.0000e-005		8.6500e-003	8.6500e-003		8.6500e-003	8.6500e-003	0.0000	2.5501	2.5501	2.4500e-003	0.0000	2.6112

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	0.2664					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

Consumer Products	1.4744					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	0.0469	0.0180	1.5593	8.0000e-005		8.6500e-003	8.6500e-003		8.6500e-003	8.6500e-003	0.0000	2.5501	2.5501	2.4500e-003	0.0000	2.6112
Total	**1.7877**	**0.0180**	**1.5593**	**8.0000e-005**		**8.6500e-003**	**8.6500e-003**		**8.6500e-003**	**8.6500e-003**	**0.0000**	**2.5501**	**2.5501**	**2.4500e-003**	**0.0000**	**2.6112**

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	0.2664					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.4744					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	0.0469	0.0180	1.5593	8.0000e-005		8.6500e-003	8.6500e-003		8.6500e-003	8.6500e-003	0.0000	2.5501	2.5501	2.4500e-003	0.0000	2.6112
Total	**1.7877**	**0.0180**	**1.5593**	**8.0000e-005**		**8.6500e-003**	**8.6500e-003**		**8.6500e-003**	**8.6500e-003**	**0.0000**	**2.5501**	**2.5501**	**2.4500e-003**	**0.0000**	**2.6112**

7.0 Water Detail

7.1 Mitigation Measures Water

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	13.2560	0.0182	0.0107	16.9050
Unmitigated	13.2560	0.0182	0.0107	16.9050

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	13.6823 / 8.62583	13.2560	0.0182	0.0107	16.9050
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**13.2560**	**0.0182**	**0.0107**	**16.9050**

Mitigated

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	13.6823 / 8.62583	13.2560	0.0182	0.0107	16.9050
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**13.2560**	**0.0182**	**0.0107**	**16.9050**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	19.6089	1.1589	0.0000	48.5803
Unmitigated	19.6089	1.1589	0.0000	48.5803

8.2 Waste by Land Use

Unmitigated

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	96.6	19.6089	1.1589	0.0000	48.5803
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		**19.6089**	**1.1589**	**0.0000**	**48.5803**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	96.6	19.6089	1.1589	0.0000	48.5803
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		**19.6089**	**1.1589**	**0.0000**	**48.5803**

9.0 Operational Offroad

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

439 & 451 South 4th Street Apartments, San Jose - Santa Clara County, Annual

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0	50	1340	0.73	Diesel
Fire Pump	1	0	50	150	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)	0.0550	0.0270	0.1402	2.6000e-004		1.0800e-003	1.0800e-003		1.0800e-003	1.0800e-003	0.0000	25.5134	25.5134	3.5800e-003	0.0000	25.6028
Fire Pump - Diesel (100 - 175 HP)	6.1500e-003	0.0172	0.0223	3.0000e-005		1.3300e-003	1.3300e-003		1.3300e-003	1.3300e-003	0.0000	2.8560	2.8560	4.0000e-004	0.0000	2.8660
Total	**0.0611**	**0.0442**	**0.1625**	**2.9000e-004**		**2.4100e-003**	**2.4100e-003**		**2.4100e-003**	**2.4100e-003**	**0.0000**	**28.3694**	**28.3694**	**3.9800e-003**	**0.0000**	**28.4688**

11.0 Vegetation

Attachment 3: EMFAC2021 Emissions Calculations

Summary of Construction Traffic Emissions (EMFAC2021)

Pollutants YEAR	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	NBio- CO2	CH4	N2O	CO2e
					Tons							*Metric Tons*		
Criteria Pollutants														
2023	0.0349	0.1636	0.4048	0.0016	0.0929	0.0117	0.1046	0.0140	0.0048	0.0188	153.3495	0.0089	0.0151	158.0819
2024	0.0294	0.1403	0.3403	0.0014	0.0834	0.0105	0.0939	0.0126	0.0042	0.0168	135.2923	0.0077	0.0133	139.4460
Toxic Air Contaminants (0.5 Mile Trip Length)														
2023	0.0299	0.0508	0.1342	0.0001	0.0045	0.0007	0.0052	0.0007	0.0003	0.0010	13.3062	0.0032	0.0022	14.0283
2024	0.0254	0.0449	0.1140	0.0001	0.0040	0.0006	0.0046	0.0006	0.0003	0.0009	11.7257	0.0028	0.0019	12.3571

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	15	0	300	0	99	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	3240	0	1980
Site Preparation	8	0	40	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	432	0	0
Grading	13	0	1495	0	1,150	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	16146	0	23000
Trenching	10	0	250	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	2700	0	0
Building Construction	182	34	27300	5100	4600	10.8	7.3	7.3	LD_Mix	HDT_Mix	HHDT	294840	37230	33580
Architectural Coating	36	0	10800	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	116640	0	0
Paving	15	0	450	0	24	10.8	7.3	7.3	LD_Mix	HDT_Mix	HHDT	4860	0	175.2

Number of Days Per Year					
2023	1/2/23	12/31/23	364	261	
2024	1/1/24	11/22/24	327	234	
			691	**495**	***Total Workdays***

Phase	Start Date	End Date	Days/Week	Workdays
Demolition	1/2/2023	1/27/2023	5	20
Site Preparation	1/30/2023	2/3/2023	5	5
Grading	2/6/2023	7/14/2023	5	115
Trenching	7/17/2023	8/18/2023	5	25
Building Construction	8/20/2023	3/15/2024	5	150
Architectural Coating	10/2/2023	11/22/2024	5	300
Paving	1/2/2024	2/12/2024	5	30

Category		Mix %	Adj	ROG_DIURN	ROG_HTSK	ROG_IDLEX	ROG_RESTL	ROG_RUNEX	ROG_RUNLS	ROG_STREX	NOX_IDLEX	NOX_RUNEX	NOX_STREX	CO_IDLEX	CO_RUNEX	CO_STREX	SO2_IDLEX	SO2_RUNEX	SO2_STREX	Road Dust PM10	PM10_PM BW	PM10_PM TW	PM10_IDLEX	PM10_RUNEX	PM10_STREX	Road Dust PM25	PM25_PM BW	PM25_PM TW	PM25_IDLEX	PM25_RUNEX	PM25_STREX	CO2_NBIO_IDLEX	CO2_NBIO_RUNEX	CO2_NBIO_STREX	CH4_IDLEX	CH4_RUNEX	CH4_STREX	N2O_IDLEX	N2O_RUNEX	N2O_STREX
																														19	22	23	8	9	10						
Hauling	HHDT	100.0	1	0.000287604	8.55424E-05	0.332404817	0	0.01953334	0.00077057	5.28839E-07	4.1629787	1.930480649	2.692504026	5.211988	0.79481483	0.000555	0.00746083	0.01488345	2.65981E-07		0.081444	0.035123	0.002283	0.025833	9.98684E-07		0.028506	0.008781	0.002179	0.0247116	9.183E-07	850.51039	1643.0479	0.0269048	0.235881	0.125647179	9.74075E-08	0.136898	0.262148415	2.46823E-05
	MHD	0.0	0	0.028424515	0.006961572	0.027529656	0	0.04434978	0.05660825	0.052337336	0.9240436	1.219274528	1.396113281	0.673566	0.40377012	1.152494	0.00150213	0.011767743	8.73526E-05	0.299	0.045469	0.012	0.002542	0.014931	0.000112942	0.04499	0.015914	0.003	0.002431	0.0142769	0.0001038	161.33734	1239.5984	8.8359741	0.012943	0.009906777	0.009245497	0.024829	0.159885109	0.006096523
Vendor	HHDT	50.0	0.5	0.000143802	4.27712E-05	0.166202408	0	0.00976667	0.00038529	2.6442E-07	2.0814893	0.965240325	1.346252013	2.605994	0.39740742	0.000277	0.00373041	0.007441725	1.32991E-07		0.040722	0.017561	0.001142	0.012916	4.99342E-07		0.014253	0.00439	0.001089	0.0123558	4.591E-07	425.2552	821.52395	0.0134524	0.11794	0.06282359	4.87037E-08	0.068449	0.131074208	1.23411E-05
	MHD	50.0	0.5	0.014212257	0.003480786	0.013764828	0	0.02217489	0.02830413	0.026168668	0.4620218	0.609637264	0.698056641	0.336783	0.20188506	0.576247	0.00075106	0.005883871	4.36763E-05		0.022735	0.006	0.001271	0.007465	5.64711E-05		0.007957	0.0015	0.001216	0.0071384	5.192E-05	80.66867	619.79918	4.417987	0.006471	0.004953388	0.004622749	0.012414	0.079942554	0.003048262
		1		0.01435606	0.003523557	0.179967236	0	0.03194156	0.02868941	0.026168932	2.5435111	1.574877589	2.044308654	2.942777	0.59929248	0.576524	0.00448148	0.013325596	4.38093E-05	0.299	0.063457	0.023561	0.002413	0.020382	5.69705E-05	0.04499	0.02221	0.00589	0.002305	0.0194942	5.238E-05	505.92387	1441.3231	4.4314394	0.124412	0.067776978	0.004622797	0.080863	0.211016762	0.003060603
Worker	LDA	50.0	0.5	0.143306127	0.042683769		0	0.0045285	0.10768412	0.159592017	0	0.021192179	0.122461753	0	0.35029931	1.546631	0	0.001252255	0.000323762		0.0036	0.004	0	0.000614	0.000990927		0.00126	0.001	0	0.0005655	0.0009111	0	126.68013	32.749475	0	0.001154545	0.034539145	0	0.002249406	0.015441065
	LDT1	25.0	0.25	0.156677436	0.04332923		0	0.0077825	0.12516577	0.145126689	0	0.035722679	0.100614187	0	0.38639431	1.408382	0	0.000820722	0.000217772		0.002307	0.002	0	0.000514	0.000767762		0.000807	0.0005	0	0.0004735	0.000706	0	83.019433	22.02833	0	0.00173807	0.028010471	0	0.002554131	0.009913954
	LDT2	25.0	0.25	0.074138692	0.021036563		0	0.00307324	0.05534742	0.101569939	0	0.019062039	0.088569484	0	0.22117686	0.96209	0	0.000860099	0.000220741		0.002219	0.002	0	0.000345	0.000540097		0.000777	0.0005	0	0.0003173	0.0004966	0	87.013301	22.328622	0	0.000769908	0.021709383	0	0.001617133	0.009562758
			1	0.374122256	0.107049562		0	0.015382	0.28819731	0.406288645	0	0.075976897	0.311645425	0	0.95807047	3.917103	0	0.002933076	0.000762276	0.299	0.008126	0.008	0	0.001473	0.002298785	0.04499	0.002844	0.002	0	0.0013563	0.0021137	0	296.71286	77.106427	0	0.003662524	0.084258998	0	0.00642067	0.034917777

Category		Mix %	Adj	ROG_DIURN	ROG_HTSK	ROG_IDLEX	ROG_RESTL	ROG_RUNEX	ROG_RUNLS	ROG_STREX	NOX_IDLEX	NOX_RUNEX	NOX_STREX	CO_IDLEX	CO_RUNEX	CO_STREX	SO2_IDLEX	SO2_RUNEX	SO2_STREX	Road Dust PM10	PM10_PM BW	PM10_PM TW	PM10_IDLEX	PM10_RUNEX	PM10_STREX	Road Dust PM25	PM25_PM BW	PM25_PM TW	PM25_IDLEX	PM25_RUNEX	PM25_STREX	CO2_NBIO_IDLEX	CO2_NBIO_RUNEX	CO2_NBIO_STREX	CH4_IDLEX	CH4_RUNEX	CH4_STREX	N2O_IDLEX	N2O_RUNEX	N2O_STREX
																														19	22	23	8	9	10						
Hauling	HHDT	100.0	1	0.000195977	5.82846E-05	0.329789936	0	0.01860554	0.00052501	4.36152E-07	4.1112137	1.850604526	2.731408381	5.19556	0.77488683	0.000626	0.00728035	0.014635772	1.93499E-07		0.081298	0.035125	0.002182	0.025474	6.09682E-07		0.028454	0.008781	0.002082	0.0243688	5.606E-07	832.31669	1617.1297	0.019573	0.232934	0.121678903	8.02769E-08	0.134072	0.258076714	1.94763E-05
	MHD	0.0	0	0.025794994	0.006259754	0.026359118	0	0.03811329	0.05096401	0.04894298	0.8943127	1.112921974	1.40789614	0.671381	0.34617278	1.07433	0.00148998	0.011664295	8.43209E-05	0.299	0.045399	0.012	0.002128	0.012985	0.000106814	0.04499	0.01589	0.003	0.002035	0.0124151	9.821E-05	160.25985	1229.1806	8.5293121	0.013383	0.009658327	0.008772715	0.024689	0.158249654	0.006031915
Vendor	HHDT	50.0	0.5	9.79886E-05	2.91423E-05	0.164894968	0	0.00930277	0.0002625	2.18076E-07	2.0556069	0.925302263	1.36570419	2.59778	0.38744341	0.000313	0.00364017	0.007317886	9.67497E-08		0.040649	0.017563	0.001091	0.012737	3.04841E-07		0.014227	0.004391	0.001041	0.0121844	2.803E-07	416.15835	808.56485	0.0097865	0.116467	0.060839451	4.01385E-08	0.067036	0.129038357	9.73817E-06
	MHD	50.0	0.5	0.012897497	0.003129877	0.013179559	0	0.01905664	0.02548201	0.02447149	0.4471563	0.556460987	0.70394807	0.335691	0.17308639	0.537165	0.00074499	0.005832147	4.21605E-05		0.0227	0.006	0.001064	0.006492	5.3407E-05		0.007945	0.0015	0.001018	0.0062075	4.911E-05	80.129824	614.5903	4.2646561	0.006691	0.004829164	0.004386358	0.012344	0.079124827	0.003015958
			1	0.012995486	0.003159019	0.178074527	0	0.02835941	0.02574451	0.024471708	2.5027632	1.48176325	2.06965226	2.933471	0.56052298	0.537478	0.00438516	0.013150033	4.22572E-05	0.299	0.063348	0.023563	0.002155	0.01923	5.37119E-05	0.04499	0.022172	0.005891	0.002059	0.0183919	4.939E-05	496.28827	1423.1552	4.2744426	0.123158	0.065668615	0.004386398	0.07938	0.208163184	0.003025696
Worker	LDA	50.0	0.5	0.136796864	0.040510207	0	0	0.00394285	0.10236849	0.147535756	0	0.018684555	0.115476587	0	0.32485557	1.445873	0	0.001219878	0.000315615		0.003584	0.004	0	0.000585	0.000954881		0.001254	0.001	0	0.000539	0.000878	0	123.40405	31.925346	0	0.001026569	0.03235985	0	0.002081025	0.014940319
	LDT1	25.0	0.25	0.148814258	0.041105424	0	0	0.00690435	0.11745495	0.134116008	0	0.0319581	0.094816504	0	0.35468144	1.306204	0	0.00080836	0.000213259		0.002306	0.002	0	0.000482	0.00072446		0.000807	0.0005	0	0.0004435	0.0006661	0	81.76883	21.571794	0	0.001555571	0.026204278	0	0.00234364	0.009623613
	LDT2	25.0	0.25	0.072043204	0.020150051	0	0	0.00277508	0.05338915	0.094795741	0	0.017007912	0.082407943	0	0.2073317	0.905899	0	0.00084201	0.000215566		0.002217	0.002	0	0.000333	0.000526973		0.000776	0.0005	0	0.0003065	0.0004845	0	85.183477	21.80511	0	0.000704556	0.020482149	0	0.001504676	0.009197602
			1	0.357654326	0.101765681	0	0	0.01362228	0.2734126	0.376447505	0	0.067650567	0.292701033	0	0.88686871	3.657977	0	0.002870248	0.000744439	0.299	0.008107	0.008	0	0.001401	0.002206314	0.04499	0.002837	0.002	0	0.001289	0.0020286	0	290.35636	75.302249	0	0.003286696	0.079046277	0	0.005929341	0.033761535

CalEEMod EMFAC2021 Emission Factors Input — Year 2025

Season	EmissionType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
A	CH4_IDLEX	0	0	0	0	0.005194	0.003023	0.013842	0.229861003	0.007514	0	0	0.076044	0
A	CH4_RUNEX	0.001841	0.005577	0.002592	0.003307	0.007222	0.006455	0.009536	0.117132109	0.009593	0.497756349	0.158292	0.090769	0.011159
A	CH4_STREX	0.060617	0.097956	0.077312	0.090898	0.021636	0.011648	0.008314	7.74759E-08	0.016852	0.003733046	0.177199	0.004898	0.025922
A	CO_IDLEX	0	0	0	0	0.195049	0.141036	0.668176	5.176290252	0.524506	0	0	1.692209	0
A	CO_RUNEX	0.60658	1.307104	0.781411	0.865787	0.821777	0.532869	0.296939	0.756535609	0.44406	5.878094388	12.31202	0.85843	1.105311
A	CO_STREX	2.711494	4.855262	3.417927	3.621729	2.164208	1.195973	1.000247	0.000684691	1.872658	0.515229574	7.965438	0.66885	2.373596
A	CO2_NBIO_IDLEX	0	0	0	0	8.602925	13.6884	158.593	813.9732577	87.04447	0	0	189.0522	0
A	CO2_NBIO_RUNEX	240.2859	321.7972	333.6012	401.5645	764.972	810.9955	1213.655	1586.833625	1366.1	1082.148951	187.2679	1017.838	1680.132
A	CO2_NBIO_STREX	62.25317	84.48449	85.20268	101.7438	17.59535	9.640849	8.205073	0.017114195	14.85767	3.177121883	47.30784	3.779827	22.06858
A	NOX_IDLEX	0	0	0	0	0.046413	0.089605	0.864894	4.061456113	0.364367	0	0	1.350384	0
A	NOX_RUNEX	0.033383	0.114688	0.061427	0.085138	0.585978	0.806102	1.006394	1.774057666	0.968278	0.301158242	0.557882	2.407715	1.487818
A	NOX_STREX	0.218516	0.357478	0.309231	0.377914	0.420652	0.228874	1.403485	2.751173324	0.987981	0.039008099	0.129146	0.492123	0.298831
A	PM10_IDLEX	0	0	0	0	0.000685	0.001389	0.001762	0.002096665	0.000404	0	0	0.001209	0
A	PM10_PMBW	0.007137	0.009219	0.00886	0.008972	0.077556	0.090487	0.04526	0.081222471	0.04982	0.123663808	0.012	0.044786	0.044946
A	PM10_PMTW	0.008	0.008	0.008	0.008	0.00942	0.010665	0.012	0.035128275	0.012	0.042521858	0.004	0.010572	0.013235
A	PM10_RUNEX	0.00112	0.001813	0.001292	0.00131	0.01302	0.021567	0.011186	0.025031341	0.015263	0.005684616	0.001925	0.012423	0.028992
A	PM10_STREX	0.001849	0.00275	0.002061	0.002069	0.000206	9.12E-05	0.000101	5.20395E-07	0.000131	1.2108E-05	0.003464	4.08E-05	0.000296
A	PM25_IDLEX	0	0	0	0	0.000656	0.001329	0.001685	0.001999711	0.000387	0	0	0.001155	0
A	PM25_PMBW	0.002498	0.003227	0.003101	0.00314	0.027145	0.03167	0.015841	0.028427865	0.017437	0.043282333	0.0042	0.015675	0.015731
A	PM25_PMTW	0.002	0.002	0.002	0.002	0.002355	0.002666	0.003	0.008782069	0.003	0.010630465	0.001	0.002643	0.003309
A	PM25_RUNEX	0.001031	0.001669	0.001189	0.001207	0.012419	0.020616	0.010694	0.023944936	0.014593	0.005434911	0.001799	0.01187	0.027693
A	PM25_STREX	0.0017	0.002528	0.001895	0.001902	0.000189	8.39E-05	9.28E-05	4.78484E-07	0.000121	1.11329E-05	0.003253	3.76E-05	0.000272
A	ROG_DIURN	0.264632	0.562584	0.283569	0.336782	0.120201	0.063181	0.023118	0.000161301	0.068202	0.010220489	3.860886	0.029457	30.55965
A	ROG_HTSK	0.077597	0.155938	0.078131	0.089235	0.030304	0.015991	0.005603	4.7964E-05	0.016021	0.003785535	3.558651	0.007775	7.988502
A	ROG_IDLEX	0	0	0	0	0.021187	0.015503	0.025251	0.32711902	0.04025	0	0	0.185349	0
A	ROG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
A	ROG_RUNEX	0.006942	0.024558	0.010089	0.013778	0.079612	0.109106	0.032483	0.017799596	0.044456	0.059943987	1.024683	0.053481	0.077128
A	ROG_RUNLS	0.197921	0.439329	0.211003	0.255197	0.16959	0.087065	0.045291	0.000432041	0.075038	0.007986552	3.760078	0.019152	0.188623
A	ROG_STREX	0.273326	0.495732	0.354505	0.447416	0.106693	0.056928	0.045776	4.20633E-07	0.089311	0.013239776	1.305157	0.027862	0.108247
A	SO2_IDLEX	0	0	0	0	8.37E-05	0.000131	0.001472	0.007098942	0.000823	0	0	0.001718	0
A	SO2_RUNEX	0.002375	0.003181	0.003298	0.003967	0.007471	0.007812	0.011512	0.014348163	0.013043	0.00885381	0.001851	0.009458	0.016473
A	SO2_STREX	0.000615	0.000835	0.000842	0.001006	0.000174	9.53E-05	8.11E-05	1.69191E-07	0.000147	3.14091E-05	0.000468	3.74E-05	0.000218
A	TOG_DIURN	0.264632	0.562584	0.283569	0.336782	0.120201	0.063181	0.023118	0.000161301	0.068202	0.010220489	0.08531	0.029457	30.55965
A	TOG_HTSK	0.077597	0.155938	0.078131	0.089235	0.030304	0.015991	0.005603	4.7964E-05	0.016021	0.003785535	3.558651	0.007775	7.988502
A	TOG_IDLEX	0	0	0	0	0.03005	0.020889	0.042478	0.588143126	0.05333	0	0	0.302207	0
A	TOG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
A	TOG_RUNEX	0.010114	0.035818	0.014707	0.020053	0.097862	0.126808	0.046457	0.137213337	0.060464	0.565677917	1.236542	0.152507	0.100988
A	TOG_RUNLS	0.197921	0.439329	0.211003	0.255197	0.16959	0.087065	0.045291	0.000432041	0.075038	0.007986552	3.760078	0.019152	0.188623
A	TOG_STREX	0.299257	0.542764	0.388138	0.489864	0.116815	0.062329	0.050119	4.6054E-07	0.097784	0.014495888	1.419098	0.030505	0.118517
A	N2O_IDLEX	0	0	0	0	0.000637	0.00168	0.024457	0.131219379	0.012456	0	0	0.024955	0
A	N2O_RUNEX	0.003885	0.008627	0.005651	0.007595	0.040583	0.081593	0.156018	0.253304032	0.157183	0.165902975	0.038984	0.126174	0.069141
A	N2O_STREX	0.028873	0.037292	0.035503	0.037751	0.034174	0.018376	0.005858	1.42154E-05	0.01459	0.006142466	0.007691	0.004354	0.031786

CalEEMod EMFAC2021 Fleet Mix Input

Year 2025

FleetMixLandUseSubType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments High Rise	0.528224	0.040364	0.230108	0.128589	0.023276	0.00574	0.009425	0.00744	0.001057	0.000413	0.022096	0.000684	0.002585
Enclosed Parking with Ele\	0.528224	0.040364	0.230108	0.128589	0.023276	0.00574	0.009425	0.00744	0.001057	0.000413	0.022096	0.000684	0.002585

Adjustment Factors

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

Source: EMFAC2021 (v1.0.1) Emission Rates
Region Type: County
Region: Santa Clara
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	NOx_RUNEX	NOx_IDLEX	NOx_STREX	PM2.5_RU	PM2.5_IDL	PM2.5_STR	PM2.5_PM	PM2.5_PM	PM10_RUI	PM10_IDL	PM10_STR	PM10_PM	PM10_PM	CO2_RUNEX	CO2_IDLEX	CO2_STREX	CH4_RUNEX	CH4_IDLEX	CH4_STREX	N2O_RUNEX	N2O_IDLEX	N2O_STREX	ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTS	ROG_RUNL	ROG_DIUR	TOG_RUNEX	TOG_IDLEX	TOG_STREX	TOG_HOTS	TOG_RUNL	TOG_DIUR	NH3_RUNEX	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNE	SOx_IDLEX	SOx_STREX
Santa Clara	2023	HHDT	Aggregate	Aggregate	Gasoline	3.454009	114.3093	114.3093	0	69.10781	8.107874	0	1.602501	0.00493	0	0.0017	0.005	0.035266	0.005362	0	0.001849	0.02	0.100759	2306.817	0	49.81185	0.340225	0	0.00018	0.208909	0	0.045697	2.104867	0	0.000979	0.158374	1.426645	10.65375	3.071416	0	0.001072	0.158374	1.426645	10.65375	0.040468	83.0074	0	1.02738	0.022805	0	0.000492
Santa Clara	2023	HHDT	Aggregate	Aggregate	Diesel	8235.059	991289	991289	0	120860.8	1.969368	63.40488	2.849455	0.025957	0.031631	0	0.008769	0.027531	0.027131	0.033061	0	0.035077	0.078661	1656.801	12241.32	0	0.000809	0.237446	0	0.26103	1.928625	0	0.017417	5.112156	0	0	0	0	0.019828	5.819801	0	0	0	0	0.214624	0.087393	74.20136	0	0.015689	0.115918	0
Santa Clara	2023	HHDT	Aggregate	Aggregate	Electricity	6.70171	411.5054	0	411.5054	103.2044	0	0	0	0	0	0	0	0.00874	0.013383	0	0	0	0.03496	0.038238	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2023	HHDT	Aggregate	Aggregate	Natural Ga	753.7366	53295.97	53295.97	0	6914.034	1.208444	13.92832	0	0.001774	0.024237	0	0.009	0.046729	0.001929	0.02636	0	0.036	0.133512	1398.51	10630.2	0	2.44811	37.44665	0	0.285095	2.167036	0	0.054572	0.572265	0	0	0	0	2.520799	38.25947	0	0	0	0	0.860105	13.78246	74.03965	0	0	0	0	0
Santa Clara	2023	LDA	Aggregate	Aggregate	Gasoline	601938.3	22370251	22370251	0	2795479	0.047412	0	0.27189	0.001217	0	0.001992	0.002	0.002656	0.001323	0	0.002167	0.008	0.007588	282.586	0	71.87767	0.002603	0	0.076449	0.004995	0	0.034134	0.01016	0	0.353794	0.094758	0.240611	1.480552	0.014823	0	0.387359	0.094758	0.240611	1.480552	0.033781	0.787617	0	3.436611	0.002794	0	0.000711
Santa Clara	2023	LDA	Aggregate	Aggregate	Diesel	1871.125	56220.8	56220.8	0	8000.531	0.238318	0	0	0.018559	0	0	0.002	0.002698	0.019399	0	0	0.008	0.007709	234.6327	0	0	0.001413	0	0	0.036966	0	0	0.030417	0	0	0	0	0	0.034627	0	0	0	0	0	0.0031	0.342459	0	0	0.002223	0	0
Santa Clara	2023	LDA	Aggregate	Aggregate	Electricity	53751.15	2268185	0	2268185	265250.1	0	0	0	0	0	0	0.002	0.001532	0	0	0	0.008	0.004377	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2023	LDA	Aggregate	Aggregate	Plug-in Hyb	15805.32	700610.9	356649.7	343961.3	65355	0.00334	0	0.11551	0.000664	0	0.002171	0.002	0.001373	0.000722	0	0.002361	0.008	0.003922	141.9339	0	66.50966	0.000457	0	0.042604	0.000605	0	0.020916	0.001444	0	0.173285	0.040642	0.036088	0.447056	0.002108	0	0.189725	0.040642	0.036088	0.447056	0.019705	0.219019	0	1.339893	0.001403	0	0.000658
Santa Clara	2023	LDT1	Aggregate	Aggregate	Gasoline	53782.25	1744480	1744480	0	239737.9	0.143293	0	0.404336	0.00185	0	0.002837	0.002	0.003239	0.002012	0	0.003085	0.008	0.009253	333.6435	0	88.48953	0.006987	0	0.112557	0.010257	0	0.039834	0.031222	0	0.583212	0.174145	0.503091	2.807011	0.045546	0	0.638542	0.174145	0.503091	2.807011	0.035775	1.553409	0	5.660037	0.003298	0	0.000875
Santa Clara	2023	LDT1	Aggregate	Aggregate	Diesel	26.04714	391.8698	391.8698	0	75.17737	1.659056	0	0	0.24041	0	0	0.002	0.003728	0.25128	0	0	0.008	0.010651	415.6155	0	0	0.013928	0	0	0.06548	0	0	0.299852	0	0	0	0	0	0.341362	0	0	0	0	0	0.0031	1.601395	0	0	0.003938	0	0
Santa Clara	2023	LDT1	Aggregate	Aggregate	Electricity	194.8941	7068.184	0	7068.184	916.4832	0	0	0	0	0	0	0.002	0.00154	0	0	0	0.008	0.0044	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2023	LDT1	Aggregate	Aggregate	Plug-in Hyb	43.27677	2048.369	944.1579	1104.211	178.9495	0.003025	0	0.11551	0.000387	0	0.00141	0.002	0.001383	0.000421	0	0.001534	0.008	0.003951	128.5161	0	72.38136	0.000412	0	0.042439	0.000544	0	0.020762	0.001308	0	0.173285	0.024584	0.021781	0.285922	0.001909	0	0.189725	0.024584	0.021781	0.285922	0.019359	0.198314	0	1.339893	0.001271	0	0.000716
Santa Clara	2023	LDT2	Aggregate	Aggregate	Gasoline	280180.4	10140967	10140967	0	1311796	0.077207	0	0.358346	0.001265	0	0.002003	0.002	0.003125	0.001375	0	0.002179	0.008	0.008929	351.1382	0	90.07377	0.003121	0	0.087759	0.006381	0	0.038646	0.012417	0	0.410727	0.085119	0.224187	1.404898	0.018118	0	0.449694	0.085119	0.224187	1.404898	0.035545	0.896823	0	3.892097	0.003471	0	0.00089
Santa Clara	2023	LDT2	Aggregate	Aggregate	Diesel	978.4967	36936.87	36936.87	0	4673.401	0.046157	0	0	0.005431	0	0	0.002	0.003102	0.005677	0	0	0.008	0.008863	315.6668	0	0	0.00065	0	0	0.049733	0	0	0.013984	0	0	0	0	0	0.015919	0	0	0	0	0	0.0031	0.132099	0	0	0.002991	0	0
Santa Clara	2023	LDT2	Aggregate	Aggregate	Electricity	1105.879	38931.7	0	38931.7	5663.051	0	0	0	0	0	0	0.002	0.001525	0	0	0	0.008	0.004357	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2023	LDT2	Aggregate	Aggregate	Plug-in Hyb	1696.55	77270.66	37142.68	40127.98	7015.234	0.003154	0	0.11551	0.000504	0	0.001759	0.002	0.001378	0.000548	0	0.001913	0.008	0.003938	134.0231	0	78.93358	0.000429	0	0.042457	0.000568	0	0.020778	0.001364	0	0.173285	0.02624	0.024448	0.318232	0.00199	0	0.189725	0.02624	0.024448	0.318232	0.020144	0.206812	0	1.339893	0.001325	0	0.00078
Santa Clara	2023	LHDT1	Aggregate	Aggregate	Gasoline	19180.96	711085.5	711085.5	0	285767.8	0.197814	0.037373	0.6588	0.001595	0	0.000328	0.002	0.0273	0.001734	0	0.000356	0.008	0.078	889.7424	120.2664	25.83956	0.009485	0.115635	0.034516	0.011082	0.003012	0.051891	0.047656	0.428153	0.172233	0.050564	0.277601	2.913784	0.069539	0.62476	0.188574	0.050564	0.277601	2.913784	0.044872	1.225109	3.753425	3.080251	0.008796	0.001189	0.000255
Santa Clara	2023	LHDT1	Aggregate	Aggregate	Diesel	9807.465	384084.8	384084.8	0	123365.6	1.780633	2.029274	0	0.038253	0.026974	0	0.003	0.0273	0.039983	0.028193	0	0.012	0.078	635.427	132.908	0	0.008623	0.005098	0	0.100112	0.02094	0	0.185652	0.10976	0	0	0	0	0.211352	0.124954	0	0	0	0	0.16551	0.518876	0.909745	0	0.006021	0.001259	0
Santa Clara	2023	LHDT2	Aggregate	Aggregate	Gasoline	2494.382	90793.04	90793.04	0	37162.58	0.187016	0.036817	0.642061	0.001446	0	0.00026	0.002	0.03185	0.001572	0	0.000283	0.008	0.091	997.3845	138.7974	25.72325	0.007074	0.114568	0.033461	0.01097	0.002967	0.050452	0.033047	0.42203	0.165607	0.046993	0.25097	2.676301	0.048222	0.613826	0.181319	0.046993	0.25097	2.676301	0.044967	0.961891	3.759407	3.119312	0.00986	0.001372	0.000254
Santa Clara	2023	LHDT2	Aggregate	Aggregate	Diesel	4479.532	176769.2	176769.2	0	56346.87	1.416942	1.998258	0	0.034177	0.027026	0	0.003	0.03185	0.035723	0.028248	0	0.012	0.091	764.5039	212.1206	0	0.007824	0.005098	0	0.120448	0.03342	0	0.168448	0.10976	0	0	0	0	0.191767	0.124954	0	0	0	0	0.178982	0.44054	0.909745	0	0.007244	0.00201	0
Santa Clara	2023	MCY	Aggregate	Aggregate	Gasoline	27894.5	164894.5	164894.5	0	55788.99	0.586927	0	0.142374	0.001778	0	0.003413	0.001	0.0042	0.001899	0	0.003626	0.004	0.012	188.3093	0	49.59811	0.167622	0	0.187482	0.040223	0	0.008379	1.105923	0	1.392636	3.5601	3.745685	3.947874	1.324135	0	1.513873	3.5601	3.745685	3.947874	0.00876	13.08956	0	8.051197	0.001862	0	0.00049
Santa Clara	2023	MDV	Aggregate	Aggregate	Gasoline	153799.1	5358084	5358084	0	712433.9	0.11759	0	0.470106	0.001289	0	0.002144	0.002	0.003187	0.001402	0	0.002331	0.008	0.009106	426.0995	0	109.7064	0.004406	0	0.110292	0.008479	0	0.043081	0.018826	0	0.559259	0.101975	0.285798	1.72733	0.02744	0	0.612315	0.101975	0.285798	1.72733	0.035428	1.067328	0	4.333252	0.004212	0	0.001085
Santa Clara	2023	MDV	Aggregate	Aggregate	Diesel	2374.918	86834.44	86834.44	0	11267.05	0.053096	0	0	0.00515	0	0	0.002	0.003181	0.005383	0	0	0.008	0.00909	413.3141	0	0	0.000529	0	0	0.065118	0	0	0.011397	0	0	0	0	0	0.012975	0	0	0	0	0	0.0031	0.202592	0	0	0.003916	0	0
Santa Clara	2023	MDV	Aggregate	Aggregate	Electricity	1130.115	40073.7	0	40073.7	5799.833	0	0	0	0	0	0	0.002	0.001524	0	0	0	0.008	0.004354	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2023	MDV	Aggregate	Aggregate	Plug-in Hyb	986.0895	41899.14	20787.35	21111.79	4077.48	0.003256	0	0.11551	0.000638	0	0.002151	0.002	0.001376	0.000693	0	0.002339	0.008	0.00393	138.3296	0	98.37574	0.000441	0	0.042261	0.000581	0	0.020595	0.001408	0	0.173285	0.02985	0.028058	0.359617	0.002054	0	0.189725	0.02985	0.028058	0.359617	0.020837	0.213457	0	1.339893	0.001368	0	0.000973
Santa Clara	2023	MH	Aggregate	Aggregate	Gasoline	2522.745	22546.87	22546.87	0	252.3754	0.479133	0	0.412521	0.001781	0	0.000428	0.003	0.015756	0.001937	0	0.000466	0.012	0.045017	1948.243	0	31.87585	0.018146	0	0.038028	0.02809	0	0.042647	0.082252	0	0.163779	13.03985	0.30297	4.773625	0.120022	0	0.179318	13.03985	0.30297	4.773625	0.044742	2.111943	0	3.629376	0.01926	0	0.000315
Santa Clara	2023	MH	Aggregate	Aggregate	Diesel	959.1578	9344.849	9344.849	0	95.91578	4.269554	0	0	0.097907	0	0	0.004	0.015675	0.102334	0	0	0.016	0.044785	1081.435	0	0	0.005704	0	0	0.17038	0	0	0.122812	0	0	0	0	0	0.139813	0	0	0	0	0	0.150005	0.410284	0	0	0.010247	0	0
Santa Clara	2023	MHDT	Aggregate	Aggregate	Gasoline	1418.703	70785.86	70785.86	0	2838541	0.562864	0.088304	0.453053	0.001386	0	0.000555	0.003	0.015756	0.001507	0	0.000603	0.012	0.045017	1792.411	536.9661	47.19918	0.018074	0.254589	0.049387	0.026381	0.007064	0.032566	0.09086	1.010025	0.279571	0.037187	0.302385	3.037923	0.132583	1.473826	0.306095	0.037187	0.302385	3.037923	0.04497	1.909686	15.08517	6.156285	0.01772	0.005308	0.000467
Santa Clara	2023	MHDT	Aggregate	Aggregate	Diesel	10273.55	431550.4	431550.4	0	122418.2	1.337342	13.57242	1.624162	0.016518	0.035742	0	0.003	0.015941	0.017265	0.037358	0	0.012	0.045546	1151.562	2263.789	0	0.001721	0.012298	0	0.181429	0.356661	0	0.037048	0.26478	0	0	0	0	0.042176	0.301431	0	0	0	0	0.209014	0.132571	7.583386	0	0.010905	0.021437	0
Santa Clara	2023	MHDT	Aggregate	Aggregate	Electricity	4.749835	101.8022	0	101.8022	59.6458	0	0	0	0	0	0	0.003	0.00799	0	0	0	0.012	0.022828	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2023	MHDT	Aggregate	Aggregate	Natural Ga	83.841	4047.874	4047.874	0	762.81	0.141319	6.52743	0	0.001137	0.017647	0	0.003	0.016002	0.001236	0.019193	0	0.012	0.045721	989.385	5296.533	0	0.740055	17.59163	0	0.201693	1.079733	0	0.010574	0.25135	0	0	0	0	0.755281	17.95355	0	0	0	0	1.06	2.992708	33.64344	0	0	0	0
Santa Clara	2023	OBUS	Aggregate	Aggregate	Gasoline	458.8974	20830.08	20830.08	0	9181.619	0.553081	0.064991	0.405616	0.000893	0	0.000264	0.003	0.01568	0.000972	0	0.000287	0.012	0.044799	1784.092	381.8461	31.89445	0.015808	0.194938	0.036281	0.026177	0.005253	0.030766	0.078109	0.745234	0.192301	0.034706	0.154035	2.766253	0.113977	1.087444	0.210546	0.034706	0.154035	2.766253	0.044918	1.743956	5.768375	4.071703	0.017638	0.003775	0.000315
Santa Clara	2023	OBUS	Aggregate	Aggregate	Diesel	870.4209	61645.66	61645.66	0	8910.755	1.203188	7.410097	1.541404	0.020323	0.008632	0	0.003	0.018018	0.021242	0.009022	0	0.012	0.05148	1282.538	1552.949	0	0.001991	0.020568	0	0.202064	0.244668	0	0.04286	0.442828	0	0	0	0	0.048793	0.504126	0	0	0	0	0.215865	0.153454	7.510858	0	0.012145	0.014706	0
Santa Clara	2023	OBUS	Aggregate	Aggregate	Natural Ga	6.1456	409.5466	409.5466	0	54.69584	0.219315	1.549107	0	0.000923	0.00362	0	0.003	0.016148	0.001004	0.003937	0	0.012	0.046137	1017.405	1188.285	0	0.774069	4.381267	0	0.207405	0.24224	0	0.01106	0.0626	0	0	0	0	0.789994	4.471404	0	0	0	0	1.06	3.211954	6.724204	0	0	0	0
Santa Clara	2023	SBUS	Aggregate	Aggregate	Gasoline	166.9867	8309.308	8309.308	0	667.9468	0.519317	0.925703	0.7051	0.000862	0	0.00056	0.002	0.015721	0.000937	0	0.000609	0.008	0.044917	815.0909	2602.033	58.66947	0.011871	2.46208	0.074918	0.027733	0.086224	0.064904	0.057744	10.62943	0.427061	0.112221	0.259299	1.591441	0.084259	15.51043	0.467578	0.112221	0.259299	1.591441	0.045	1.469507	82.16746	10.56434	0.008058	0.025724	0.00058
Santa Clara	2023	SBUS	Aggregate	Aggregate	Diesel	667.1185	15392.68	15392.68	0	9659.876	4.028015	22.39863	0.467155	0.020908	0.02125	0	0.003	0.015721	0.021853	0.022211	0	0.012	0.044917	1148.524	2237.814	0	0.002748	0.008083	0	0.18095	0.352568	0	0.059161	0.174017	0	0	0	0	0.06735	0.198106	0	0	0	0	0.144154	0.181489	4.581854	0	0.010876	0.021191	0
Santa Clara	2023	SBUS	Aggregate	Aggregate	Electricity	0.302373	3.510494	0	3.510494	4.378365	0	0	0	0	0	0	0.003	0.00786	0	0	0	0.012	0.022459	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2023	SBUS	Aggregate	Aggregate	Natural Ga	23.50762	595.8705	595.8705	0	340.3903	0.587321	5.282702	0	0.003378	0.011076	0	0.003	0.015721	0.003674	0.012046	0	0.012	0.044917	1271.127	4058.811	0	3.490611	15.40242	0	0.259128	0.827415	0	0.049874	0.22007	0	0	0	0	3.562424	15.7193	0	0	0	0	1.06	11.90284	20.11199	0	0	0	0
Santa Clara	2023	UBUS	Aggregate	Aggregate	Gasoline	45.94709	4798.244	4798.244	0	183.7884	0.026807	0	0.443444	0.001143	0	0.000128	0.002	0.03185	0.001243	0	0.00014	0.008	0.091	926.2924	0	36.84613	0.002031	0	0.041715	0.004215	0	0.070149	0.005614	0	0.147842	0.038144	0.09212	0.456803	0.008192	0	0.161868	0.038144	0.09212	0.456803	0.045	0.571128	0	6.073786	0.009157	0	0.000364
Santa Clara	2023	UBUS	Aggregate	Aggregate	Diesel	436.6681	48829.71	48829.71	0	1746.672	0.386256	0	0	0.007022	0	0	0.0083	0.0385	0.00734	0	0	0.0332	0.11	1100.965	0	0	0.003215	0	0	0.173457	0	0	0.065028	0	0	0	0	0	0.078788	0	0	0	0	0	0.18785	0.079368	0	0	0.010432	0	0
Santa Clara	2023	UBUS	Aggregate	Aggregate	Electricity	5.046757	199.0027	0	199.0027	20.18703	0	0	0	0	0	0	0.009	0.01925	0	0	0	0.036	0.055	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2023	UBUS	Aggregate	Aggregate	Natural Ga	42.26114	4829.673	4829.673	0	169.0446	0.05878	0	0	0.000282	0	0	0.008182	0.0385	0.000295	0	0	0.032727	0.11	1299.127	0	0	4.245742	0	0	0.264835	0	0	0.060663	0	0	0	0	0	4.333091	0	0	0	0	0	0.97	49.04231	0	0	0	0	0

Source: EMFAC2021 (v1.0.1) Emission Rates
Region Type: County
Region: Santa Clara
Calendar Year: 2024
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	NOx_RUNEX	NOx_IDLEX	NOx_STREX	PM2.5_RU	PM2.5_IDL	PM2.5_STR	PM2.5_DIU	PM2.5_TIR	PM10_RUI	PM10_IDL	PM10_STR	PM10_DIU	PM10_TIR	CO2_RUNEX	CO2_IDLEX	CO2_STREX	CH4_RUNEX	CH4_IDLEX	CH4_STREX	N2O_RUNEX	N2O_IDLEX	N2O_STREX	ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTS	ROG_RUNL	ROG_DIUR	TOG_RUNEX	TOG_IDLEX	TOG_STREX	TOG_HOTS	TOG_RUNL	TOG_DIUR	NH3_RUNEX	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNE	SOx_IDLEX	SOx_STREX
Santa Clara	2024	HHDT	Aggregate	Aggregate	Gasoline	2.588708	115.1526	115.1526	0	51.79487	7.013725	0	1.695629	0.003612	0	0.001433	0.005	0.03384	0.003929	0	0.001559	0.02	0.096686	2166.164	0	50.04419	0.246012	0	0.000205	0.192927	0	0.049797	1.47824	0	0.001115	0.149022	1.34233	10.02547	2.157045	0	0.001221	0.149022	1.34233	10.02547	0.04274	52.51903	0	1.60109	0.021415	0	0.000495
Santa Clara	2024	HHDT	Aggregate	Aggregate	Diesel	8486.693	1001095	1001095	0	124748.4	1.894567	62.88367	2.898867	0.025674	0.03017	0	0.008877	0.027454	0.026835	0.031534	0	0.035082	0.07844	1634.1	11997.01	0	0.000777	0.23663	0	0.257453	1.890134	0	0.016732	5.094584	0	0	0	0	0.019048	5.799796	0	0	0	0	0	0.215084	0.082524	74.10576	0	0.015474	0.113605	0
Santa Clara	2024	HHDT	Aggregate	Aggregate	Electricity	28.33039	2794.261	0	2794.261	378.7946	0	0	0	0	0	0	0.008585	0.014055	0	0	0	0.034341	0.040158	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2024	HHDT	Aggregate	Aggregate	Natural Ga	794.401	54591.27	54591.27	0	7249.717	1.128254	13.55515	0	0.001724	0.024776	0	0.009	0.047521	0.001875	0.026946	0	0.036	0.135775	1387.534	10583.64	0	2.344742	36.30276	0	0.282858	2.157544	0	0.050833	0.550696	0	0	0	0	2.412728	37.08609	0	0	0	0	0	0.85184	13.40196	74.43135	0	0	0	0
Santa Clara	2024	LDA	Aggregate	Aggregate	Gasoline	600108.2	22290344	22290344	0	2786617	0.042281	0	0.257993	0.001177	0	0.001931	0.002	0.002656	0.00128	0	0.0021	0.008	0.007587	277.9403	0	70.44944	0.002338	0	0.072036	0.004672	0	0.033228	0.008937	0	0.328953	0.090491	0.230394	1.422636	0.013041	0	0.360162	0.090491	0.230394	1.422636	0.034712	0.737516	0	3.233068	0.002748	0	0.000696
Santa Clara	2024	LDA	Aggregate	Aggregate	Diesel	1750.024	51573.48	51573.48	0	7442.61	0.213181	0	0	0.016747	0	0	0.002	0.002706	0.017504	0	0	0.008	0.00773	232.7849	0	0	0.001289	0	0	0.038675	0	0	0.027749	0	0	0	0	0	0.03159	0	0	0	0	0	0.0031	0.331109	0	0	0.002206	0	0
Santa Clara	2024	LDA	Aggregate	Aggregate	Electricity	57627.4	2472767	0	2472767	282733	0	0	0	0	0	0	0.002	0.001533	0	0	0	0.008	0.00438	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2024	LDA	Aggregate	Aggregate	Plug-in Hyb	17457.1	767059.2	381568.7	385490.5	72185.1	0.003264	0	0.11551	0.000618	0	0.00207	0.002	0.001377	0.000672	0	0.002252	0.008	0.003935	138.6993	0	65.78653	0.000444	0	0.04244	0.000587	0	0.020762	0.001412	0	0.173285	0.041111	0.037292	0.447104	0.00206	0	0.189725	0.041111	0.037292	0.447104	0.019502	0.214038	0	1.339893	0.001371	0	0.00065
Santa Clara	2024	LDT1	Aggregate	Aggregate	Gasoline	52693.37	1706864	1706864	0	234793.4	0.128357	0	0.381294	0.001737	0	0.002678	0.002	0.00324	0.001889	0	0.002913	0.008	0.009258	328.9675	0	86.69483	0.006261	0	0.105365	0.009424	0	0.03869	0.027741	0	0.539321	0.165332	0.472477	2.667158	0.040475	0	0.590488	0.165332	0.472477	2.667158	0.036079	1.427621	0	5.253053	0.003252	0	0.000857
Santa Clara	2024	LDT1	Aggregate	Aggregate	Diesel	23.46233	343.9308	343.9308	0	66.44459	1.651932	0	0	0.239373	0	0	0.002	0.003724	0.250196	0	0	0.008	0.01064	415.4307	0	0	0.013862	0	0	0.065451	0	0	0.298448	0	0	0	0	0	0.339763	0	0	0	0	0	0.0031	1.593665	0	0	0.003936	0	0
Santa Clara	2024	LDT1	Aggregate	Aggregate	Electricity	211.0028	8008.646	0	8008.646	994.4346	0	0	0	0	0	0	0.002	0.001539	0	0	0	0.008	0.004397	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2024	LDT1	Aggregate	Aggregate	Plug-in Hyb	67.64578	3164.46	1414.302	1750.158	279.7153	0.002933	0	0.11551	0.000367	0	0.001381	0.002	0.001389	0.0004	0	0.001502	0.008	0.003967	124.6157	0	71.36186	0.000397	0	0.042219	0.000522	0	0.020556	0.001268	0	0.173285	0.024153	0.020965	0.279628	0.001851	0	0.189725	0.024153	0.020965	0.279628	0.018771	0.192305	0	1.339893	0.001232	0	0.000705
Santa Clara	2024	LDT2	Aggregate	Aggregate	Gasoline	285585.4	10322758	10322758	0	1336438	0.069091	0	0.334237	0.001227	0	0.001959	0.002	0.003127	0.001334	0	0.00213	0.008	0.008936	344.6046	0	88.12796	0.002864	0	0.082985	0.005943	0	0.037254	0.011242	0	0.384216	0.081741	0.217688	1.368189	0.016404	0	0.420668	0.081741	0.217688	1.368189	0.036359	0.842122	0	3.673764	0.003407	0	0.000871
Santa Clara	2024	LDT2	Aggregate	Aggregate	Diesel	1015.453	37944.26	37944.26	0	4835.434	0.041515	0	0	0.004813	0	0	0.002	0.003113	0.005031	0	0	0.008	0.008895	311.1925	0	0	0.000609	0	0	0.049029	0	0	0.013105	0	0	0	0	0	0.014919	0	0	0	0	0	0.0031	0.129976	0	0	0.002949	0	0
Santa Clara	2024	LDT2	Aggregate	Aggregate	Electricity	1597.567	55532.59	0	55532.59	8150.927	0	0	0	0	0	0	0.002	0.001526	0	0	0	0.008	0.004359	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2024	LDT2	Aggregate	Aggregate	Plug-in Hyb	2116.58	94757.71	44376.61	50381.09	8752.056	0.003073	0	0.11551	0.000467	0	0.001672	0.002	0.001383	0.000508	0	0.001819	0.008	0.003953	130.578	0	78.06	0.000416	0	0.042233	0.000547	0	0.020569	0.001329	0	0.173285	0.025949	0.023686	0.309385	0.001939	0	0.189725	0.025949	0.023686	0.309385	0.019635	0.201506	0	1.339893	0.001291	0	0.000772
Santa Clara	2024	LHDT1	Aggregate	Aggregate	Gasoline	19314.14	722529.3	722529.3	0	287751.9	0.17374	0.036221	0.636996	0.001534	0	0.000302	0.002	0.0273	0.001668	0	0.000328	0.008	0.078	871.4559	119.0993	25.78022	0.008358	0.112945	0.032997	0.009778	0.002977	0.050968	0.041718	0.415023	0.163611	0.047402	0.263136	2.768514	0.060875	0.605601	0.179134	0.047402	0.263136	2.768514	0.044898	1.142278	3.756209	3.123927	0.008615	0.001177	0.000255
Santa Clara	2024	LHDT1	Aggregate	Aggregate	Diesel	10107.74	398004.1	398004.1	0	127142.6	1.563015	1.92168	0	0.035058	0.026804	0	0.003	0.0273	0.036643	0.028016	0	0.012	0.078	631.4008	131.1503	0	0.008006	0.005098	0	0.099477	0.020663	0	0.172364	0.10976	0	0	0	0	0.196225	0.124954	0	0	0	0	0	0.172781	0.473594	0.909745	0	0.005983	0.001243	0
Santa Clara	2024	LHDT1	Aggregate	Aggregate	Electricity	70.82836	5110.544	0	5110.544	989.4273	0	0	0	0	0	0	0.002	0.01365	0	0	0	0.008	0.039	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2024	LHDT2	Aggregate	Aggregate	Gasoline	2506.906	91452.57	91452.57	0	37349.16	0.16518	0.035604	0.621534	0.00139	0	0.000239	0.002	0.03185	0.001512	0	0.000259	0.008	0.091	980.0361	137.5922	25.51292	0.006183	0.111453	0.031983	0.009819	0.00291	0.049384	0.028613	0.40822	0.157242	0.04419	0.238167	2.558385	0.041752	0.595674	0.17216	0.04419	0.238167	2.558385	0.044971	0.899209	3.762546	3.129931	0.009689	0.00136	0.000252
Santa Clara	2024	LHDT2	Aggregate	Aggregate	Diesel	4663.455	183558.4	183558.4	0	58660.4	1.266102	1.895403	0	0.032055	0.027	0	0.003	0.03185	0.033504	0.028221	0	0.012	0.091	756.8682	209.5618	0	0.007406	0.005098	0	0.119245	0.033017	0	0.159439	0.10976	0	0	0	0	0.18151	0.124954	0	0	0	0	0	0.184132	0.411861	0.909745	0	0.007172	0.001986	0
Santa Clara	2024	LHDT2	Aggregate	Aggregate	Electricity	18.33259	1253.286	0	1253.286	242.668	0	0	0	0	0	0	0.002	0.015925	0	0	0	0.008	0.0455	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2024	MCY	Aggregate	Aggregate	Gasoline	28171.51	1660222.3	1660222.3	0	56343.02	0.571344	0	0.135477	0.001779	0	0.003248	0.001	0.0042	0.001902	0	0.003456	0.004	0.012	187.743	0	48.37697	0.162609	0	0.181972	0.039558	0	0.00802	1.062175	0	1.345317	3.559276	3.75283	3.900294	1.276951	0	1.462608	3.559276	3.75283	3.900294	0.008808	12.6697	0	8.002987	0.001856	0	0.000478
Santa Clara	2024	MDV	Aggregate	Aggregate	Gasoline	156642.4	5468054	5468054	0	726101.1	0.101279	0	0.42828	0.001229	0	0.002042	0.002	0.003184	0.001336	0	0.002221	0.008	0.009096	418.13	0	107.2801	0.003873	0	0.10186	0.007628	0	0.040967	0.01626	0	0.508806	0.097051	0.275722	1.677059	0.023715	0	0.557077	0.097051	0.275722	1.677059	0.036179	0.972241	0	4.022964	0.004134	0	0.001061
Santa Clara	2024	MDV	Aggregate	Aggregate	Diesel	2400.615	86292.69	86292.69	0	11318.82	0.048844	0	0	0.004909	0	0	0.002	0.003206	0.005131	0	0	0.008	0.009159	409.13	0	0	0.00051	0	0	0.064459	0	0	0.010978	0	0	0	0	0	0.012498	0	0	0	0	0	0.0031	0.201538	0	0	0.003877	0	0
Santa Clara	2024	MDV	Aggregate	Aggregate	Electricity	1678.684	58660.63	0	58660.63	8578.496	0	0	0	0	0	0	0.002	0.001525	0	0	0	0.008	0.004358	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2024	MDV	Aggregate	Aggregate	Plug-in Hyb	1250.857	52904.03	25301.52	27602.51	5172.294	0.003138	0	0.11551	0.000561	0	0.001962	0.002	0.001382	0.00061	0	0.002134	0.008	0.003948	133.3485	0	96.65661	0.000423	0	0.042047	0.000554	0	0.020395	0.001357	0	0.173285	0.030318	0.026684	0.341695	0.00198	0	0.189725	0.030318	0.026684	0.341695	0.020087	0.205781	0	1.339893	0.001318	0	0.000956
Santa Clara	2024	MH	Aggregate	Aggregate	Gasoline	2420.57	22012.3	22012.3	0	242.1538	0.420938	0	0.419963	0.001679	0	0.000404	0.003	0.015756	0.001826	0	0.000439	0.012	0.045017	1947.501	0	31.65056	0.015478	0	0.037539	0.025731	0	0.04407	0.06827	0	0.159123	12.21143	0.286769	4.596479	0.09962	0	0.174219	12.21143	0.286769	4.596479	0.044846	1.682224	0	3.497247	0.019253	0	0.000313
Santa Clara	2024	MH	Aggregate	Aggregate	Diesel	977.3606	9498.302	9498.302	0	977.3606	4.117169	0	0	0.091772	0	0	0.004	0.015675	0.095921	0	0	0.016	0.044785	1081.931	0	0	0.005558	0	0	0.170459	0	0	0.11965	0	0	0	0	0	0.136214	0	0	0	0	0	0.155539	0.397281	0	0	0.010252	0	0
Santa Clara	2024	MHDT	Aggregate	Aggregate	Gasoline	1414.552	71600.35	71600.35	0	28302.35	0.470752	0.088485	0.440963	0.001362	0	0.000533	0.003	0.015756	0.001482	0	0.000579	0.012	0.045017	1768.687	531.8002	46.25227	0.015051	0.25808	0.047572	0.022913	0.00727	0.03271	0.074951	1.01271	0.265405	0.033945	0.276365	2.798712	0.109368	1.477744	0.290585	0.033945	0.276365	2.798712	0.04498	1.56073	15.11634	5.825814	0.017485	0.005257	0.000457
Santa Clara	2024	MHDT	Aggregate	Aggregate	Diesel	10390.53	434043.6	434043.6	0	123939	1.232824	13.14099	1.642732	0.014397	0.029902	0	0.003	0.015941	0.015048	0.031254	0	0.012	0.045546	1147.309	2248.547	0	0.001507	0.01158	0	0.180759	0.35426	0	0.032455	0.249319	0	0	0	0	0.036947	0.283831	0	0	0	0	0	0.210532	0.120871	7.556027	0	0.010864	0.021292	0
Santa Clara	2024	MHDT	Aggregate	Aggregate	Electricity	30.91601	1660.353	0	1660.353	407.4536	0	0	0	0	0	0	0.003	0.007956	0	0	0	0.012	0.022732	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2024	MHDT	Aggregate	Aggregate	Natural Ga	90.59449	4303.581	4303.581	0	827.6228	0.133415	6.499719	0	0.001179	0.018131	0	0.003	0.016007	0.001282	0.019719	0	0.012	0.045734	984.6917	5301.101	0	0.74573	17.31409	0	0.200736	1.080664	0	0.010655	0.247384	0	0	0	0	0.761072	17.6703	0	0	0	0	0	1.06	2.995842	34.7393	0	0	0	0
Santa Clara	2024	OBUS	Aggregate	Aggregate	Gasoline	443.1467	19894.31	19894.31	0	8866.48	0.49672	0.06506	0.408547	0.000907	0	0.000252	0.003	0.01568	0.000987	0	0.000274	0.012	0.044799	1764.001	379.4143	31.61308	0.013757	0.195733	0.03606	0.024018	0.005304	0.031028	0.067076	0.746281	0.190964	0.033873	0.154922	2.818385	0.097877	1.088971	0.209081	0.033873	0.154922	2.818385	0.044969	1.491576	5.774637	4.000641	0.017439	0.003751	0.000313
Santa Clara	2024	OBUS	Aggregate	Aggregate	Diesel	893.1376	61949.05	61949.05	0	9141.625	1.178643	7.363387	1.543157	0.019849	0.008167	0	0.003	0.018015	0.020746	0.008536	0	0.012	0.051472	1273.38	1538.564	0	0.001935	0.020479	0	0.200622	0.242401	0	0.04166	0.440905	0	0	0	0	0.047427	0.501937	0	0	0	0	0	0.216021	0.150181	7.500483	0	0.012058	0.014569	0
Santa Clara	2024	OBUS	Aggregate	Aggregate	Electricity	1.087481	92.50105	0	92.50105	21.75833	0	0	0	0	0	0	0.003	0.00784	0	0	0	0.012	0.022399	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2024	OBUS	Aggregate	Aggregate	Natural Ga	7.05737	469.3876	469.3876	0	62.81059	0.190585	1.537414	0	0.00106	0.003899	0	0.003	0.016148	0.001153	0.004241	0	0.012	0.046137	1004.237	1191.581	0	0.789796	4.236895	0	0.20472	0.242912	0	0.011285	0.060537	0	0	0	0	0.806045	4.324062	0	0	0	0	0	1.06	3.254325	7.353064	0	0	0	0
Santa Clara	2024	SBUS	Aggregate	Aggregate	Gasoline	172.6948	8584.866	8584.866	0	690.7791	0.50288	0.925939	0.716801	0.000864	0	0.000567	0.002	0.015721	0.000939	0	0.000616	0.008	0.044917	810.6064	2589.131	58.1367	0.011135	2.464862	0.074893	0.027101	0.086311	0.065929	0.054059	10.63288	0.426367	0.113914	0.274691	1.686167	0.078883	15.51547	0.466819	0.113914	0.274691	1.686167	0.045	1.38705	82.18841	10.36621	0.008014	0.025596	0.000575
Santa Clara	2024	SBUS	Aggregate	Aggregate	Diesel	670.5958	15345.26	15345.26	0	9710.228	3.821388	21.90481	0.482851	0.019766	0.019703	0	0.003	0.015721	0.02066	0.020594	0	0.012	0.044917	1144.18	2229	0	0.002665	0.008001	0	0.180266	0.35118	0	0.057376	0.172257	0	0	0	0	0.065318	0.196101	0	0	0	0	0	0.148025	0.1775	4.677792	0	0.010835	0.021107	0
Santa Clara	2024	SBUS	Aggregate	Aggregate	Electricity	2.064666	64.35501	0	64.35501	23.64639	0	0	0	0	0	0	0.002539	0.00786	0	0	0	0.010157	0.022459	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2024	SBUS	Aggregate	Aggregate	Natural Ga	24.3995	612.0941	612.0941	0	353.3048	0.567729	5.270895	0	0.003378	0.011357	0	0.003	0.015721	0.003674	0.012352	0	0.012	0.044917	1261.305	4066.736	0	3.436672	15.25665	0	0.257125	0.829031	0	0.049103	0.217987	0	0	0	0	3.507376	15.57053	0	0	0	0	0	1.06	11.64901	20.74693	0	0	0	0
Santa Clara	2024	UBUS	Aggregate	Aggregate	Gasoline	46.08313	4812.451	4812.451	0	184.3325	0.027483	0	0.457232	0.001143	0	0.000128	0.002	0.03185	0.001243	0	0.00014	0.008	0.091	926.0836	0	36.94783	0.002034	0	0.043067	0.004288	0	0.071717	0.005634	0	0.152979	0.038099	0.092116	0.456438	0.008221	0	0.167492	0.038099	0.092116	0.456438	0.045	0.581148	0	6.130495	0.009155	0	0.000365
Santa Clara	2024	UBUS	Aggregate	Aggregate	Diesel	437.4745	48917.61	48917.61	0	1749.898	0.386257	0	0	0.007023	0	0	0.0083	0.0385	0.00734	0	0	0.0332	0.11	1101.14	0	0	0.003215	0	0	0.173485	0	0	0.069208	0	0	0	0	0	0.078788	0	0	0	0	0	0.187908	0.079368	0	0	0.010434	0	0
Santa Clara	2024	UBUS	Aggregate	Aggregate	Electricity	5.347565	235.0626	0	235.0626	21.39026	0	0	0	0	0	0	0.008888	0.01925	0	0	0	0.03552	0.055	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2024	UBUS	Aggregate	Aggregate	Natural Ga	42.58696	4865.187	4865.187	0	170.3478	0.058788	0	0	0.000282	0	0	0.008183	0.0385	0.000295	0	0	0.032731	0.11	1299.206	0	0	4.246059	0	0	0.264852	0	0	0.060668	0	0	0	0	0	4.333415	0	0	0	0	0	0.97	49.04786	0	0	0	0	0

Source: EMFAC2021 (v1.0.1) Emission Rates
Region Type: County
Region: Santa Clara
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	NOx_RUNEX	NOx_IDLEX	NOx_STREX	PM2.5_RU	PM2.5_IDL	PM2.5_STR	PM2.5_PM	PM2.5_PM	PM10_RUI	PM10_IDLE	PM10_STR	PM10_PM	PM10_PM	CO2_RUNEX	CO2_IDLEX	CO2_STREX	CH4_RUNEX	CH4_IDLEX	CH4_STREX	N2O_RUNEX	N2O_IDLEX	N2O_STREX	ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTS	ROG_RUNL	ROG_DIUR	TOG_RUNEX	TOG_IDLEX	TOG_STREX	TOG_HOTS	TOG_RUNL	TOG_DIUR	NH3_RUNEX	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNE	SOx_IDLEX	SOx_STREX
Santa Clara	2025	HHDT	Aggregate	Aggregate	Gasoline	2.330359	124.9448	124.9448	0	46.62582	5.556909	0	1.379041	0.003103	0	0.001399	0.005	0.033068	0.003375	0	0.001521	0.02	0.09448	2106.229	0	50.03138	0.207413	0	0.000226	0.167059	0	0.041557	1.222197	0	0.00123	0.140217	1.263022	9.434649	1.783427	0	0.001346	0.140217	1.263022	9.434649	0.043157	47.7242	0	2.001616	0.020822	0	0.000495
Santa Clara	2025	HHDT	Aggregate	Aggregate	Diesel	8692.575	1008964	1008964	0	127877.1	1.825194	62.42367	2.931995	0.025335	0.028938	0	0.008772	0.027421	0.02648	0.030247	0	0.035088	0.078345	1608.776	11755.34	0	0.00075	0.235891	0	0.253463	1.852058	0	0.016139	5.078674	0	0	0	0	0	0.018373	5.781684	0	0	0	0	0	0.215507	0.078083	74.00904	0	0.015234	0.111316	0
Santa Clara	2025	HHDT	Aggregate	Aggregate	Electricity	63.3712	6579.675	0	6579.675	825.9972	0	0	0	0	0	0	0.008551	0.014281	0	0	0	0.034206	0.040802	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2025	HHDT	Aggregate	Aggregate	Natural Ga	832.405	55779.38	55779.38	0	7555.504	1.049864	13.18492	0	0.00168	0.025258	0	0.009	0.048303	0.001827	0.02747	0	0.036	0.138007	1375.94	10529.31	0	2.235928	35.17609	0	0.280494	2.146469	0	0.047235	0.530122	0	0	0	0	0	0.299347	35.93114	0	0	0	0	0	0.843784	13.01274	74.75478	0	0	0	0
Santa Clara	2025	LDA	Aggregate	Aggregate	Gasoline	598860.3	22133915	22133915	0	2780384	0.038209	0	0.245539	0.001142	0	0.00188	0.002	0.002655	0.001242	0	0.002044	0.008	0.007587	273.2075	0	69.04168	0.002117	0	0.067825	0.004408	0	0.032293	0.007947	0	0.306311	0.087189	0.224301	1.384954	0.011596	0	0.335372	0.087189	0.224301	1.384954	0.035611	0.6952	0	3.049452	0.002701	0	0.000683
Santa Clara	2025	LDA	Aggregate	Aggregate	Diesel	1620.04	46912.85	46912.85	0	6871.193	0.18842	0	0	0.015236	0	0	0.002	0.002712	0.015925	0	0	0.008	0.007748	230.5963	0	0	0.001193	0	0	0.036331	0	0	0.025693	0	0	0	0	0	0	0.02925	0	0	0	0	0	0.0031	0.319914	0	0	0.002185	0	0
Santa Clara	2025	LDA	Aggregate	Aggregate	Electricity	61443.19	2670452	0	2670452	299852.7	0	0	0	0	0	0	0.002	0.001534	0	0	0	0.008	0.004382	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2025	LDA	Aggregate	Aggregate	Plug-in Hyb	19037.66	825567.7	401013	424554.8	78720.74	0.003187	0	0.11551	0.000578	0	0.001985	0.002	0.001382	0.000629	0	0.002159	0.008	0.003948	135.4391	0	65.04608	0.000432	0	0.042249	0.000569	0	0.020584	0.001378	0	0.173285	0.041164	0.03735	0.440525	0.002011	0	0.189725	0.041164	0.03735	0.440525	0.019241	0.209016	0	1.339893	0.001339	0	0.000643
Santa Clara	2025	LDT1	Aggregate	Aggregate	Gasoline	51680.86	1664706	1664706	0	230186	0.115355	0	0.35972	0.001639	0	0.002543	0.002	0.002341	0.001782	0	0.002766	0.008	0.00926	324.1276	0	84.93844	0.005621	0	0.098552	0.008687	0	0.037511	0.02471	0	0.498818	0.156963	0.442299	2.52236	0.038056	0	0.546143	0.156963	0.442299	2.52236	0.036453	1.317416	0	4.886115	0.003204	0	0.00084
Santa Clara	2025	LDT1	Aggregate	Aggregate	Diesel	21.28272	302.8258	302.8258	0	59.13231	1.64381	0	0	0.238169	0	0	0.002	0.00372	0.248938	0	0	0.008	0.010628	415.1682	0	0	0.013797	0	0	0.06541	0	0	0.297038	0	0	0.338158	0	0	0	0	0	0	0	0	0	0.0031	1.585068	0	0	0.003934	0	0
Santa Clara	2025	LDT1	Aggregate	Aggregate	Electricity	234.4578	9323.704	0	9323.704	1109.796	0	0	0	0	0	0	0.002	0.001537	0	0	0	0.008	0.004392	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2025	LDT1	Aggregate	Aggregate	Plug-in Hyb	98.13198	4519.182	1961.286	2557.896	405.7758	0.002848	0	0.11551	0.000353	0	0.001365	0.002	0.001394	0.000383	0	0.001485	0.008	0.003982	121.0095	0	70.34635	0.000383	0	0.041987	0.000501	0	0.020339	0.001231	0	0.173285	0.023895	0.020384	0.276746	0.001797	0	0.189725	0.023895	0.020384	0.276746	0.018228	0.186748	0	1.339893	0.001196	0	0.000695
Santa Clara	2025	LDT2	Aggregate	Aggregate	Gasoline	290874.7	10447706	10447706	0	1360241	0.06257	0	0.314364	0.001192	0	0.001919	0.002	0.00313	0.001296	0	0.002087	0.008	0.008944	338.2713	0	86.2638	0.002642	0	0.078494	0.005588	0	0.036037	0.010244	0	0.360071	0.079452	0.214938	1.349256	0.014949	0	0.394233	0.079452	0.214938	1.349256	0.03712	0.795621	0	3.47417	0.003344	0	0.000853
Santa Clara	2025	LDT2	Aggregate	Aggregate	Diesel	1049.952	38652.34	38652.34	0	4980.34	0.039332	0	0	0.004727	0	0	0.002	0.003123	0.004941	0	0	0.008	0.008921	306.7182	0	0	0.000603	0	0	0.048324	0	0	0.01298	0	0	0	0	0	0	0.014777	0	0	0	0	0	0.0031	0.129797	0	0	0.002906	0	0
Santa Clara	2025	LDT2	Aggregate	Aggregate	Electricity	2157.059	73663.77	0	73663.77	10962.38	0	0	0	0	0	0	0.002	0.001527	0	0	0	0.008	0.004362	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2025	LDT2	Aggregate	Aggregate	Plug-in Hyb	2561.885	112327.2	51267.44	61059.78	10593.4	0.002995	0	0.11551	0.000438	0	0.00161	0.002	0.001388	0.000477	0	0.001751	0.008	0.003967	127.2609	0	77.17666	0.000403	0	0.041992	0.000528	0	0.020344	0.001295	0	0.173285	0.026071	0.023359	0.305362	0.001893	0	0.189725	0.026071	0.023359	0.305362	0.019143	0.196395	0	1.339893	0.001258	0	0.000763
Santa Clara	2025	LHDT1	Aggregate	Aggregate	Gasoline	19422.46	728337	728337	0	289365.8	0.152112	0.035118	0.61458	0.001478	0	0.000276	0.002	0.0273	0.001607	0	0.0003	0.008	0.078	855.4024	117.9783	25.70715	0.007214	0.110329	0.031611	0.008613	0.002941	0.049929	0.03557	0.40247	0.15588	0.044275	0.247775	2.616411	0.051904	0.587284	0.170669	0.044275	0.247775	2.616411	0.044934	1.05316	3.759094	3.16195	0.008457	0.001166	0.000254
Santa Clara	2025	LHDT1	Aggregate	Aggregate	Diesel	10387.1	408019.3	408019.3	0	130656.7	1.379237	1.823414	0	0.032347	0.026692	0	0.003	0.0273	0.03381	0.027899	0	0.012	0.078	628.07	129.5472	0	0.007468	0.005098	0	0.098953	0.02041	0	0.160779	0.10976	0	0	0	0	0	0.183036	0.124954	0	0	0	0	0	0.17898	0.435087	0.909745	0	0.005951	0.001228	0
Santa Clara	2025	LHDT1	Aggregate	Aggregate	Electricity	196.402	13079.06	0	13079.06	2746.629	0	0	0	0	0	0	0.002	0.01365	0	0	0	0.008	0.039	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2025	LHDT2	Aggregate	Aggregate	Gasoline	2512.652	91345.05	91345.05	0	37434.78	0.146187	0.034452	0.600885	0.001346	0	0.00022	0.002	0.03185	0.001464	0	0.000239	0.008	0.091	964.5764	136.4471	25.31105	0.005467	0.108422	0.030581	0.008804	0.002854	0.048245	0.025115	0.395081	0.149459	0.041982	0.228581	2.471298	0.036648	0.576501	0.163639	0.041982	0.228581	2.471298	0.044974	0.850878	3.765161	3.139903	0.009536	0.001349	0.00025
Santa Clara	2025	LHDT2	Aggregate	Aggregate	Diesel	4837.236	188645	188645	0	60846.34	1.139289	1.802658	0	0.030296	0.027005	0	0.003	0.03185	0.031666	0.028226	0	0.012	0.091	750.3571	207.2396	0	0.007043	0.005098	0	0.118219	0.032651	0	0.151622	0.10976	0	0	0	0	0	0.172612	0.124954	0	0	0	0	0	0.188496	0.387904	0.909745	0	0.00711	0.001964	0
Santa Clara	2025	LHDT2	Aggregate	Aggregate	Electricity	50.46202	3193.251	0	3193.251	669.175	0	0	0	0	0	0	0.002	0.015925	0	0	0	0.008	0.0455	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2025	MCY	Aggregate	Aggregate	Gasoline	28484.89	166414.5	166414.5	0	56969.79	0.557882	0	0.129146	0.001799	0	0.003253	0.001	0.0042	0.001925	0	0.003464	0.004	0.012	187.2679	0	47.30784	0.158292	0	0.177199	0.038984	0	0.007691	1.024683	0	1.305157	3.558651	3.760078	3.860886	1.236542	0	1.419098	3.558651	3.760078	3.860886	0.008851	12.31202	0	7.965438	0.001851	0	0.000468
Santa Clara	2025	MDV	Aggregate	Aggregate	Gasoline	159532.2	5551044	5551044	0	739781.4	0.087905	0	0.391886	0.001179	0	0.001962	0.002	0.003182	0.001282	0	0.002134	0.008	0.009091	410.3223	0	104.9535	0.003431	0	0.094137	0.006921	0	0.039073	0.014165	0	0.463643	0.092515	0.265086	1.620407	0.020668	0	0.50763	0.092515	0.265086	1.620407	0.036883	0.895922	0	3.753621	0.004056	0	0.001038
Santa Clara	2025	MDV	Aggregate	Aggregate	Diesel	2421.364	85326.8	85326.8	0	11351.14	0.044948	0	0	0.004686	0	0	0.002	0.003225	0.004898	0	0	0.008	0.009216	404.5816	0	0	0.000492	0	0	0.063742	0	0	0.010592	0	0	0	0	0	0	0.012058	0	0	0	0	0	0.0031	0.199936	0	0	0.003834	0	0
Santa Clara	2025	MDV	Aggregate	Aggregate	Electricity	2274.547	77934.96	0	77934.96	11571.06	0	0	0	0	0	0	0.002	0.001526	0	0	0	0.008	0.004361	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2025	MDV	Aggregate	Aggregate	Plug-in Hyb	1542.366	64484.39	29833.21	34651.18	6377.683	0.003036	0	0.11551	0.000507	0	0.00183	0.002	0.001388	0.000551	0	0.00199	0.008	0.003965	128.9983	0	95.11137	0.000407	0	0.041816	0.00053	0	0.02018	0.001313	0	0.173285	0.02949	0.025333	0.327899	0.001916	0	0.189725	0.02949	0.025333	0.327899	0.019431	0.199076	0	1.339893	0.001275	0	0.00094
Santa Clara	2025	MH	Aggregate	Aggregate	Gasoline	2337.876	21506.19	21506.19	0	233.8812	0.37652	0	0.425905	0.001612	0	0.000388	0.003	0.015756	0.001753	0	0.000422	0.012	0.045017	1947.057	0	31.4529	0.013722	0	0.036945	0.023864	0	0.045303	0.059455	0	0.154277	11.38549	0.268831	4.357209	0.086757	0	0.168914	11.38549	0.268831	4.357209	0.044879	1.426924	0	3.382931	0.019249	0	0.000311
Santa Clara	2025	MH	Aggregate	Aggregate	Diesel	994.5437	9603.893	9603.893	0	99.45437	3.976372	0	0	0.086098	0	0	0.004	0.015675	0.08999	0	0	0.016	0.044785	1082.401	0	0	0.005421	0	0	0.170533	0	0	0.116701	0	0	0	0	0	0	0.132856	0	0	0	0	0	0.160635	0.385118	0	0	0.010256	0	0
Santa Clara	2025	MHDT	Aggregate	Aggregate	Gasoline	1412.263	72039.87	72039.87	0	28256.55	0.394798	0.086175	0.424333	0.001347	0	0.000513	0.003	0.015756	0.001465	0	0.000558	0.012	0.045017	1746.959	526.7233	45.37618	0.012585	0.261076	0.04598	0.019987	0.007219	0.032398	0.061949	1.015127	0.253154	0.030988	0.250472	2.558011	0.060397	1.481271	0.277172	0.030988	0.250472	2.558011	0.044991	1.276089	15.1444	5.531626	0.01727	0.005207	0.000449
Santa Clara	2025	MHDT	Aggregate	Aggregate	Diesel	10548.06	435100.6	435100.6	0	125915.2	1.128155	12.74108	1.646559	0.012461	0.024792	0	0.003	0.015941	0.013024	0.025912	0	0.012	0.045545	1141.328	2229.374	0	0.00131	0.010957	0	0.179817	0.351239	0	0.028195	0.235896	0	0	0	0	0	0.032098	0.268549	0	0	0	0	0	0.211891	0.109646	7.535393	0	0.010808	0.021111	0
Santa Clara	2025	MHDT	Aggregate	Aggregate	Electricity	90.80851	4838.906	0	4838.906	1182.343	0	0	0	0	0	0	0.003	0.007951	0	0	0	0.012	0.022718	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2025	MHDT	Aggregate	Aggregate	Natural Ga	98.90628	4590.307	4590.307	0	911.9208	0.12435	6.45266	0	0.002126	0.018594	0	0.003	0.016009	0.001333	0.020223	0	0.012	0.045741	979.0142	5290.545	0	0.751438	16.97256	0	0.199578	1.078512	0	0.010737	0.242504	0	0	0	0	0	0.766898	17.32175	0	0	0	0	0	1.06	2.996166	35.80775	0	0	0	0
Santa Clara	2025	OBUS	Aggregate	Aggregate	Gasoline	430.7023	18962.49	18962.49	0	8617.491	0.460353	0.06398	0.405045	0.000939	0	0.000255	0.003	0.01568	0.001022	0	0.000278	0.012	0.044799	1744.286	377.0226	31.37018	0.012641	0.195762	0.035581	0.02242	0.005219	0.030806	0.061504	0.74652	0.188569	0.033827	0.158433	2.881145	0.089747	1.089321	0.206459	0.033827	0.158433	2.881145	0.04498	1.352776	5.776073	3.953891	0.017244	0.003727	0.00031
Santa Clara	2025	OBUS	Aggregate	Aggregate	Diesel	921.4116	62304.89	62304.89	0	9451.527	1.133246	7.151668	1.532624	0.018916	0.007596	0	0.003	0.018017	0.019772	0.007939	0	0.012	0.051478	1259.126	1532.11	0	0.001844	0.020685	0	0.198376	0.241385	0	0.039711	0.445333	0	0	0	0	0	0.045208	0.506978	0	0	0	0	0	0.216212	0.14449	7.587325	0	0.011923	0.014508	0
Santa Clara	2025	OBUS	Aggregate	Aggregate	Electricity	2.672031	221.771	0	221.771	53.46199	0	0	0	0	0	0	0.003	0.00784	0	0	0	0.012	0.022399	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2025	OBUS	Aggregate	Aggregate	Natural Ga	8.125306	537.7468	537.7468	0	72.31523	0.164816	1.526623	0	0.001183	0.004157	0	0.003	0.016148	0.001287	0.004521	0	0.012	0.046137	987.912	1189.826	0	0.803903	4.103659	0	0.201392	0.242554	0	0.011486	0.058633	0	0	0	0	0	0.820442	4.188085	0	0	0	0	0	1.06	3.29233	7.933419	0	0	0	0
Santa Clara	2025	SBUS	Aggregate	Aggregate	Gasoline	178.2436	8812.851	8812.851	0	712.9742	0.487257	0.905562	0.722985	0.000866	0	0.000573	0.002	0.015721	0.000942	0	0.000623	0.008	0.044917	806.3455	2576.863	57.67146	0.010523	2.465929	0.074733	0.026439	0.084425	0.066434	0.051046	10.63602	0.42511	0.118631	0.292211	1.797789	0.074486	15.52005	0.465442	0.118631	0.292211	1.797789	0.045	1.308927	82.20747	10.20511	0.007972	0.025475	0.00057
Santa Clara	2025	SBUS	Aggregate	Aggregate	Diesel	673.2048	15283.75	15283.75	0	9748.005	3.614242	21.38359	0.496308	0.018677	0.018235	0	0.003	0.015721	0.019521	0.019059	0	0.012	0.044917	1139.829	2219.616	0	0.002583	0.007936	0	0.179581	0.349701	0	0.055601	0.170862	0	0	0	0	0	0.063298	0.194514	0	0	0	0	0	0.151888	0.17348	4.777291	0	0.010794	0.021018	0
Santa Clara	2025	SBUS	Aggregate	Aggregate	Electricity	4.481168	145.0761	0	145.0761	51.24766	0	0	0	0	0	0	0.002	0.002556	0.00786	0	0	0	0.010226	0.022459	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2025	SBUS	Aggregate	Aggregate	Natural Ga	25.28439	627.586	627.586	0	366.118	0.5494	5.260001	0	0.003378	0.011617	0	0.003	0.015721	0.003674	0.012635	0	0.012	0.044917	1252.115	4074.049	0	3.386209	15.12215	0	0.255252	0.830522	0	0.048382	0.216066	0	0	0	0	0	3.455875	15.43326	0	0	0	0	0	1.06	11.41153	21.33281	0	0	0	0
Santa Clara	2025	UBUS	Aggregate	Aggregate	Gasoline	46.21918	4826.658	4826.658	0	184.8767	0.027276	0	0.449893	0.001143	0	0.000128	0.002	0.03185	0.001243	0	0.00014	0.008	0.091	925.8676	0	36.64281	0.001993	0	0.043054	0.004259	0	0.070843	0.005515	0	0.152699	0.04366	0.092112	0.471505	0.008047	0	0.167186	0.04366	0.092112	0.471505	0.045	0.586139	0	5.942314	0.009153	0	0.000362
Santa Clara	2025	UBUS	Aggregate	Aggregate	Diesel	405.3675	44987.37	44987.37	0	1621.47	0.382968	0	0	0.006962	0	0	0.008	0.03238	0.0385	0.007277	0	0	0.032951	0.11	1121.875	0	0	0.003193	0	0	0.176752	0	0	0.06875	0	0	0	0	0.078266	0	0	0	0	0	0.22	0.0787	0	0	0.01063	0	0
Santa Clara	2025	UBUS	Aggregate	Aggregate	Electricity	23.31202	2427.54	0	2427.54	93.24809	0	0	0	0	0	0	0.008	0.008977	0.01925	0	0	0	0.035907	0.055	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2025	UBUS	Aggregate	Aggregate	Natural Ga	58.16247	6762.418	6762.418	0	232.6499	0.060506	0	0	0.000287	0	0	0.008408	0.0385	0.0003	0	0	0	0.033634	0.11	1317.877	0	0	4.320397	0	0	0.268658	0	0	0.06173	0	0	0	0	4.409282	0	0	0	0	0	0.97	50.3461	0	0	0	0	0

Attachment 4: Project Construction and Operational Dispersion Modeling Inputs and Risk Calculations

Construction Health Risk Assessment and Calculations

439 and 451 S. 4th Street, San Jose, CA

Year	Unmitigated DPM	DPM EMFAC2021	Unmitigated Emissions	Unmitigated Fug PM2.5	Fug PM2.5 EMFAC2021	Unmitigated Emissions
2023	0.0680	0.0007	0.0687	0.0319	0.0007	0.0326
2024	0.0516	0.0006	0.0522	0.0000	0.0006	0.0006

Year	Mitigated DPM	DPM EMFAC2021	Mitigated Emissions	Mitigated Fug PM2.5	Fug PM2.5 EMFAC2021	Mitigated Emissions
2023	0.0026	0.0007	0.0033	0.0062	0.0007	0.0069
2024	0.0007	0.0006	0.0013	0.0000	0.0006	0.0006

439 and 451 S. 4th Street, 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

439 and 451 S. 4th 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)
2023	Construction	0.0687	Point	79	137.4	0.05870	7.40E-03	9.36E-05
2024	Construction	0.0522	Point	79	104.4	0.04462	5.62E-03	7.12E-05
Total		***0.1209***			***241.8***	***0.1033***	***0.0130***	

Emissions assumed to be evenly distributed over each construction areas

hr/day = 9 (8am - 5pm M-F)
days/yr = 260
hours/year = 2340

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)
2023	Construction	0.0033	Point	79	6.5	0.00279	3.51E-04	4.44E-06
2024	Construction	0.0013	Point	79	2.6	0.00112	1.41E-04	1.79E-06
Total		***0.0046***			***9.1***	***0.0039***	***0.0005***	

Emissions assumed to be evenly distributed over each construction areas

hr/day = 9 (8am - 5pm M-F)
days/yr = 260
hours/year = 2340

439 and 451 S. 4th 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 $g/s/m^2$
2023	Construction	CON_FUG	0.0326	65.1	0.02784	3.51E-03	2041.1	1.72E-06
2024	Construction	CON_FUG	0.0006	1.2	0.00052	6.52E-05	2041.1	3.20E-08
Total			***0.0332***	***66.4***	***0.0284***	***0.0036***		

Emissions assumed to be evenly distributed over each construction areas

hr/day =	9	(8am - 5pm M-F)
days/yr =	260	
hours/year =	2340	

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 $g/s/m^2$
2023	Construction	CON_FUG	0.0069	13.8	0.00589	7.42E-04	2041.1	3.64E-07
2024	Construction	CON_FUG	0.0006	1.2	0.00052	6.52E-05	2041.1	3.20E-08
Total			***0.0075***	***15.0***	***0.0064***	***0.0008***		

Emissions assumed to be evenly distributed over each construction areas

hr/day =	9	(8am - 5pm M-F)
days/yr =	260	
hours/year =	2340	

439 and 451 S. 4th Street, San Jose, CA - Construction Health Impact Summary

Maximum Impacts at MEI Residential Location (Non Mark) - Without Mitigation

Emissions Year	Maximum Concentrations: Exhaust PM10/DPM ($\mu g/m^3$)	Maximum Concentrations: Fugitive PM2.5 ($\mu g/m^3$)	Cancer Risk* (per million): Infant/Child	Cancer Risk* (per million): Adult	Hazard Index (-)	Maximum Annual PM2.5 Concentration* ($\mu g/m^3$)
2023	0.3414	0.9679	60.72	0.98	0.07	1.12
2024	0.2595	0.0180	42.63	0.75	0.05	0.14
Total	-	-	**103.35**	**1.73**	-	-
Maximum	0.3414	0.9679	**-**	**-**	**0.07**	**1.12**

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

Maximum Impacts at MEI Residential Location (Non Mark) - With Mitigation

Emissions Year	Maximum Concentrations: Exhaust PM10/DPM ($\mu g/m^3$)	Maximum Concentrations: Fugitive PM2.5 ($\mu g/m^3$)	Cancer Risk* (per million): Infant/Child	Cancer Risk* (per million): Adult	Hazard Index (-)	Maximum Annual PM2.5 Concentration* ($\mu g/m^3$)
2023	0.0162	0.2048	2.88	0.05	0.003	0.21
2024	0.0065	0.0180	1.07	0.02	0.001	0.02
Total	-	-	**3.95**	**0.07**	-	-
Maximum	0.0162	0.2048	**-**	**-**	**0.003**	**0.21**

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

- Tier 4 Final Engine, Electric Portable Equipment, Aerial Lifts, and Cranes, and Enhanced BMPs Mitigation

Maximum Impacts at Norte Dame High School - Without Mitigation

Construction Year	Unmitigated Emissions: Maximum Concentrations: Exhaust PM10/DPM ($\mu g/m^3$)	Unmitigated Emissions: Maximum Concentrations: Fugitive PM2.5 ($\mu g/m^3$)	Child Cancer Risk (per million)	Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu g/m^3$)
2023	0.0070	0.0029	0.50	0.001	0.01
2024	0.0053	0.0001	0.38	0.001	0.01
Total	-	-	**0.87**	-	-
Maximum	0.0070	0.0029	**-**	**0.001**	**0.01**

439 and 451 S. 4th Street, San Jose, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - Non The Mark 1.5 meter receptor height (1st Floor Level)

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information				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*	2023	0.1809	10	2.46	2023	0.1809	-	-			
1	1	0 - 1	2023	0.1809	10	29.71	2023	0.1809	1	0.52	0.04	0.97	1.12
2	1	1 - 2	2024	0.1375	10	22.58	2024	0.1375	1	0.39	0.03	0.02	0.14
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00			
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00			
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00			
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00			
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00			
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00			
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00			
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00			
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00			
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00			
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00			
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00			
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00			
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00			
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00			
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00			
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00			
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00			
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00			
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00			
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00			
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00			
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00			
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00			
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00			
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00			
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00			
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00			
Total Increased Cancer Risk						**54.75**				**0.91**			

* Third trimester of pregnancy

439 and 451 S. 4th Street, San Jose, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - Non The Mark 4.5 meter receptor height (2nd Floor Level)

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information				Infant/Child	Adult - Exposure Information			Adult	Maximum		
			DPM Conc (ug/m3)		Age	Cancer	Modeled DPM Conc (ug/m3)		Age	Cancer				
Exposure Year	Exposure Duration (years)	Age	Year	Annual	Sensitivity Factor	Risk (per million)	Year	Annual	Sensitivity Factor	Risk (per million)	Hazard Index	Fugitive PM2.5	Total PM2.5
0	0.25	-0.25 - 0*	2023	0.3414	10	4.64	2023	0.3414	-	-			
1	1	0 - 1	2023	0.3414	10	56.08	2023	0.3414	1	0.98	0.07	0.30	0.64
2	1	1 - 2	2024	0.2595	10	42.63	2024	0.2595	1	0.75	0.05	0.01	0.27
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00			
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00			
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00			
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00			
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00			
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00			
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00			
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00			
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00			
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00			
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00			
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00			
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00			
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00			
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00			
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00			
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00			
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00			
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00			
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00			
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00			
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00			
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00			
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00			
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00			
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00			
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00			
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00			
Total Increased Cancer Risk						**103.35**				**1.73**			

* Third trimester of pregnancy

439 and 451 S. 4th Street, San Jose, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - Non The Mark 7.6 meter receptor height (3rd Floor Level)

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information			Infant/Child	Adult - Exposure Information			Adult	Maximum		
				DPM Conc (ug/m3)	Age	Cancer	Modeled		Age	Cancer			
Exposure	Exposure Duration				Sensitivity	Risk	DPM Conc (ug/m3)		Sensitivity	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*	2023	0.2427	10	3.30	2023	0.2427	-	-			
1	1	0 - 1	2023	0.2427	10	39.85	2023	0.2427	1	0.70	0.05	0.09	0.30
2	1	1 - 2	2024	0.1844	10	30.29	2024	0.1844	1	0.53	0.04	0.002	0.19
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00			
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00			
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00			
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00			
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00			
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00			
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00			
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00			
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00			
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00			
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00			
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00			
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00			
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00			
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00			
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00			
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00			
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00			
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00			
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00			
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00			
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00			
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00			
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00			
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00			
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00			
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00			
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00			
Total Increased Cancer Risk						**73.45**				**1.23**			

* Third trimester of pregnancy

439 and 451 S. 4th Street, San Jose, CA - Construction Impacts - With Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - Non The Mark 1.5 meter receptor height (1st Floor Level)

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information				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*	2023	0.0086	10	0.12	2023	0.0086	-	-			
1	1	0 - 1	2023	0.0086	10	1.41	2023	0.0086	1	0.02	0.002	0.20	0.21
2	1	1 - 2	2024	0.0035	10	0.57	2024	0.0035	1	0.01	0.001	0.02	0.02
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00			
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00			
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00			
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00			
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00			
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00			
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00			
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00			
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00			
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00			
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00			
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00			
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00			
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00			
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00			
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00			
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00			
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00			
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00			
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00			
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00			
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00			
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00			
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00			
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00			
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00			
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00			
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00			
Total Increased Cancer Risk						**2.09**				**0.03**			

* Third trimester of pregnancy

439 and 451 S. 4th Street, San Jose, CA - Construction Impacts - With Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - Non The Mark 4.5 meter receptor height (2nd Floor Level)

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information				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*	2023	0.0162	10	0.22	2023	0.0162	-	-			
1	1	0 - 1	2023	0.0162	10	2.66	2023	0.0162	1	0.05	0.003	0.06	0.08
2	1	1 - 2	2024	0.0065	10	1.07	2024	0.0065	1	0.02	0.001	0.01	0.01
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00			
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00			
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00			
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00			
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00			
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00			
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00			
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00			
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00			
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00			
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00			
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00			
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00			
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00			
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00			
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00			
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00			
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00			
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00			
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00			
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00			
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00			
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00			
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00			
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00			
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00			
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00			
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00			
Total Increased Cancer Risk						**3.95**				**0.07**			

* Third trimester of pregnancy

439 and 451 S. 4th Street, San Jose, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Norte Dame High School (14 years and older) - 1.5 meters - Child Exposure

Student Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT 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)

Inhalation Dose = C_{air} x SAF x 8-Hr BR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
SCAF = School Child Adjustment Factor (unitless) for source operation and exposures different than 8 hours/day
= (24/SHR) x (7days/SDay) x (SCHR/8 hrs)
SHR = Hours/day of emission source operation
SDay = Number of days per week of source operation
SCHR = School operation hours while emission source in operation
8-Hr BR = Eight-hour breathing rate (L/kg body weight-per 8 hrs)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant	School Child
Age -->	**0 - <2**	**2 - <16**
Parameter		
ASF =	10	3
DPM CPF =	1.10E+00	1.10E+00
8-Hr BR* =	1200	520
SCHR =	9	9
SHR =	9	9
SDay =	5	5
A =	1	1
EF =	250	250
AT =	70	70
SAF =	4.20	4.20

* 95th percentile 8-hr breathing rates for moderate intensity activities

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Age	Child - Exposure Information: DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age* Sensitivity Factor	Child Cancer Risk (per million)
1	1	14 - 15	2023	0.0070	3	0.50
2	1	15 - 16	2024	0.0053	3	0.38
3	1	16 - 17		0.0000	3	0.00
4	1	17 - 18		0.0000	3	0.00
Total Increased Cancer Risk						**0.87**

* Children assumed to be 14 years of age or older with 2 years of Construction Exposure

Maximum		
Hazard Index	Fugitive PM2.5	Total PM2.5
0.001	0.003	0.01
0.001	0.0001	0.01

439 and 451 S. 4th Street, San Jose, CA - Construction Health Impact Summary

Maximum Impacts at The Mark MEI Location - Without Mitigation

Emissions Year	Maximum Concentrations: Exhaust PM10/DPM ($\mu g/m^3$)	Maximum Concentrations: Fugitive PM2.5 ($\mu g/m^3$)	Cancer Risk (per million): Infant/Child	Cancer Risk (per million): Adult	Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu g/m^3$)
2023	0.5187	0.1588	92.24	1.49	0.10	0.60
2024	0.3943	0.0030	64.75	1.13	0.08	0.40
Total	-	-	**157.00**	**2.62**	-	-
Maximum	0.5187	0.1588	**-**	**-**	**0.10**	**0.60**

Maximum Impacts at The Mark MEI Location - With Mitigation

Emissions Year	Maximum Concentrations: Exhaust PM10/DPM ($\mu g/m^3$)	Maximum Concentrations: Fugitive PM2.5 ($\mu g/m^3$)	Cancer Risk (per million): Infant/Child	Cancer Risk (per million): Adult	Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu g/m^3$)
2023	0.0246	0.0336	4.38	0.07	0.005	0.04
2024	0.0099	0.0030	1.63	0.03	0.002	0.01
Total	-	-	**6.01**	**0.10**	-	-
Maximum	0.0246	0.0336	**-**	**-**	**0.005**	**0.04**

- Tier 4 Final Engine, Electric Portable Equipment, Aerial Lifts, and Cranes, and Enhanced BMPs Mitigation

439 and 451 S. 4th Street, San Jose, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - Non The Mark 1.5 meter receptor height (1st Floor Level)

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information				Adult - Exposure Information				Maximum		
							Modeled						
Exposure Year	Exposure Duration (years)	Age	DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age Sensitivity Factor	Infant/Child Cancer Risk (per million)	DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age Sensitivity Factor	Adult Cancer Risk (per million)	Hazard Index	Fugitive PM2.5	Total PM2.5
0	0.25	-0.25 - 0*	2023	0.1809	10	2.46	2023	0.1809	-	-			
1	1	0 - 1	2023	0.1809	10	29.71	2023	0.1809	1	0.52	0.04	0.43	0.56
2	1	1 - 2	2024	0.1375	10	22.58	2024	0.1375	1	0.39	0.03	0.01	0.14
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00			
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00			
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00			
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00			
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00			
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00			
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00			
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00			
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00			
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00			
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00			
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00			
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00			
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00			
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00			
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00			
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00			
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00			
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00			
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00			
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00			
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00			
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00			
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00			
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00			
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00			
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00			
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00			
Total Increased Cancer Risk						**54.75**				**0.91**			

* Third trimester of pregnancy

439 and 451 S. 4th Street, San Jose, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - The Mark 9.8m receptor height (1st Residential Level) / 4.5m Non The Mark Receptors

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*	2023	0.5187	10	7.05	2023	0.5187	-	-			
1	1	0 - 1	2023	0.5187	10	85.19	2023	0.5187	1	1.49	0.10	0.16	0.60
2	1	1 - 2	2024	0.3943	10	64.75	2024	0.3943	1	1.13	0.08	0.003	0.40
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00			
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00			
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00			
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00			
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00			
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00			
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00			
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00			
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00			
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00			
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00			
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00			
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00			
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00			
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00			
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00			
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00			
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00			
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00			
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00			
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00			
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00			
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00			
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00			
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00			
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00			
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00			
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00			
Total Increased Cancer Risk						**157.00**				**2.62**			

* Third trimester of pregnancy

439 and 451 S. 4th Street, San Jose, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - The Mark 13.1m receptor height (2nd Residential Level) / 7.6m Non The Mark Receptors

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*	2023	0.2913	10	3.96	2023	0.2913	-	-			
1	1	0 - 1	2023	0.2913	10	47.84	2023	0.2913	1	0.84	0.06	0.11	0.33
2	1	1 - 2	2024	0.2214	10	36.36	2024	0.2214	1	0.64	0.04	0.002	0.22
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00			
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00			
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00			
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00			
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00			
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00			
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00			
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00			
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00			
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00			
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00			
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00			
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00			
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00			
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00			
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00			
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00			
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00			
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00			
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00			
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00			
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00			
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00			
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00			
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00			
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00			
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00			
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00			
Total Increased Cancer Risk						**88.17**				**1.47**			

* Third trimester of pregnancy

439 and 451 S. 4th Street, San Jose, CA - Construction Impacts - With Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - The Mark 9.8m receptor height (1st Residential Level) / 4.5m Non The Mark Receptors

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*	2023	0.0246	10	0.33	2023	0.0246	-	-			
1	1	0 - 1	2023	0.0246	10	4.04	2023	0.0246	1	0.07	0.00	0.03	0.04
2	1	1 - 2	2024	0.0099	10	1.63	2024	0.0099	1	0.03	0.002	0.003	0.01
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00			
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00			
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00			
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00			
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00			
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00			
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00			
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00			
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00			
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00			
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00			
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00			
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00			
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00			
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00			
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00			
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00			
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00			
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00			
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00			
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00			
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00			
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00			
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00			
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00			
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00			
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00			
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00			
Total Increased Cancer Risk						**6.01**				**0.10**			

* Third trimester of pregnancy

Project Generator and Fire Pump Health Risk Assessment and Calculations

439 and 451 S. 4th Street, San Jose, CA

Emergency Generator Impacts

Off-site Sensitive Receptors

MEI Location = 1.5 and 4.5 meter receptor height

DPM Emission Rates		
	DPM Emissions per Generator	
	Max Daily	Annual
Source Type	(lb/day)	(lb/year)
One, 1,000-kW, 1,340-hp Generator BACT Requirements	0.006	2.16
CalEEMod DPM Emissions	0.0011	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		
Fire Pump Engine Size (hp)	1340	
Stack Height (ft)	250.00	Roof Level Exhaust 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)	0.0002	

* AERMOD default

**BAAQMD default generator parameters

439 and 451 S. 4th Street, San Jose, CA

Emergency Fire Pump Generator Impacts

Off-site Sensitive Receptors

MEI Location = 1.5 and 4.5 meter receptor height

DPM Emission Rates		
	DPM Emissions per Fire Pump Gen	
Source Type	Max Daily (lb/day)	Annual (lb/year)
One, 150-HP Fire Pump	0.007	2.66
CalEEMod DPM Emissions	0.0013	tons/year

Modeling Information		
Model	AERMOD	
Source	Diesel Fire Pump Generator Engine	
Source Type	Point	
Meteorological Data	2013-2017 San Jose Airport Meterological Data	
Point Source Stack Parameters		
Fire Pump Engine Size (hp)	150	
Stack Height (ft)	16.00	Located in basement but modeling 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)	0.0003	

* AERMOD default

**BAAQMD default generator parameters

439 and 451 S. 4th Street, San Jose, CA - Project Fire Pump Generator Impacts
Maximum DPM Cancer Risk and PM2.5 Calculations
Impacts at MEI Receptor (Non Mark), 28-Year Exposure - 1.5m and 4.5m 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

	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

Project Generators Operation 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	Cancer Risk (per million)	Hazard Index	Total PM2.5
0	0.25	-0.25 - 0*	2023	0.00000	10	0.000		
1	1	0 - 1	2023	0.00000	10	0.000		
2	1	1 - 2	2024	0.00000	10	0.000		
3	1	2 - 3	2025	0.00128	3	0.033	0.0003	0.001
4	1	3 - 4	2026	0.00128	3	0.033		
5	1	4 - 5	2027	0.00128	3	0.033		
6	1	5 - 6	2028	0.00128	3	0.033		
7	1	6 - 7	2029	0.00128	3	0.033		
8	1	7 - 8	2030	0.00128	3	0.033		
9	1	8 - 9	2031	0.00128	3	0.033		
10	1	9 - 10	2032	0.00128	3	0.033		
11	1	10 - 11	2033	0.00128	3	0.033		
12	1	11 - 12	2034	0.00128	3	0.033		
13	1	12 - 13	2035	0.00128	3	0.033		
14	1	13 - 14	2036	0.00128	3	0.033		
15	1	14 - 15	2037	0.00128	3	0.033		
16	1	15 - 16	2038	0.00128	3	0.033		
17	1	16-17	2039	0.00128	1	0.004		
18	1	17-18	2040	0.00128	1	0.004		
19	1	18-19	2041	0.00128	1	0.004		
20	1	19-20	2042	0.00128	1	0.004		
21	1	20-21	2043	0.00128	1	0.004		
22	1	21-22	2044	0.00128	1	0.004		
23	1	22-23	2045	0.00128	1	0.004		
24	1	23-24	2046	0.00128	1	0.004		
25	1	24-25	2047	0.00128	1	0.004		
26	1	25-26	2048	0.00128	1	0.004		
27	1	26-27	2049	0.00128	1	0.004		
28	1	27-28	2050	0.00128	1	0.004		
29	1	28-29	2051	0.00128	1	0.004		
30	1	29-30	2052	0.00128	1	0.004		
Total Increased Cancer Risk						**0.51**		

* Third trimester of pregnancy

439 and 451 S. 4th Street, San Jose, CA - Project Fire Pump Generator Impacts
Maximum DPM Cancer Risk and PM2.5 Calculations
Impacts at The Mark MEI Receptor, 28-Year Exposure - 9.8m 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

	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

Project Generators Operation Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information					
Exposure Year	Exposure Duration (years)	Age	DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age Sensitivity Factor	Cancer Risk (per million)	Hazard Index	Total PM2.5
0	0.25	-0.25 - 0*	2023	0.00000	10	0.000		
1	1	0 - 1	2023	0.00000	10	0.000		
2	1	1 - 2	2024	0.00000	10	0.000		
3	1	2 - 3	2025	0.00421	3	0.109	0.0008	0.004
4	1	3 - 4	2026	0.00421	3	0.109		
5	1	4 - 5	2027	0.00421	3	0.109		
6	1	5 - 6	2028	0.00421	3	0.109		
7	1	6 - 7	2029	0.00421	3	0.109		
8	1	7 - 8	2030	0.00421	3	0.109		
9	1	8 - 9	2031	0.00421	3	0.109		
10	1	9 - 10	2032	0.00421	3	0.109		
11	1	10 - 11	2033	0.00421	3	0.109		
12	1	11 - 12	2034	0.00421	3	0.109		
13	1	12 - 13	2035	0.00421	3	0.109		
14	1	13 - 14	2036	0.00421	3	0.109		
15	1	14 - 15	2037	0.00421	3	0.109		
16	1	15 - 16	2038	0.00421	3	0.109		
17	1	16-17	2039	0.00421	1	0.012		
18	1	17-18	2040	0.00421	1	0.012		
19	1	18-19	2041	0.00421	1	0.012		
20	1	19-20	2042	0.00421	1	0.012		
21	1	20-21	2043	0.00421	1	0.012		
22	1	21-22	2044	0.00421	1	0.012		
23	1	22-23	2045	0.00421	1	0.012		
24	1	23-24	2046	0.00421	1	0.012		
25	1	24-25	2047	0.00421	1	0.012		
26	1	25-26	2048	0.00421	1	0.012		
27	1	26-27	2049	0.00421	1	0.012		
28	1	27-28	2050	0.00421	1	0.012		
29	1	28-29	2051	0.00421	1	0.012		
30	1	29-30	2052	0.00421	1	0.012		
Total Increased Cancer Risk						**1.69**		

* Third trimester of pregnancy

439 and 451 S. 4th Street, San Jose, CA - Project Generator Impacts
Maximum DPM Cancer Risk and PM2.5 Calculations
Impacts at Norte Dame High School (+14 years old), 2-Year Child Exposure - 1.5 meter

Student Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT 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)

Inhalation Dose = C_{air} x SAF x 8-Hr BR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
SCAF = School Child Adjustment Factor (unitless) for source operation and exposures different than 8 hours/day
= (24/SHR) x (7days/SDay) x (SCHR/8 hrs)
SHR = Hours/day of emission source operation
SDay = Number of days per week of source operation
SCHR = School operation hours while emission source in operation
8-Hr BR = Eight-hour breathing rate (L/kg body weight-per 8 hrs)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant	School Child
Age -->	**0 - <2**	**2 - <16**
Parameter		
ASF =	10	3
CPF =	1.10E+00	1.10E+00
8-Hr BR* =	1200	520
SCHR =	9	9
SHR =	24	24
SDay =	7	7
A =	1	1
EF =	250	250
AT =	70	70
SAF =	1.13	1.13

* 95th percentile 8-hr breathing rates for moderate intensity activities

Project Generators Operation Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Age	Child - Exposure Information: DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age* Sensitivity Factor	Child Cancer Risk (per million)
1	1	14 - 15	2023	0.00000	3	0.00
2	1	15 - 16	2024	0.00000	3	0.00
3	1	16 - 17	2025	0.00005	3	0.001
4	1	17 - 18	2026	0.00005	3	0.001
Total Increased Cancer Risk						**0.002**

Maximum Hazard Index	Maximum Total PM2.5
0.00001	0.0001

* Children assumed to be 14 years of age or older with 2 years of exposure

Attachment 5: Cumulative Community Risk from Existing TAC Sources

CT-EMFAC2017 Emissions Factors for Santa Clara County 2023

File Name: S 4th St Rev - Santa Clara (SF) - 2023 - Annual.EF
CT-EMFAC2017 Version: 1.0.2.27401
Run Date: 3/8/2022 13:45
Area: Santa Clara (SF)
Analysis Year: 2023
Season: Annual

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

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

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

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

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

Pollutant Name	Emission Factor
TOG	1.35761

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

Pollutant Name	Emission Factor
PM2.5	0.002108

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

Pollutant Name	Emission Factor
PM2.5	0.016808

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

Pollutant Name	Emission Factor
PM2.5	0.014855

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

S. 3rd Street Traffic Emissions and Health Risk Calculations

Analysis Year = ***2023***

Vehicle Type	2021 Caltrans Vehicles (veh/day)	2023 Vehicles (veh/day)
Total	**12,360**	**12,607**

Increase From 2021	1.02
Vehicles/Direction	**6,304**
Avg Vehicles/Hour/Direction	263

Traffic Data Year = ***2021***

Project Traffic Data - Background Plus Project ADT	AADT Total	Total Truck
South 3rd St/E San Salvador St	12,360	434
Percent of Total Vehicles		3.51%

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

439 and 451 S. 4th Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - S. 3rd Street
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2023

											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_NB_3RD	S. 3rd Street Northbound	NB	2	651.3	0.40	13.3	43.7	3.4	Varied	12,607	8,672	93,347	2.404E-09	1.772E-09	6.8	3.16

Emission Factors - DPM

Speed Category	1	2	3	4
Travel Speed (mph)	30	20		
Emissions per Vehicle (g/VMT)	0.00035	0.00045		

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and DPM Emissions - DPM_NB_3RD

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	3.91%	493	1.96E-05	9	6.50%	819	4.11E-05	17	5.58%	703	3.53E-05
2	2.59%	326	1.29E-05	10	7.36%	928	3.68E-05	18	3.28%	413	2.07E-05
3	2.88%	362	1.44E-05	11	6.33%	797	3.16E-05	19	2.36%	297	1.18E-05
4	3.34%	420	1.67E-05	12	6.84%	863	3.42E-05	20	0.92%	116	4.60E-06
5	2.19%	275	1.09E-05	13	6.15%	776	3.08E-05	21	2.99%	377	1.50E-05
6	3.39%	428	1.70E-05	14	6.15%	776	3.08E-05	22	4.14%	522	2.07E-05
7	5.98%	754	2.99E-05	15	5.23%	660	2.62E-05	23	2.47%	312	1.24E-05
8	4.66%	587	2.94E-05	16	3.91%	493	1.96E-05	24	0.86%	109	4.32E-06
								Total		12,607	

439 and 451 S. 4th Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - S. 3rd Street
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2023

											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_NB_3RD	S. 3rd Street Northbound	NB	2	651.3	0.40	13.3	44	1.3	Varied	12,607	8,672	93,347	1.202E-08	8.862E-09	2.6	1.21

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	30	20		
Emissions per Vehicle (g/VMT)	0.001765	0.002896		

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and PM2.5 Emissions - PM25_NB_3RD

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	145	2.88E-05	9	7.11%	897	2.92E-04	17	7.38%	931	3.03E-04
2	0.42%	53	1.04E-05	10	4.39%	554	1.10E-04	18	8.17%	1030	3.35E-04
3	0.41%	51	1.02E-05	11	4.66%	588	1.17E-04	19	5.70%	718	1.42E-04
4	0.26%	33	6.58E-06	12	5.89%	742	1.47E-04	20	4.27%	539	1.07E-04
5	0.50%	63	1.25E-05	13	6.15%	776	1.54E-04	21	3.26%	411	8.15E-05
6	0.90%	114	2.26E-05	14	6.04%	761	1.51E-04	22	3.30%	416	8.25E-05
7	3.79%	478	9.49E-05	15	7.01%	884	1.75E-04	23	2.46%	310	6.15E-05
8	7.76%	979	3.19E-04	16	7.14%	900	1.78E-04	24	1.86%	235	4.66E-05
								Total		12,607	

439 and 451 S. 4th Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - S. 3rd Street
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2023

											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_NB_3RD	S. 3rd Street Northbound	NB	2	651.3	0.40	13.3	44	1.3	Varied	12,607	8,672	93,347	2.508E-07	1.850E-07	2.6	1.21

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	30	20		
Emissions per Vehicle (g/VMT)	0.03684	0.06106		

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_NB_3RD

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	145	6.01E-04	9	7.11%	897	6.15E-03	17	7.38%	931	6.39E-03
2	0.42%	53	2.18E-04	10	4.39%	554	2.29E-03	18	8.17%	1030	7.07E-03
3	0.41%	51	2.13E-04	11	4.66%	588	2.43E-03	19	5.70%	718	2.97E-03
4	0.26%	33	1.37E-04	12	5.89%	742	3.07E-03	20	4.27%	539	2.23E-03
5	0.50%	63	2.61E-04	13	6.15%	776	3.21E-03	21	3.26%	411	1.70E-03
6	0.90%	114	4.72E-04	14	6.04%	761	3.15E-03	22	3.30%	416	1.72E-03
7	3.79%	478	1.98E-03	15	7.01%	884	3.66E-03	23	2.46%	310	1.28E-03
8	7.76%	979	6.72E-03	16	7.14%	900	3.73E-03	24	1.86%	235	9.73E-04
								Total		12,607	

439 and 451 S. 4th Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - S. 3rd Street
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2023

											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_NB_3RD	S. 3rd Street Northbound	NB	2	651.3	0.40	13.3	44	1.3	Varied	12,607	8,672	93,347	3.081E-07	2.272E-07	2.6	1.21

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	30	20		
Emissions per Vehicle per Hour (g/hour)	1.35761	1.35761		
Emissions per Vehicle per Mile (g/VMT)	0.04525	0.06788		

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_NB_3RD

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	145	7.39E-04	9	7.11%	897	6.84E-03	17	7.38%	931	7.10E-03
2	0.42%	53	2.68E-04	10	4.39%	554	2.82E-03	18	8.17%	1030	7.86E-03
3	0.41%	51	2.61E-04	11	4.66%	588	2.99E-03	19	5.70%	718	3.65E-03
4	0.26%	33	1.69E-04	12	5.89%	742	3.78E-03	20	4.27%	539	2.74E-03
5	0.50%	63	3.21E-04	13	6.15%	776	3.95E-03	21	3.26%	411	2.09E-03
6	0.90%	114	5.80E-04	14	6.04%	761	3.87E-03	22	3.30%	416	2.12E-03
7	3.79%	478	2.43E-03	15	7.01%	884	4.50E-03	23	2.46%	310	1.58E-03
8	7.76%	979	7.47E-03	16	7.14%	900	4.58E-03	24	1.86%	235	1.20E-03
								Total		12,607	

439 and 451 S. 4th Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - S. 3rd Street
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2023

											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_NB_3RD	S. 3rd Street Northbound	NB	2	651.3	0.40	13.3	44	1.3	Varied	12,607	8,672	93,347	2.300E-07	1.696E-07	2.6	1.21

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	30	20		
Tire Wear - Emissions per Vehicle (g/VMT)	0.00211	0.00211		
Brake Wear - Emissions per Vehicle (g/VMT)	0.01681	0.01681		
Road Dust - Emissions per Vehicle (g/VMT)	0.01486	0.01486		
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.03377	0.03377		

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_NB_3RD

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	145	5.51E-04	9	7.11%	897	3.40E-03	17	7.38%	931	3.53E-03
2	0.42%	53	2.00E-04	10	4.39%	554	2.10E-03	18	8.17%	1030	3.91E-03
3	0.41%	51	1.95E-04	11	4.66%	588	2.23E-03	19	5.70%	718	2.73E-03
4	0.26%	33	1.26E-04	12	5.89%	742	2.82E-03	20	4.27%	539	2.05E-03
5	0.50%	63	2.40E-04	13	6.15%	776	2.94E-03	21	3.26%	411	1.56E-03
6	0.90%	114	4.33E-04	14	6.04%	761	2.89E-03	22	3.30%	416	1.58E-03
7	3.79%	478	1.82E-03	15	7.01%	884	3.36E-03	23	2.46%	310	1.18E-03
8	7.76%	979	3.72E-03	16	7.14%	900	3.42E-03	24	1.86%	235	8.92E-04
								Total		12,607	

439 and 451 S. 4th Street, San Jose, CA - S. 3rd Street Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
at Project MEI Receptors (Non-Mark), 1.5m and 4.5m receptor height (1st & 2nd Level)

Emission Year	2023
Receptor Information	Project MEI Receptors (Non-Mark)
Number of Receptors	2
Receptor Height	1st & 2nd Levels, 1.5 & 4.5 meters
Receptor Distances	At Project MEI locations (Non-Mark)

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

Project MEI (Non-Mark) Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0007	0.0877	0.1039

Project MEI (Non-Mark) PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.0802	0.0756	0.0046

439 and 451 S. 4th Street, San Jose, CA - S. 3rd Street Cancer Risk & PM2.5
Impacts at Construction MEI - 9.8 meter receptor height (1st Residential Level)
30 Year Residential Exposure

Cancer Risk Calculation Method

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

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

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	TOTAL
0	0.25	-0.25 - 0*	2023	10	0.0007	0.0877	0.1039	0.010	0.007	0.0005	0.02
1	1	0 - 1	2023	10	0.0007	0.0877	0.1039	0.117	0.082	0.0057	0.20
2	1	1 - 2	2024	10	0.0007	0.0877	0.1039	0.117	0.082	0.0057	0.20
3	1	2 - 3	2025	3	0.0007	0.0877	0.1039	0.018	0.013	0.0009	0.03
4	1	3 - 4	2026	3	0.0007	0.0877	0.1039	0.018	0.013	0.0009	0.03
5	1	4 - 5	2027	3	0.0007	0.0877	0.1039	0.018	0.013	0.0009	0.03
6	1	5 - 6	2028	3	0.0007	0.0877	0.1039	0.018	0.013	0.0009	0.03
7	1	6 - 7	2029	3	0.0007	0.0877	0.1039	0.018	0.013	0.0009	0.03
8	1	7 - 8	2030	3	0.0007	0.0877	0.1039	0.018	0.013	0.0009	0.03
9	1	8 - 9	2031	3	0.0007	0.0877	0.1039	0.018	0.013	0.0009	0.03
10	1	9 - 10	2032	3	0.0007	0.0877	0.1039	0.018	0.013	0.0009	0.03
11	1	10 - 11	2033	3	0.0007	0.0877	0.1039	0.018	0.013	0.0009	0.03
12	1	11 - 12	2034	3	0.0007	0.0877	0.1039	0.018	0.013	0.0009	0.03
13	1	12 - 13	2035	3	0.0007	0.0877	0.1039	0.018	0.013	0.0009	0.03
14	1	13 - 14	2036	3	0.0007	0.0877	0.1039	0.018	0.013	0.0009	0.03
15	1	14 - 15	2037	3	0.0007	0.0877	0.1039	0.018	0.013	0.0009	0.03
16	1	15 - 16	2038	3	0.0007	0.0877	0.1039	0.018	0.013	0.0009	0.03
17	1	16-17	2039	1	0.0007	0.0877	0.1039	0.002	0.001	0.0001	0.00
18	1	17-18	2040	1	0.0007	0.0877	0.1039	0.002	0.001	0.0001	0.00
19	1	18-19	2041	1	0.0007	0.0877	0.1039	0.002	0.001	0.0001	0.00
20	1	19-20	2042	1	0.0007	0.0877	0.1039	0.002	0.001	0.0001	0.00
21	1	20-21	2043	1	0.0007	0.0877	0.1039	0.002	0.001	0.0001	0.00
22	1	21-22	2044	1	0.0007	0.0877	0.1039	0.002	0.001	0.0001	0.00
23	1	22-23	2045	1	0.0007	0.0877	0.1039	0.002	0.001	0.0001	0.00
24	1	23-24	2046	1	0.0007	0.0877	0.1039	0.002	0.001	0.0001	0.00
25	1	24-25	2047	1	0.0007	0.0877	0.1039	0.002	0.001	0.0001	0.00
26	1	25-26	2048	1	0.0007	0.0877	0.1039	0.002	0.001	0.0001	0.00
27	1	26-27	2049	1	0.0007	0.0877	0.1039	0.002	0.001	0.0001	0.00
28	1	27-28	2050	1	0.0007	0.0877	0.1039	0.002	0.001	0.0001	0.00
29	1	28-29	2051	1	0.0007	0.0877	0.1039	0.002	0.001	0.0001	0.00
30	1	29-30	2052	1	0.0007	0.0877	0.1039	0.002	0.001	0.0001	0.00
Total Increased Cancer Risk								0.53	0.373	0.026	**0.93**

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.0001	0.08	0.08

* Third trimester of pregnancy

439 and 451 S. 4th Street, San Jose, CA - S. 3rd Street Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
at The Mark MEI Receptor, 9.8m receptor height (1st Residential Level)

Emission Year	2023
Receptor Information	The Mark MEI receptor
Number of Receptors	1
Receptor Height	1st Residential Level, 9.8 meters
Receptor Distances	At Construction MEI location
Meteorological Conditions	
BAQMD San Jose Airport Met Data	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Wind Direction	Variable

The Mark MEI Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0004	0.0490	0.0580

The Mark MEI PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.0406	0.0383	0.0023

439 and 451 S. 4th Street, San Jose, CA - S. 3rd Street Cancer Risk & PM2.5 Impacts at The Mark MEI - 9.8 meter receptor height (1st Residential Level) 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 --> / Parameter	3rd Trimester	0 - 2	2 - 16	16 - 30
ASF =	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	0.25	-0.25 - 0*	2023	10	0.0004	0.0490	0.0580	0.006	0.004	0.0003	0.01
1	1	0 - 1	2023	10	0.0004	0.0490	0.0580	0.071	0.046	0.0032	0.12
2	1	1 - 2	2024	10	0.0004	0.0490	0.0580	0.071	0.046	0.0032	0.12
3	1	2 - 3	2025	3	0.0004	0.0490	0.0580	0.011	0.007	0.0005	0.02
4	1	3 - 4	2026	3	0.0004	0.0490	0.0580	0.011	0.007	0.0005	0.02
5	1	4 - 5	2027	3	0.0004	0.0490	0.0580	0.011	0.007	0.0005	0.02
6	1	5 - 6	2028	3	0.0004	0.0490	0.0580	0.011	0.007	0.0005	0.02
7	1	6 - 7	2029	3	0.0004	0.0490	0.0580	0.011	0.007	0.0005	0.02
8	1	7 - 8	2030	3	0.0004	0.0490	0.0580	0.011	0.007	0.0005	0.02
9	1	8 - 9	2031	3	0.0004	0.0490	0.0580	0.011	0.007	0.0005	0.02
10	1	9 - 10	2032	3	0.0004	0.0490	0.0580	0.011	0.007	0.0005	0.02
11	1	10 - 11	2033	3	0.0004	0.0490	0.0580	0.011	0.007	0.0005	0.02
12	1	11 - 12	2034	3	0.0004	0.0490	0.0580	0.011	0.007	0.0005	0.02
13	1	12 - 13	2035	3	0.0004	0.0490	0.0580	0.011	0.007	0.0005	0.02
14	1	13 - 14	2036	3	0.0004	0.0490	0.0580	0.011	0.007	0.0005	0.02
15	1	14 - 15	2037	3	0.0004	0.0490	0.0580	0.011	0.007	0.0005	0.02
16	1	15 - 16	2038	3	0.0004	0.0490	0.0580	0.011	0.007	0.0005	0.02
17	1	16-17	2039	1	0.0004	0.0490	0.0580	0.001	0.001	0.0001	0.00
18	1	17-18	2040	1	0.0004	0.0490	0.0580	0.001	0.001	0.0001	0.00
19	1	18-19	2041	1	0.0004	0.0490	0.0580	0.001	0.001	0.0001	0.00
20	1	19-20	2042	1	0.0004	0.0490	0.0580	0.001	0.001	0.0001	0.00
21	1	20-21	2043	1	0.0004	0.0490	0.0580	0.001	0.001	0.0001	0.00
22	1	21-22	2044	1	0.0004	0.0490	0.0580	0.001	0.001	0.0001	0.00
23	1	22-23	2045	1	0.0004	0.0490	0.0580	0.001	0.001	0.0001	0.00
24	1	23-24	2046	1	0.0004	0.0490	0.0580	0.001	0.001	0.0001	0.00
25	1	24-25	2047	1	0.0004	0.0490	0.0580	0.001	0.001	0.0001	0.00
26	1	25-26	2048	1	0.0004	0.0490	0.0580	0.001	0.001	0.0001	0.00
27	1	26-27	2049	1	0.0004	0.0490	0.0580	0.001	0.001	0.0001	0.00
28	1	27-28	2050	1	0.0004	0.0490	0.0580	0.001	0.001	0.0001	0.00
29	1	28-29	2051	1	0.0004	0.0490	0.0580	0.001	0.001	0.0001	0.00
30	1	29-30	2052	1	0.0004	0.0490	0.0580	0.001	0.001	0.0001	0.00
Total Increased Cancer Risk								0.32	0.208	0.015	**0.54**

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.0001	0.04	0.04

* Third trimester of pregnancy

S. 4th Street Traffic Emissions and Health Risk Calculations

Analysis Year = ***2023***

Vehicle Type	2021 Caltrans Vehicles (veh/day)	2023 Vehicles (veh/day)
Total	**11,230**	**11,455**

Increase From 2021	1.02
Vehicles/Direction	**5,727**
Avg Vehicles/Hour/Direction	239

Traffic Data Year = ***2021***

Project Traffic Data - Background Plus Project ADT	AADT Total	Total Truck
South 4th St/E San Salvador St	11,230	394
	Percent of Total Vehicles	3.51%

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

439 and 451 S. 4th Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - S. 4th Street
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2023

											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_SB_4TH	S. 4th Street Southbound	SB	2	662.8	0.41	13.3	43.7	3.4	Varied	11,455	8,825	94,995	2.184E-09	1.610E-09	6.8	3.16

Emission Factors - DPM

Speed Category	1	2	3	4
Travel Speed (mph)	30	20		
Emissions per Vehicle (g/VMT)	0.00035	0.00045		

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and DPM Emissions - DPM_SB_4TH

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	3.91%	448	1.81E-05	9	6.50%	744	3.80E-05	17	5.58%	639	3.26E-05
2	2.59%	296	1.20E-05	10	7.36%	843	3.40E-05	18	3.28%	375	1.92E-05
3	2.88%	329	1.33E-05	11	6.33%	725	2.93E-05	19	2.36%	270	1.09E-05
4	3.34%	382	1.54E-05	12	6.84%	784	3.17E-05	20	0.92%	105	4.26E-06
5	2.19%	250	1.01E-05	13	6.15%	705	2.85E-05	21	2.99%	343	1.38E-05
6	3.39%	389	1.57E-05	14	6.15%	705	2.85E-05	22	4.14%	474	1.92E-05
7	5.98%	685	2.77E-05	15	5.23%	599	2.42E-05	23	2.47%	283	1.14E-05
8	4.66%	534	2.72E-05	16	3.91%	448	1.81E-05	24	0.86%	99	3.99E-06
								Total		11,455	

439 and 451 S. 4th Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - S. 4th Street
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2023

											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_SB_4TH	S. 4th Street Southbound	SB	2	662.8	0.41	13.3	44	1.3	Varied	11,455	8,825	94,995	1.092E-08	8.051E-09	2.6	1.21

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	30	20		
Emissions per Vehicle (g/VMT)	0.001765	0.002896		

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and PM2.5 Emissions - PM25_SB_4TH

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	132	2.66E-05	9	7.11%	815	2.70E-04	17	7.38%	846	2.80E-04
2	0.42%	48	9.66E-06	10	4.39%	503	1.02E-04	18	8.17%	936	3.10E-04
3	0.41%	47	9.43E-06	11	4.66%	534	1.08E-04	19	5.70%	653	1.32E-04
4	0.26%	30	6.09E-06	12	5.89%	675	1.36E-04	20	4.27%	490	9.89E-05
5	0.50%	57	1.16E-05	13	6.15%	705	1.42E-04	21	3.26%	373	7.54E-05
6	0.90%	104	2.09E-05	14	6.04%	692	1.40E-04	22	3.30%	378	7.63E-05
7	3.79%	434	8.77E-05	15	7.01%	803	1.62E-04	23	2.46%	282	5.69E-05
8	7.76%	889	2.95E-04	16	7.14%	817	1.65E-04	24	1.86%	214	4.31E-05
								Total		11,455	

439 and 451 S. 4th Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - S. 4th Street
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2023

											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_SB_4TH	S. 4th Street Southbound	SB	2	662.8	0.41	13.3	44	1.3	Varied	11,455	8,825	94,995	2.279E-07	1.680E-07	2.6	1.21

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	30	20		
Emissions per Vehicle (g/VMT)	0.03684	0.06106		

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_SB_4TH

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	132	5.56E-04	9	7.11%	815	5.69E-03	17	7.38%	846	5.91E-03
2	0.42%	48	2.02E-04	10	4.39%	503	2.12E-03	18	8.17%	936	6.54E-03
3	0.41%	47	1.97E-04	11	4.66%	534	2.25E-03	19	5.70%	653	2.75E-03
4	0.26%	30	1.27E-04	12	5.89%	675	2.84E-03	20	4.27%	490	2.06E-03
5	0.50%	57	2.42E-04	13	6.15%	705	2.97E-03	21	3.26%	373	1.57E-03
6	0.90%	104	4.37E-04	14	6.04%	692	2.91E-03	22	3.30%	378	1.59E-03
7	3.79%	434	1.83E-03	15	7.01%	803	3.39E-03	23	2.46%	282	1.19E-03
8	7.76%	889	6.21E-03	16	7.14%	817	3.44E-03	24	1.86%	214	9.00E-04
								Total		11,455	

439 and 451 S. 4th Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - S. 4th Street
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2023

											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_SB_4TH	S. 4th Street Southbound	SB	2	662.8	0.41	13.3	44	1.3	Varied	11,455	8,825	94,995	2.800E-07	2.064E-07	2.6	1.21

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	30	20		
Emissions per Vehicle per Hour (g/hour)	1.35761	1.35761		
Emissions per Vehicle per Mile (g/VMT)	0.04525	0.06788		

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_SB_4TH

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	132	6.83E-04	9	7.11%	815	6.33E-03	17	7.38%	846	6.57E-03
2	0.42%	48	2.48E-04	10	4.39%	503	2.60E-03	18	8.17%	936	7.27E-03
3	0.41%	47	2.42E-04	11	4.66%	534	2.77E-03	19	5.70%	653	3.38E-03
4	0.26%	30	1.56E-04	12	5.89%	675	3.49E-03	20	4.27%	490	2.53E-03
5	0.50%	57	2.97E-04	13	6.15%	705	3.65E-03	21	3.26%	373	1.93E-03
6	0.90%	104	5.36E-04	14	6.04%	692	3.58E-03	22	3.30%	378	1.96E-03
7	3.79%	434	2.25E-03	15	7.01%	803	4.16E-03	23	2.46%	282	1.46E-03
8	7.76%	889	6.90E-03	16	7.14%	817	4.23E-03	24	1.86%	214	1.11E-03
								Total		11,455	

439 and 451 S. 4th Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - S. 4th Street
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2023

											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_SB_4TH	S. 4th Street Southbound	SB	2	662.8	0.41	13.3	44	1.3	Varied	11,455	8,825	94,995	2.089E-07	1.541E-07	2.6	1.21

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	30	20		
Tire Wear - Emissions per Vehicle (g/VMT)	0.00211	0.00211		
Brake Wear - Emissions per Vehicle (g/VMT)	0.01681	0.01681		
Road Dust - Emissions per Vehicle (g/VMT)	0.01486	0.01486		
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.03377	0.03377		

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_SB_4TH

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	132	5.10E-04	9	7.11%	815	3.15E-03	17	7.38%	846	3.27E-03
2	0.42%	48	1.85E-04	10	4.39%	503	1.94E-03	18	8.17%	936	3.62E-03
3	0.41%	47	1.80E-04	11	4.66%	534	2.06E-03	19	5.70%	653	2.52E-03
4	0.26%	30	1.16E-04	12	5.89%	675	2.61E-03	20	4.27%	490	1.89E-03
5	0.50%	57	2.22E-04	13	6.15%	705	2.72E-03	21	3.26%	373	1.44E-03
6	0.90%	104	4.00E-04	14	6.04%	692	2.67E-03	22	3.30%	378	1.46E-03
7	3.79%	434	1.68E-03	15	7.01%	803	3.10E-03	23	2.46%	282	1.09E-03
8	7.76%	889	3.44E-03	16	7.14%	817	3.16E-03	24	1.86%	214	8.25E-04
								Total		11,455	

439 and 451 S. 4th Street, San Jose, CA - S. 4th Street Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
at Project MEI Receptors (Non-Mark), 1.5m and 4.5m receptor height (1st & 2nd Level)

Emission Year	2023
Receptor Information	Project MEI Receptors (Non-Mark)
Number of Receptors	2
Receptor Height	1st & 2nd Levels, 1.5 & 4.5 meters
Receptor Distances	At Project MEI locations (Non-Mark)

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

Project MEI (Non-Mark) Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0012	0.1053	0.1238

Project MEI (Non-Mark) PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.1134	0.1067	0.0068

439 and 451 S. 4th Street, San Jose, CA - S. 4th Street Cancer Risk & PM2.5
Impacts at Construction MEI - 9.8 meter receptor height (1st Residential Level)
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 --> / Parameter	3rd Trimester	0 - 2	2 - 16	16 - 30
ASF =	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	TOTAL
0	0.25	-0.25 - 0*	2023	10	0.0012	0.1053	0.1238	0.017	0.008	0.0006	0.03
1	1	0 - 1	2023	10	0.0012	0.1053	0.1238	0.202	0.099	0.0068	0.31
2	1	1 - 2	2024	10	0.0012	0.1053	0.1238	0.202	0.099	0.0068	0.31
3	1	2 - 3	2025	3	0.0012	0.1053	0.1238	0.032	0.016	0.0011	0.05
4	1	3 - 4	2026	3	0.0012	0.1053	0.1238	0.032	0.016	0.0011	0.05
5	1	4 - 5	2027	3	0.0012	0.1053	0.1238	0.032	0.016	0.0011	0.05
6	1	5 - 6	2028	3	0.0012	0.1053	0.1238	0.032	0.016	0.0011	0.05
7	1	6 - 7	2029	3	0.0012	0.1053	0.1238	0.032	0.016	0.0011	0.05
8	1	7 - 8	2030	3	0.0012	0.1053	0.1238	0.032	0.016	0.0011	0.05
9	1	8 - 9	2031	3	0.0012	0.1053	0.1238	0.032	0.016	0.0011	0.05
10	1	9 - 10	2032	3	0.0012	0.1053	0.1238	0.032	0.016	0.0011	0.05
11	1	10 - 11	2033	3	0.0012	0.1053	0.1238	0.032	0.016	0.0011	0.05
12	1	11 - 12	2034	3	0.0012	0.1053	0.1238	0.032	0.016	0.0011	0.05
13	1	12 - 13	2035	3	0.0012	0.1053	0.1238	0.032	0.016	0.0011	0.05
14	1	13 - 14	2036	3	0.0012	0.1053	0.1238	0.032	0.016	0.0011	0.05
15	1	14 - 15	2037	3	0.0012	0.1053	0.1238	0.032	0.016	0.0011	0.05
16	1	15 - 16	2038	3	0.0012	0.1053	0.1238	0.032	0.016	0.0011	0.05
17	1	16-17	2039	1	0.0012	0.1053	0.1238	0.004	0.002	0.0001	0.01
18	1	17-18	2040	1	0.0012	0.1053	0.1238	0.004	0.002	0.0001	0.01
19	1	18-19	2041	1	0.0012	0.1053	0.1238	0.004	0.002	0.0001	0.01
20	1	19-20	2042	1	0.0012	0.1053	0.1238	0.004	0.002	0.0001	0.01
21	1	20-21	2043	1	0.0012	0.1053	0.1238	0.004	0.002	0.0001	0.01
22	1	21-22	2044	1	0.0012	0.1053	0.1238	0.004	0.002	0.0001	0.01
23	1	22-23	2045	1	0.0012	0.1053	0.1238	0.004	0.002	0.0001	0.01
24	1	23-24	2046	1	0.0012	0.1053	0.1238	0.004	0.002	0.0001	0.01
25	1	24-25	2047	1	0.0012	0.1053	0.1238	0.004	0.002	0.0001	0.01
26	1	25-26	2048	1	0.0012	0.1053	0.1238	0.004	0.002	0.0001	0.01
27	1	26-27	2049	1	0.0012	0.1053	0.1238	0.004	0.002	0.0001	0.01
28	1	27-28	2050	1	0.0012	0.1053	0.1238	0.004	0.002	0.0001	0.01
29	1	28-29	2051	1	0.0012	0.1053	0.1238	0.004	0.002	0.0001	0.01
30	1	29-30	2052	1	0.0012	0.1053	0.1238	0.004	0.002	0.0001	0.01
Total Increased Cancer Risk								0.92	0.447	0.031	**1.39**

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.0002	0.11	0.11

* Third trimester of pregnancy

439 and 451 S. 4th Street, San Jose, CA - S. 4th Street Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
at The Mark MEI Receptor, 9.8m receptor height (1st Residential Level)

Emission Year	2023
Receptor Information	The Mark MEI receptor
Number of Receptors	1
Receptor Height	1st Residential Level, 9.8 meters
Receptor Distances	At Construction MEI location
Meteorological Conditions	
BAQMD San Jose Airport Met Data	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Wind Direction	Variable

The Mark MEI Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0006	0.0476	0.0559

The Mark MEI PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.0377	0.0354	0.0023

439 and 451 S. 4th Street, San Jose, CA - S. 4th Street Cancer Risk & PM2.5 Impacts at The Mark MEI - 9.8 meter receptor height (1st Residential Level) 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 --> / Parameter	3rd Trimester	0 - 2	2 - 16	16 - 30
ASF =	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	TOTAL
0	0.25	-0.25 - 0*	2023	10	0.0006	0.0476	0.0559	0.008	0.004	0.0003	0.01
1	1	0 - 1	2023	10	0.0006	0.0476	0.0559	0.100	0.045	0.0031	0.15
2	1	1 - 2	2024	10	0.0006	0.0476	0.0559	0.100	0.045	0.0031	0.15
3	1	2 - 3	2025	3	0.0006	0.0476	0.0559	0.016	0.007	0.0005	0.02
4	1	3 - 4	2026	3	0.0006	0.0476	0.0559	0.016	0.007	0.0005	0.02
5	1	4 - 5	2027	3	0.0006	0.0476	0.0559	0.016	0.007	0.0005	0.02
6	1	5 - 6	2028	3	0.0006	0.0476	0.0559	0.016	0.007	0.0005	0.02
7	1	6 - 7	2029	3	0.0006	0.0476	0.0559	0.016	0.007	0.0005	0.02
8	1	7 - 8	2030	3	0.0006	0.0476	0.0559	0.016	0.007	0.0005	0.02
9	1	8 - 9	2031	3	0.0006	0.0476	0.0559	0.016	0.007	0.0005	0.02
10	1	9 - 10	2032	3	0.0006	0.0476	0.0559	0.016	0.007	0.0005	0.02
11	1	10 - 11	2033	3	0.0006	0.0476	0.0559	0.016	0.007	0.0005	0.02
12	1	11 - 12	2034	3	0.0006	0.0476	0.0559	0.016	0.007	0.0005	0.02
13	1	12 - 13	2035	3	0.0006	0.0476	0.0559	0.016	0.007	0.0005	0.02
14	1	13 - 14	2036	3	0.0006	0.0476	0.0559	0.016	0.007	0.0005	0.02
15	1	14 - 15	2037	3	0.0006	0.0476	0.0559	0.016	0.007	0.0005	0.02
16	1	15 - 16	2038	3	0.0006	0.0476	0.0559	0.016	0.007	0.0005	0.02
17	1	16-17	2039	1	0.0006	0.0476	0.0559	0.002	0.001	0.0001	0.00
18	1	17-18	2040	1	0.0006	0.0476	0.0559	0.002	0.001	0.0001	0.00
19	1	18-19	2041	1	0.0006	0.0476	0.0559	0.002	0.001	0.0001	0.00
20	1	19-20	2042	1	0.0006	0.0476	0.0559	0.002	0.001	0.0001	0.00
21	1	20-21	2043	1	0.0006	0.0476	0.0559	0.002	0.001	0.0001	0.00
22	1	21-22	2044	1	0.0006	0.0476	0.0559	0.002	0.001	0.0001	0.00
23	1	22-23	2045	1	0.0006	0.0476	0.0559	0.002	0.001	0.0001	0.00
24	1	23-24	2046	1	0.0006	0.0476	0.0559	0.002	0.001	0.0001	0.00
25	1	24-25	2047	1	0.0006	0.0476	0.0559	0.002	0.001	0.0001	0.00
26	1	25-26	2048	1	0.0006	0.0476	0.0559	0.002	0.001	0.0001	0.00
27	1	26-27	2049	1	0.0006	0.0476	0.0559	0.002	0.001	0.0001	0.00
28	1	27-28	2050	1	0.0006	0.0476	0.0559	0.002	0.001	0.0001	0.00
29	1	28-29	2051	1	0.0006	0.0476	0.0559	0.002	0.001	0.0001	0.00
30	1	29-30	2052	1	0.0006	0.0476	0.0559	0.002	0.001	0.0001	0.00
Total Increased Cancer Risk								0.45	0.202	0.014	**0.67**

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.0001	0.04	0.04

* Third trimester of pregnancy

CT-EMFAC2017 Emissions Factors for Santa Clara County 2025

File Name: S 4th St Rev - Santa Clara (SF) - 2025 - Annual.EF
CT-EMFAC2017 Version: 1.0.2.27401
Run Date: 3/8/2022 13:46
Area: Santa Clara (SF)
Analysis Year: 2025
Season: Annual

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category	Gas VMT Fraction Within Category
Truck 1	0.015	0.502	0.498
Truck 2	0.02	0.936	0.048
Non-Truck	0.965	0.015	0.951

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

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

Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph
PM2.5	0.008489	0.005501	0.00373	0.002665	0.00202	0.001628	0.001397	0.001277
TOG	0.172619	0.113109	0.076066	0.0539	0.040836	0.03264	0.027389	0.02411
Diesel PM	0.000788	0.00065	0.000505	0.000405	0.00035	0.000326	0.000328	0.000351

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

Pollutant Name	Emission Factor
TOG	1.255395

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

Pollutant Name	Emission Factor
PM2.5	0.002108

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

Pollutant Name	Emission Factor
PM2.5	0.016801

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

Pollutant Name	Emission Factor
PM2.5	0.014826

END

S. 3rd Street Traffic Emissions and Health Risk Calculations

Analysis Year = ***2025***

Vehicle Type	2021 Caltrans Vehicles (veh/day)	2025 Vehicles (veh/day)
Total	**12,360**	**12,854**

Increase From 2021	1.04
Vehicles/Direction	**6,427**
Avg Vehicles/Hour/Direction	268

Traffic Data Year = ***2021***

Project Traffic Data - Background Plus Project ADT	AADT Total	Total Truck
South 3rd St/E San Salvador St	12,360	434
	Percent of Total Vehicles	3.51%

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

439 and 451 S. 4th Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - S. 3rd Street
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2025

											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_NB_3RD	S. 3rd Street Northbound	NB	2	651.3	0.40	13.3	43.7	3.4	Varied	12,854	8,672	93,347	2.263E-09	1.669E-09	6.8	3.16

Emission Factors - DPM

Speed Category	1	2	3	4
Travel Speed (mph)	30	20		
Emissions per Vehicle (g/VMT)	0.00033	0.00041		

Emisson Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and DPM Emissions - DPM_NB_3RD

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	506	1.85E-05	9	6.41%	823	3.75E-05	17	5.55%	713	3.25E-05
2	2.62%	337	1.24E-05	10	7.36%	947	3.47E-05	18	3.16%	406	1.85E-05
3	2.85%	366	1.34E-05	11	6.34%	815	2.99E-05	19	2.36%	303	1.11E-05
4	3.31%	425	1.56E-05	12	6.92%	889	3.26E-05	20	0.87%	111	4.08E-06
5	2.17%	278	1.02E-05	13	6.29%	809	2.96E-05	21	3.09%	397	1.46E-05
6	3.36%	432	1.58E-05	14	6.23%	801	2.94E-05	22	4.12%	529	1.94E-05
7	6.00%	771	2.82E-05	15	5.15%	662	2.43E-05	23	2.58%	331	1.21E-05
8	4.58%	589	2.68E-05	16	3.84%	494	1.81E-05	24	0.92%	119	4.35E-06
								Total		12,854	

439 and 451 S. 4th Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - S. 3rd Street
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2025

											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_NB_3RD	S. 3rd Street Northbound	NB	2	651.3	0.40	13.3	44	1.3	Varied	12,854	8,672	93,347	1.130E-08	8.334E-09	2.6	1.21

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	30	20		
Emissions per Vehicle (g/VMT)	0.001628	0.002665		

Emisson Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and PM2.5 Emissions - PM25_NB_3RD

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	148	2.70E-05	9	7.11%	914	2.74E-04	17	7.39%	950	2.85E-04
2	0.42%	54	9.92E-06	10	4.39%	564	1.03E-04	18	8.18%	1051	3.15E-04
3	0.41%	52	9.60E-06	11	4.66%	599	1.10E-04	19	5.69%	732	1.34E-04
4	0.26%	33	6.12E-06	12	5.89%	757	1.38E-04	20	4.28%	550	1.01E-04
5	0.50%	64	1.17E-05	13	6.15%	791	1.45E-04	21	3.25%	418	7.66E-05
6	0.91%	117	2.13E-05	14	6.04%	776	1.42E-04	22	3.30%	424	7.76E-05
7	3.79%	487	8.91E-05	15	7.01%	901	1.65E-04	23	2.46%	316	5.79E-05
8	7.77%	998	2.99E-04	16	7.14%	918	1.68E-04	24	1.86%	240	4.39E-05
								Total		12,854	

439 and 451 S. 4th Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - S. 3rd Street
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2025

											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_NB_3RD	S. 3rd Street Northbound	NB	2	651.3	0.40	13.3	44	1.3	Varied	12,854	8,672	93,347	2.266E-07	1.671E-07	2.6	1.21

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	30	20		
Emissions per Vehicle (g/VMT)	0.03264	0.05390		

Emisson Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_NB_3RD

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	148	5.42E-04	9	7.11%	914	5.54E-03	17	7.39%	950	5.76E-03
2	0.42%	54	1.99E-04	10	4.39%	564	2.07E-03	18	8.18%	1051	6.37E-03
3	0.41%	52	1.93E-04	11	4.66%	599	2.20E-03	19	5.69%	732	2.69E-03
4	0.26%	33	1.23E-04	12	5.89%	757	2.78E-03	20	4.28%	550	2.02E-03
5	0.50%	64	2.34E-04	13	6.15%	791	2.90E-03	21	3.25%	418	1.54E-03
6	0.91%	117	4.28E-04	14	6.04%	776	2.85E-03	22	3.30%	424	1.55E-03
7	3.79%	487	1.79E-03	15	7.01%	901	3.31E-03	23	2.46%	316	1.16E-03
8	7.77%	998	6.05E-03	16	7.14%	918	3.37E-03	24	1.86%	240	8.79E-04
								Total		12,854	

439 and 451 S. 4th Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - S. 3rd Street
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2025

											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_NB_3RD	S. 3rd Street Northbound	NB	2	651.3	0.40	13.3	44	1.3	Varied	12,854	8,672	93,347	2.905E-07	2.142E-07	2.6	1.21

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	30	20		
Emissions per Vehicle per Hour (g/hour)	1.25540	1.25540		
Emissions per Vehicle per Mile (g/VMT)	0.04185	0.06277		

Emisson Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_NB_3RD

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	148	6.95E-04	9	7.11%	914	6.45E-03	17	7.39%	950	6.70E-03
2	0.42%	54	2.55E-04	10	4.39%	564	2.65E-03	18	8.18%	1051	7.42E-03
3	0.41%	52	2.47E-04	11	4.66%	599	2.82E-03	19	5.69%	732	3.44E-03
4	0.26%	33	1.57E-04	12	5.89%	757	3.56E-03	20	4.28%	550	2.59E-03
5	0.50%	64	3.00E-04	13	6.15%	791	3.72E-03	21	3.25%	418	1.97E-03
6	0.91%	117	5.48E-04	14	6.04%	776	3.65E-03	22	3.30%	424	1.99E-03
7	3.79%	487	2.29E-03	15	7.01%	901	4.24E-03	23	2.46%	316	1.49E-03
8	7.77%	998	7.04E-03	16	7.14%	918	4.32E-03	24	1.86%	240	1.13E-03
								Total		12,854	

439 and 451 S. 4th Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - S. 3rd Street
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2025

											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_NB_3RD	S. 3rd Street Northbound	NB	2	651.3	0.40	13.3	44	1.3	Varied	12,854	8,672	93,347	2.342E-07	1.727E-07	2.6	1.21

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	30	20		
Tire Wear - Emissions per Vehicle (g/VMT)	0.00211	0.00211		
Brake Wear - Emissions per Vehicle (g/VMT)	0.01680	0.01680		
Road Dust - Emissions per Vehicle (g/VMT)	0.01483	0.01483		
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.03374	0.03374		

Emisson Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_NB_3RD

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	148	5.60E-04	9	7.11%	914	3.47E-03	17	7.39%	950	3.60E-03
2	0.42%	54	2.06E-04	10	4.39%	564	2.14E-03	18	8.18%	1051	3.99E-03
3	0.41%	52	1.99E-04	11	4.66%	599	2.27E-03	19	5.69%	732	2.78E-03
4	0.26%	33	1.27E-04	12	5.89%	757	2.87E-03	20	4.28%	550	2.08E-03
5	0.50%	64	2.42E-04	13	6.15%	791	3.00E-03	21	3.25%	418	1.59E-03
6	0.91%	117	4.42E-04	14	6.04%	776	2.94E-03	22	3.30%	424	1.61E-03
7	3.79%	487	1.85E-03	15	7.01%	901	3.42E-03	23	2.46%	316	1.20E-03
8	7.77%	998	3.79E-03	16	7.14%	918	3.48E-03	24	1.86%	240	9.09E-04
								Total		12,854	

439 and 451 S. 4th Street, San Jose, CA - S. 3rd Street Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
On-Site 1st & 2nd Levels of Residential Receptors
- At 15.2m (5th Fl) and 18.3m (6th Fl) receptor heights

Emission Year	2025
Receptor Information	Maximum On-Site Receptor
Number of Receptors	79
Receptor Height	1st & 2nd Level of Residential Receptors
Receptor Distances	5 meter grid spacing

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	0.0003	0.0296	0.0366	1st Level of Res Receps
2013-2017	0.0002	0.0215	0.0266	2nd Level of Res Receps

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	0.0275	0.0260	0.0015	1st Level of Res Receps
2013-2017	0.0199	0.0189	0.0011	2nd Level of Res Receps

439 and 451 S. 4th Street, San Jose, CA - S. 3rd Street Cancer Risk & PM2.5
Impacts at On-Site 1st Level of Residential Receptors - 15.2 m (5th Fl) receptor heights
30 Year Residential Exposure

Cancer Risk Calculation Method

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

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

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

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

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

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

Values

	Infant/Child			Adult
Age --> / Parameter	3rd Trimester	0 - 2	2 - 16	16 - 30
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*	2026	10	0.0003	0.0296	0.0366	0.004	0.002	0.0002	0.01
1	1	0 - 1	2026	10	0.0003	0.0296	0.0366	0.048	0.028	0.0020	0.08
2	1	1 - 2	2027	10	0.0003	0.0296	0.0366	0.048	0.028	0.0020	0.08
3	1	2 - 3	2028	3	0.0003	0.0296	0.0366	0.007	0.004	0.0003	0.01
4	1	3 - 4	2029	3	0.0003	0.0296	0.0366	0.007	0.004	0.0003	0.01
5	1	4 - 5	2030	3	0.0003	0.0296	0.0366	0.007	0.004	0.0003	0.01
6	1	5 - 6	2031	3	0.0003	0.0296	0.0366	0.007	0.004	0.0003	0.01
7	1	6 - 7	2032	3	0.0003	0.0296	0.0366	0.007	0.004	0.0003	0.01
8	1	7 - 8	2033	3	0.0003	0.0296	0.0366	0.007	0.004	0.0003	0.01
9	1	8 - 9	2034	3	0.0003	0.0296	0.0366	0.007	0.004	0.0003	0.01
10	1	9 - 10	2035	3	0.0003	0.0296	0.0366	0.007	0.004	0.0003	0.01
11	1	10 - 11	2036	3	0.0003	0.0296	0.0366	0.007	0.004	0.0003	0.01
12	1	11 - 12	2037	3	0.0003	0.0296	0.0366	0.007	0.004	0.0003	0.01
13	1	12 - 13	2038	3	0.0003	0.0296	0.0366	0.007	0.004	0.0003	0.01
14	1	13 - 14	2039	3	0.0003	0.0296	0.0366	0.007	0.004	0.0003	0.01
15	1	14 - 15	2040	3	0.0003	0.0296	0.0366	0.007	0.004	0.0003	0.01
16	1	15 - 16	2041	3	0.0003	0.0296	0.0366	0.007	0.004	0.0003	0.01
17	1	16-17	2042	1	0.0003	0.0296	0.0366	0.001	0.000	0.0000	0.00
18	1	17-18	2043	1	0.0003	0.0296	0.0366	0.001	0.000	0.0000	0.00
19	1	18-19	2044	1	0.0003	0.0296	0.0366	0.001	0.000	0.0000	0.00
20	1	19-20	2045	1	0.0003	0.0296	0.0366	0.001	0.000	0.0000	0.00
21	1	20-21	2046	1	0.0003	0.0296	0.0366	0.001	0.000	0.0000	0.00
22	1	21-22	2047	1	0.0003	0.0296	0.0366	0.001	0.000	0.0000	0.00
23	1	22-23	2048	1	0.0003	0.0296	0.0366	0.001	0.000	0.0000	0.00
24	1	23-24	2049	1	0.0003	0.0296	0.0366	0.001	0.000	0.0000	0.00
25	1	24-25	2050	1	0.0003	0.0296	0.0366	0.001	0.000	0.0000	0.00
26	1	25-26	2051	1	0.0003	0.0296	0.0366	0.001	0.000	0.0000	0.00
27	1	26-27	2052	1	0.0003	0.0296	0.0366	0.001	0.000	0.0000	0.00
28	1	27-28	2053	1	0.0003	0.0296	0.0366	0.001	0.000	0.0000	0.00
29	1	28-29	2054	1	0.0003	0.0296	0.0366	0.001	0.000	0.0000	0.00
30	1	29-30	2055	1	0.0003	0.0296	0.0366	0.001	0.000	0.0000	0.00
Total Increased Cancer Risk								0.22	0.126	0.009	**0.35**

* Third trimester of pregnancy

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

439 and 451 S. 4th Street, San Jose, CA - S. 3rd Street Cancer Risk & PM2.5
Impacts at On-Site 2nd Level of Residential Receptors - 18.3 m (6th Fl) receptor heights
30 Year Residential Exposure

Cancer Risk Calculation Method

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

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

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	0.25	-0.25 - 0*	2026	10	0.0002	0.0215	0.0266	0.003	0.002	0.0001	0.00
1	1	0 - 1	2026	10	0.0002	0.0215	0.0266	0.034	0.020	0.0015	0.06
2	1	1 - 2	2027	10	0.0002	0.0215	0.0266	0.034	0.020	0.0015	0.06
3	1	2 - 3	2028	3	0.0002	0.0215	0.0266	0.005	0.003	0.0002	0.01
4	1	3 - 4	2029	3	0.0002	0.0215	0.0266	0.005	0.003	0.0002	0.01
5	1	4 - 5	2030	3	0.0002	0.0215	0.0266	0.005	0.003	0.0002	0.01
6	1	5 - 6	2031	3	0.0002	0.0215	0.0266	0.005	0.003	0.0002	0.01
7	1	6 - 7	2032	3	0.0002	0.0215	0.0266	0.005	0.003	0.0002	0.01
8	1	7 - 8	2033	3	0.0002	0.0215	0.0266	0.005	0.003	0.0002	0.01
9	1	8 - 9	2034	3	0.0002	0.0215	0.0266	0.005	0.003	0.0002	0.01
10	1	9 - 10	2035	3	0.0002	0.0215	0.0266	0.005	0.003	0.0002	0.01
11	1	10 - 11	2036	3	0.0002	0.0215	0.0266	0.005	0.003	0.0002	0.01
12	1	11 - 12	2037	3	0.0002	0.0215	0.0266	0.005	0.003	0.0002	0.01
13	1	12 - 13	2038	3	0.0002	0.0215	0.0266	0.005	0.003	0.0002	0.01
14	1	13 - 14	2039	3	0.0002	0.0215	0.0266	0.005	0.003	0.0002	0.01
15	1	14 - 15	2040	3	0.0002	0.0215	0.0266	0.005	0.003	0.0002	0.01
16	1	15 - 16	2041	3	0.0002	0.0215	0.0266	0.005	0.003	0.0002	0.01
17	1	16-17	2042	1	0.0002	0.0215	0.0266	0.001	0.000	0.0000	0.00
18	1	17-18	2043	1	0.0002	0.0215	0.0266	0.001	0.000	0.0000	0.00
19	1	18-19	2044	1	0.0002	0.0215	0.0266	0.001	0.000	0.0000	0.00
20	1	19-20	2045	1	0.0002	0.0215	0.0266	0.001	0.000	0.0000	0.00
21	1	20-21	2046	1	0.0002	0.0215	0.0266	0.001	0.000	0.0000	0.00
22	1	21-22	2047	1	0.0002	0.0215	0.0266	0.001	0.000	0.0000	0.00
23	1	22-23	2048	1	0.0002	0.0215	0.0266	0.001	0.000	0.0000	0.00
24	1	23-24	2049	1	0.0002	0.0215	0.0266	0.001	0.000	0.0000	0.00
25	1	24-25	2050	1	0.0002	0.0215	0.0266	0.001	0.000	0.0000	0.00
26	1	25-26	2051	1	0.0002	0.0215	0.0266	0.001	0.000	0.0000	0.00
27	1	26-27	2052	1	0.0002	0.0215	0.0266	0.001	0.000	0.0000	0.00
28	1	27-28	2053	1	0.0002	0.0215	0.0266	0.001	0.000	0.0000	0.00
29	1	28-29	2054	1	0.0002	0.0215	0.0266	0.001	0.000	0.0000	0.00
30	1	29-30	2055	1	0.0002	0.0215	0.0266	0.001	0.000	0.0000	0.00
Total Increased Cancer Risk								0.16	0.091	0.007	**0.25**

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.0000	0.02	0.02

* Third trimester of pregnancy

S. 4th Street Traffic Emissions and Health Risk Calculations

Analysis Year = ***2025***

Vehicle Type	2021 Caltrans Vehicles (veh/day)	2025 Vehicles (veh/day)
Total	**11,230**	**11,679**

Increase From 2021	1.04
Vehicles/Direction	**5,840**
Avg Vehicles/Hour/Direction	243

Traffic Data Year = ***2021***

Project Traffic Data - Background Plus Project ADT	AADT Total	Total Truck
South 4th St/E San Salvador St	11,230	394
	Percent of Total Vehicles	3.51%

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

439 and 451 S. 4th Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - S. 4th Street
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2025

											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_SB_4TH	S. 4th Street Southbound	SB	2	662.8	0.41	13.3	43.7	3.4	Varied	11,679	8,825	94,995	2.056E-09	1.516E-09	6.8	3.16

Emission Factors - DPM

Speed Category	1	2	3	4
Travel Speed (mph)	30	20		
Emissions per Vehicle (g/VMT)	0.00033	0.00041		

Emisson Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and DPM Emissions - DPM_SB_4TH

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	3.93%	459	1.71E-05	9	6.41%	748	3.47E-05	17	5.55%	648	3.00E-05
2	2.62%	306	1.14E-05	10	7.36%	860	3.21E-05	18	3.16%	369	1.71E-05
3	2.85%	333	1.24E-05	11	6.34%	740	2.76E-05	19	2.36%	275	1.03E-05
4	3.31%	386	1.44E-05	12	6.92%	808	3.01E-05	20	0.87%	101	3.77E-06
5	2.17%	253	9.44E-06	13	6.29%	735	2.74E-05	21	3.09%	361	1.35E-05
6	3.36%	393	1.47E-05	14	6.23%	728	2.72E-05	22	4.12%	481	1.79E-05
7	6.00%	700	2.61E-05	15	5.15%	602	2.24E-05	23	2.58%	301	1.12E-05
8	4.58%	535	2.48E-05	16	3.84%	449	1.67E-05	24	0.92%	108	4.02E-06
								Total		11,679	

439 and 451 S. 4th Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - S. 4th Street
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2025

											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_SB_4TH	S. 4th Street Southbound	SB	2	662.8	0.41	13.3	44	1.3	Varied	11,679	8,825	94,995	1.027E-08	7.572E-09	2.6	1.21

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	30	20		
Emissions per Vehicle (g/VMT)	0.001628	0.002665		

Emisson Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and PM2.5 Emissions - PM25_SB_4TH

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	134	2.50E-05	9	7.11%	831	2.53E-04	17	7.39%	863	2.63E-04
2	0.42%	49	9.17E-06	10	4.39%	512	9.54E-05	18	8.18%	955	2.91E-04
3	0.41%	48	8.88E-06	11	4.66%	545	1.01E-04	19	5.69%	665	1.24E-04
4	0.26%	30	5.65E-06	12	5.89%	688	1.28E-04	20	4.28%	499	9.30E-05
5	0.50%	58	1.08E-05	13	6.15%	718	1.34E-04	21	3.25%	380	7.08E-05
6	0.91%	106	1.97E-05	14	6.04%	705	1.31E-04	22	3.30%	385	7.17E-05
7	3.79%	442	8.24E-05	15	7.01%	819	1.53E-04	23	2.46%	287	5.35E-05
8	7.77%	907	2.77E-04	16	7.14%	834	1.55E-04	24	1.86%	218	4.05E-05
								Total		11,679	

439 and 451 S. 4th Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - S. 4th Street
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2025

											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_SB_4TH	S. 4th Street Southbound	SB	2	662.8	0.41	13.3	44	1.3	Varied	11,679	8,825	94,995	2.059E-07	1.518E-07	2.6	1.21

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	30	20		
Emissions per Vehicle (g/VMT)	0.03264	0.05390		

Emisson Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_SB_4TH

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	134	5.01E-04	9	7.11%	831	5.12E-03	17	7.39%	863	5.32E-03
2	0.42%	49	1.84E-04	10	4.39%	512	1.91E-03	18	8.18%	955	5.89E-03
3	0.41%	48	1.78E-04	11	4.66%	545	2.03E-03	19	5.69%	665	2.48E-03
4	0.26%	30	1.13E-04	12	5.89%	688	2.57E-03	20	4.28%	499	1.86E-03
5	0.50%	58	2.17E-04	13	6.15%	718	2.68E-03	21	3.25%	380	1.42E-03
6	0.91%	106	3.96E-04	14	6.04%	705	2.63E-03	22	3.30%	385	1.44E-03
7	3.79%	442	1.65E-03	15	7.01%	819	3.06E-03	23	2.46%	287	1.07E-03
8	7.77%	907	5.59E-03	16	7.14%	834	3.11E-03	24	1.86%	218	8.13E-04
								Total		11,679	

439 and 451 S. 4th Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - S. 4th Street
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2025

											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_SB_4TH	S. 4th Street Southbound	SB	2	662.8	0.41	13.3	44	1.3	Varied	11,679	8,825	94,995	2.640E-07	1.946E-07	2.6	1.21

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	30	20		
Emissions per Vehicle per Hour (g/hour)	1.25540	1.25540		
Emissions per Vehicle per Mile (g/VMT)	0.04185	0.06277		

Emisson Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_SB_4TH

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	134	6.43E-04	9	7.11%	831	5.97E-03	17	7.39%	863	6.20E-03
2	0.42%	49	2.36E-04	10	4.39%	512	2.45E-03	18	8.18%	955	6.86E-03
3	0.41%	48	2.28E-04	11	4.66%	545	2.61E-03	19	5.69%	665	3.18E-03
4	0.26%	30	1.45E-04	12	5.89%	688	3.29E-03	20	4.28%	499	2.39E-03
5	0.50%	58	2.78E-04	13	6.15%	718	3.44E-03	21	3.25%	380	1.82E-03
6	0.91%	106	5.07E-04	14	6.04%	705	3.38E-03	22	3.30%	385	1.84E-03
7	3.79%	442	2.12E-03	15	7.01%	819	3.92E-03	23	2.46%	287	1.38E-03
8	7.77%	907	6.51E-03	16	7.14%	834	3.99E-03	24	1.86%	218	1.04E-03
								Total		11,679	

439 and 451 S. 4th Street, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - S. 4th Street
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2025

											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_SB_4TH	S. 4th Street Southbound	SB	2	662.8	0.41	13.3	44	1.3	Varied	11,679	8,825	94,995	2.128E-07	1.569E-07	2.6	1.21

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	30	20		
Tire Wear - Emissions per Vehicle (g/VMT)	0.00211	0.00211		
Brake Wear - Emissions per Vehicle (g/VMT)	0.01680	0.01680		
Road Dust - Emissions per Vehicle (g/VMT)	0.01483	0.01483		
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.03374	0.03374		

Emisson Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_SB_4TH

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	134	5.18E-04	9	7.11%	831	3.21E-03	17	7.39%	863	3.33E-03
2	0.42%	49	1.90E-04	10	4.39%	512	1.98E-03	18	8.18%	955	3.69E-03
3	0.41%	48	1.84E-04	11	4.66%	545	2.10E-03	19	5.69%	665	2.57E-03
4	0.26%	30	1.17E-04	12	5.89%	688	2.65E-03	20	4.28%	499	1.93E-03
5	0.50%	58	2.24E-04	13	6.15%	718	2.77E-03	21	3.25%	380	1.47E-03
6	0.91%	106	4.09E-04	14	6.04%	705	2.72E-03	22	3.30%	385	1.49E-03
7	3.79%	442	1.71E-03	15	7.01%	819	3.16E-03	23	2.46%	287	1.11E-03
8	7.77%	907	3.50E-03	16	7.14%	834	3.22E-03	24	1.86%	218	8.40E-04
								Total		11,679	

439 and 451 S. 4th Street, San Jose, CA - S. 4th Street Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
On-Site 1st & 2nd Levels of Residential Receptors
- At 15.2m (5th Fl) and 18.3m (6th Fl) receptor heights

Emission Year	2025
Receptor Information	Maximum On-Site Receptor
Number of Receptors	79
Receptor Height	1st & 2nd Level of Residential Receptors
Receptor Distances	5 meter grid spacing

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	0.0189	0.0231	1st Level of Res Receps
2013-2017	0.0001	0.0131	0.0160	2nd Level of Res Receps

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	0.0165	0.0155	0.0009	1st Level of Res Receps
2013-2017	0.0113	0.0106	0.0007	2nd Level of Res Receps

439 and 451 S. 4th Street, San Jose, CA - S. 4th Street Cancer Risk & PM2.5
Impacts at On-Site 1st Level of Residential Receptors - 15.2 m (5th Fl) receptor heights
30 Year Residential Exposure

Cancer Risk Calculation Method

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

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

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	0.25	-0.25 - 0*	2026	10	0.0002	0.0189	0.0231	0.003	0.001	0.0001	0.00
1	1	0 - 1	2026	10	0.0002	0.0189	0.0231	0.036	0.018	0.0013	0.06
2	1	1 - 2	2027	10	0.0002	0.0189	0.0231	0.036	0.018	0.0013	0.06
3	1	2 - 3	2028	3	0.0002	0.0189	0.0231	0.006	0.003	0.0002	0.01
4	1	3 - 4	2029	3	0.0002	0.0189	0.0231	0.006	0.003	0.0002	0.01
5	1	4 - 5	2030	3	0.0002	0.0189	0.0231	0.006	0.003	0.0002	0.01
6	1	5 - 6	2031	3	0.0002	0.0189	0.0231	0.006	0.003	0.0002	0.01
7	1	6 - 7	2032	3	0.0002	0.0189	0.0231	0.006	0.003	0.0002	0.01
8	1	7 - 8	2033	3	0.0002	0.0189	0.0231	0.006	0.003	0.0002	0.01
9	1	8 - 9	2034	3	0.0002	0.0189	0.0231	0.006	0.003	0.0002	0.01
10	1	9 - 10	2035	3	0.0002	0.0189	0.0231	0.006	0.003	0.0002	0.01
11	1	10 - 11	2036	3	0.0002	0.0189	0.0231	0.006	0.003	0.0002	0.01
12	1	11 - 12	2037	3	0.0002	0.0189	0.0231	0.006	0.003	0.0002	0.01
13	1	12 - 13	2038	3	0.0002	0.0189	0.0231	0.006	0.003	0.0002	0.01
14	1	13 - 14	2039	3	0.0002	0.0189	0.0231	0.006	0.003	0.0002	0.01
15	1	14 - 15	2040	3	0.0002	0.0189	0.0231	0.006	0.003	0.0002	0.01
16	1	15 - 16	2041	3	0.0002	0.0189	0.0231	0.006	0.003	0.0002	0.01
17	1	16-17	2042	1	0.0002	0.0189	0.0231	0.001	0.000	0.0000	0.00
18	1	17-18	2043	1	0.0002	0.0189	0.0231	0.001	0.000	0.0000	0.00
19	1	18-19	2044	1	0.0002	0.0189	0.0231	0.001	0.000	0.0000	0.00
20	1	19-20	2045	1	0.0002	0.0189	0.0231	0.001	0.000	0.0000	0.00
21	1	20-21	2046	1	0.0002	0.0189	0.0231	0.001	0.000	0.0000	0.00
22	1	21-22	2047	1	0.0002	0.0189	0.0231	0.001	0.000	0.0000	0.00
23	1	22-23	2048	1	0.0002	0.0189	0.0231	0.001	0.000	0.0000	0.00
24	1	23-24	2049	1	0.0002	0.0189	0.0231	0.001	0.000	0.0000	0.00
25	1	24-25	2050	1	0.0002	0.0189	0.0231	0.001	0.000	0.0000	0.00
26	1	25-26	2051	1	0.0002	0.0189	0.0231	0.001	0.000	0.0000	0.00
27	1	26-27	2052	1	0.0002	0.0189	0.0231	0.001	0.000	0.0000	0.00
28	1	27-28	2053	1	0.0002	0.0189	0.0231	0.001	0.000	0.0000	0.00
29	1	28-29	2054	1	0.0002	0.0189	0.0231	0.001	0.000	0.0000	0.00
30	1	29-30	2055	1	0.0002	0.0189	0.0231	0.001	0.000	0.0000	0.00
Total Increased Cancer Risk								0.16	0.080	0.006	**0.25**

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.00004	0.02	0.02

* Third trimester of pregnancy

439 and 451 S. 4th Street, San Jose, CA - S. 4th Street Cancer Risk & PM2.5
Impacts at On-Site 2nd Level of Residential Receptors - 18.3 m (6th Fl) receptor heights
30 Year Residential Exposure

Cancer Risk Calculation Method

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

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

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	TOTAL
0	0.25	-0.25 - 0*	2026	10	0.0001	0.0131	0.0160	0.002	0.001	0.0001	0.00
1	1	0 - 1	2026	10	0.0001	0.0131	0.0160	0.023	0.012	0.0009	0.04
2	1	1 - 2	2027	10	0.0001	0.0131	0.0160	0.023	0.012	0.0009	0.04
3	1	2 - 3	2028	3	0.0001	0.0131	0.0160	0.004	0.002	0.0001	0.01
4	1	3 - 4	2029	3	0.0001	0.0131	0.0160	0.004	0.002	0.0001	0.01
5	1	4 - 5	2030	3	0.0001	0.0131	0.0160	0.004	0.002	0.0001	0.01
6	1	5 - 6	2031	3	0.0001	0.0131	0.0160	0.004	0.002	0.0001	0.01
7	1	6 - 7	2032	3	0.0001	0.0131	0.0160	0.004	0.002	0.0001	0.01
8	1	7 - 8	2033	3	0.0001	0.0131	0.0160	0.004	0.002	0.0001	0.01
9	1	8 - 9	2034	3	0.0001	0.0131	0.0160	0.004	0.002	0.0001	0.01
10	1	9 - 10	2035	3	0.0001	0.0131	0.0160	0.004	0.002	0.0001	0.01
11	1	10 - 11	2036	3	0.0001	0.0131	0.0160	0.004	0.002	0.0001	0.01
12	1	11 - 12	2037	3	0.0001	0.0131	0.0160	0.004	0.002	0.0001	0.01
13	1	12 - 13	2038	3	0.0001	0.0131	0.0160	0.004	0.002	0.0001	0.01
14	1	13 - 14	2039	3	0.0001	0.0131	0.0160	0.004	0.002	0.0001	0.01
15	1	14 - 15	2040	3	0.0001	0.0131	0.0160	0.004	0.002	0.0001	0.01
16	1	15 - 16	2041	3	0.0001	0.0131	0.0160	0.004	0.002	0.0001	0.01
17	1	16-17	2042	1	0.0001	0.0131	0.0160	0.000	0.000	0.0000	0.00
18	1	17-18	2043	1	0.0001	0.0131	0.0160	0.000	0.000	0.0000	0.00
19	1	18-19	2044	1	0.0001	0.0131	0.0160	0.000	0.000	0.0000	0.00
20	1	19-20	2045	1	0.0001	0.0131	0.0160	0.000	0.000	0.0000	0.00
21	1	20-21	2046	1	0.0001	0.0131	0.0160	0.000	0.000	0.0000	0.00
22	1	21-22	2047	1	0.0001	0.0131	0.0160	0.000	0.000	0.0000	0.00
23	1	22-23	2048	1	0.0001	0.0131	0.0160	0.000	0.000	0.0000	0.00
24	1	23-24	2049	1	0.0001	0.0131	0.0160	0.000	0.000	0.0000	0.00
25	1	24-25	2050	1	0.0001	0.0131	0.0160	0.000	0.000	0.0000	0.00
26	1	25-26	2051	1	0.0001	0.0131	0.0160	0.000	0.000	0.0000	0.00
27	1	26-27	2052	1	0.0001	0.0131	0.0160	0.000	0.000	0.0000	0.00
28	1	27-28	2053	1	0.0001	0.0131	0.0160	0.000	0.000	0.0000	0.00
29	1	28-29	2054	1	0.0001	0.0131	0.0160	0.000	0.000	0.0000	0.00
30	1	29-30	2055	1	0.0001	0.0131	0.0160	0.000	0.000	0.0000	0.00
Total Increased Cancer Risk								0.10	0.056	0.004	**0.16**

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.00003	0.011	0.011

* Third trimester of pregnancy

Bay Area Air Quality Management District

Risk & Hazard Stationary Source Inquiry Form

This form is required when users request stationary source data from BAAQMD

This form is to be used with the BAAQMD's Google Earth stationary source screening tables.

Click here for guidance on coducting risk & hazard screening, including roadways & freeways, refer to the District's Risk & Hazard Analysis flow chart.

Click here for District's Recommended Methods for Screening and Modeling Local Risks and Hazards document.

Table A: Requester Contact Information

Date of Request	**2/8/2022**
Contact Name	Casey Divine
Affiliation	Illingworth & Rodkin, Inc.
Phone	707-794-0400 x103
Email	cdivine@illingworthrodkin.com
Project Name	439 & 451 S 4th Street
Address	439 & 451 S 4th Street
City	San Jose
County	Santa Clara
Type (residential, commercial, mixed use, industrial, etc.)	Residential
Project Size (# of units or building square feet)	210 du

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[illegible] 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 MEI

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
1000	22239	G&K Management	201 So 4th Street	1.06	--	--		Generators		2018 Dataset	0.04	0.04	#VALUE!	#VALUE!
135	111979	Super Gas & Mart	498 S 4th St	2.37	0.01	--		Gas Dispensing Facility		2018 Dataset	0.36	0.86	0.004	#VALUE!
505	9339-17	San Jose State University	One Washington Square	11.62	0.02	0.01		Generators		2018 Dataset	0.12	1.39	0.002	0.001
950	9339-22	San Jose State University	One Washington Square	0.29	--	--		Generators		2018 Dataset	0.04	0.01	#VALUE!	#VALUE!
810	9339-27	San Jose State University	One Washington Square	6.21	0.02	0.01		Generators		2018 Dataset	0.06	0.37	0.001	0.001
505	9339-8	San Jose State University	One Washington Square	0.02	--	--		Generators		2018 Dataset	0.12	0.002	#VALUE!	#VALUE!

Footnotes:

1. Maximally exposed individual
2. These Cancer Risk, Hazard Index, and PM2.5 columns represent the values in the Google Earth Plant Information Table.
3. Each plant may have multiple permits and sources.
4. Permitted sources include diesel back-up generators, gas stations, dry cleaners, boilers, printers, auto spray booths, etc.
5. Fuel codes: 98 = diesel, 189 = Natural Gas.
6. If a Health Risk Screening Assessment (HRSA) was completed for the source, the application number will be listed here.
7. The date that the HRSA was completed.
8. Engineer who completed the HRSA. For District purposes only.
9. All HRSA completed before 1/5/2010 need to be multiplied by an age sensitivity factor of 1.7.
10. The HRSA "Chronic Health" number represents the Hazard Index.
11. Further information about common sources:
    a. Sources that only include diesel internal combustion engines can be adjusted using the BAAQMD's Diesel Multiplier worksheet.
    b. The risk from natural gas boilers used for space heating when <25 MM BTU/hr would have an estimated cancer risk of one in a million or less, and a chronic hazard index of 0.003 or
    c. BAAQMD Reg 11 Rule 16 required that all co-residential (sharing a wall, floor, ceiling or is in the same building as a residential unit) dry cleaners cease use of perc on July 1, 2010.
    Therefore, there is no cancer risk, hazard or PM2.5 concentrations from co-residential dry cleaning businesses in the BAAQMD.
    d. Non co-residential dry cleaners must phase out use of perc by Jan. 1, 2023. Therefore, the risk from these dry cleaners does not need to be factored in over a 70-year period, but instead should reflect
    e. Gas stations can be adjusted using BAAQMD's Gas Station Distance Mulitplier worksheet.
    f. Unless otherwise noted, exempt sources are considered insignificant. See BAAQMD Reg 2 Rule 1 for a list of exempt sources.
    g. This spray booth is considered to be insignificant.

Date last updated:
03/13/2018

Project Site

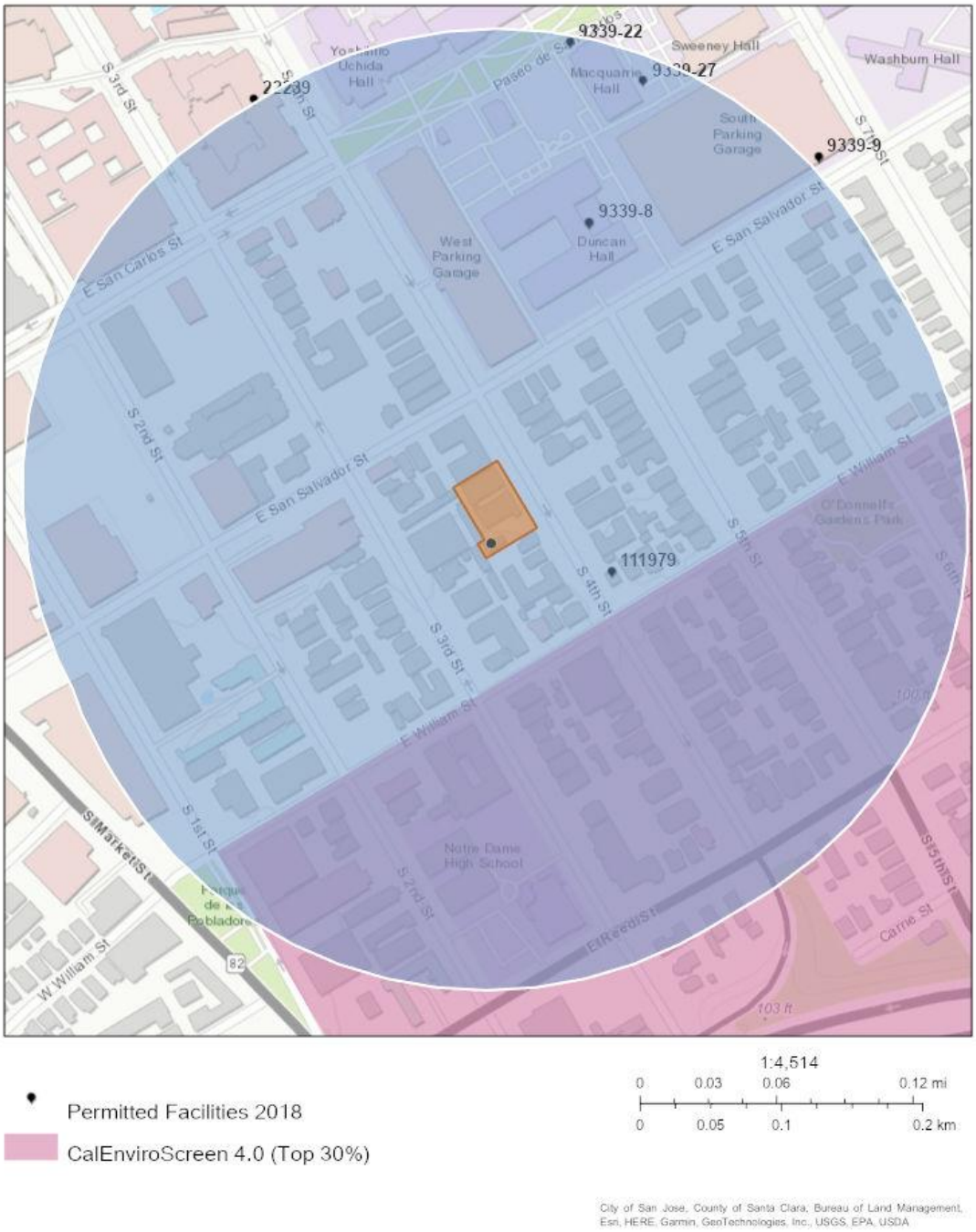
Distance from Receptor (feet) or MEI[1]	FACID (Plant No.)	Distance Adjustment Multiplier	Adjusted Cancer Risk Estimate	Adjusted Hazard Risk	Adjusted PM2.5
840	22239	0.05	0.05	#VALUE!	#VALUE!
155	111979	0.31	0.72	0.003	#VALUE!
360	9339-17	0.18	2.09	0.004	0.002
785	9339-22	0.06	0.02	#VALUE!	#VALUE!
660	9339-27	0.08	0.50	0.002	0.001
360	9339-8	0.18	0.004	#VALUE!	#VALUE!

Stationary Source Risk & Hazards Screening Report

Area of Interest (AOI) Information

Area : 3,777,405.11 ft²

Feb 8 2022 9:14:51 Pacific Standard Time



Summary

Name	Count	Area(ft²)	Length(ft)
Permitted Facilities 2018	6	N/A	N/A

Permitted Facilities 2018

#	FACID	Name	Address	City	St
1	22239	G&K Management	201 So 4th Street	San Jose	CA
2	111979	Super Gas & Mart	498 S 4th St	San Jose	CA
3	9339-17	San Jose State University	One Washington Square	San Jose	CA
4	9339-22	San Jose State University	One Washington Square	San Jose	CA
5	9339-27	San Jose State University	One Washington Square	San Jose	CA
6	9339-8	San Jose State University	One Washington Square	San Jose	CA

#	Zip	County	Cancer	Hazard	PM_25	Type	Count
1	95112	Santa Clara	1.060	0.000	0.000	Generators	1
2	95112	Santa Clara	2.370	0.010	0.000	Gas Dispensing Facility	1
3	95192	Santa Clara	11.620	0.020	0.010	Generators	1
4	95192	Santa Clara	0.290	0.000	0.000	Generators	1
5	95192	Santa Clara	6.210	0.020	0.010	Generators	1
6	95192	Santa Clara	0.020	0.000	0.000	Generators	1

Note: The estimated risk and hazard impacts from these sources would be expected to be substantially lower when site specific Health Risk Screening Assessments are conducted.

The screening level map is not recommended for evaluating sensitive land uses such as schools, senior centers, day cares, and health facilities.

© Copyright 2018 Bay Area Air Quality Management District

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality

429 East Cotati Avenue
Cotati, CA 94931

Tel: 707-794-0400 *Fax: 707-794-0405*
www.illingworthrodkin.com *illro@illingworthrodkin.com*

M E M O

Date: September 23, 2021

To: Shannon George
Vice President & Principal Project Manager
David J. Powers & Associates, Inc.
1871 The Alameda, Suite 200
San José, CA 95126

From: James A. Reyff
Illingworth & Rodkin, Inc.
429 East Cotati Avenue
Cotati, CA 94931

SUBJECT: Icon-Echo Mixed-Use Towers Air Quality Cumulative Memo
I&R Job# 20-009

The City of San José currently has and is planning for the construction of many development projects in the downtown area. Due to the high number of construction activities from development projects, the City requested that air quality assessments for these projects include the construction community risk impacts from these nearby developments in the cumulative analysis.

The inclusion of construction community risk impacts in the cumulative analysis is problematic because not all nearby developments have had CEQA studies conducted, nor have these projects been scheduled for construction in a timely manner that the cumulative analysis could properly include their effects. Construction projects can have elevated effects but usually only temporarily (e.g., for one year or so). Refined information is not usually available for these construction assessments so cumulative analyses have to assume projects meet the health risk single-source significance thresholds. With these assumptions, it only takes the inclusion of two to three projects to reveal exceedances of the annual $PM_{2.5}$ concentration cumulative threshold. There are often more than three approved projects in downtown San José that could be constructed around the same time as a proposed project. Therefore, downtown San José has become an environment where the existing health risk impacts could exceed the cumulative significance thresholds on their own without a proposed project.

The Bay Area Air Quality Management District (BAAQMD) CEQA Guidelines state that, "A Lead Agency shall examine TAC and/or $PM_{2.5}$ sources that are located within 1,000 feet of a proposed project site. Sources of TACs include, but are not limited to, land uses such as freeways and high-volume roadways, truck distribution centers, ports, rail yards, refineries, chrome plating

facilities, dry cleaners using perchloroethylene, and gasoline dispensing facilities." While the Guidelines do not exclude construction impacts from nearby developments as a cumulative source, *Illingworth & Rodkin, Inc.* (I&R) has typically not included this as a cumulative source due to its adjustable and temporary variables. The construction activities of a project can change from what was analyzed in a report and most substantial emissions from construction would only last a few years or less.

Alternatively, I&R reached out to BAAQMD[1] to get direction on how to address the cumulative impact threshold when a project's maximally exposure individual (MEI) is at receptors that has existing exposure levels already exceeding cumulative thresholds. This would mean that no matter what mitigation was applied to the project, the resulting cumulative level would be above the threshold. I&R's approach has been (1) apply mitigation to the project to minimize project impacts to below the single-source threshold and (2) explain that the cumulative sources alone exceed the cumulative threshold, and the project, using best available mitigation measures, would only contribute a small percentage to the total cumulative risk impact, and therefore the project's impact is not cumulatively considerable. BAAMQD response concurred with this approach and that the impact would not be considered significant after mitigation is applied.

It should be noted that BAAQMD is considering new cancer risk thresholds for overburdened communities.[2] The District recently held a workshop to encourage public comment. These would include a lower cancer risk threshold of 6 chances per million at an MEI. Overburdened communities are proposed to be defined as an area located (1) within a census tract identified by the California Communities Environmental Health Screening Tool (CalEnviroScreen), Version 4.0 implemented by OEHHA, as having an overall CalEnviroScreen score at or above the 70th percentile, or (2) within 1,000 feet of any such census tract. The City, as a lead agency, could consider areas with cumulative cancer risk greater than 100 per million or annual $PM_{2.5}$ concentrations greater than 0.8 micrograms per cubic meter to also be overburdened. The District's proposal is only that and is currently going through the public workshop process. The risk of 6 chances per million as at this stage and idea and not adopted. We are aware of one other community that has a similar approach, which is San Francisco. In overburdened areas of that City (considered Air Pollution Exposure Zones), they use a cancer risk threshold of 7 chances per million.

[1] Correspondence with Areana Flores, MSc, Environmental Planner, BAAQMD, February 23, 2021.
[2] See BAAQMD Proposed Regulation 2: Permits - 2021 Amendments to Rules 2-1 and 2-5 (Under Development) https://www.baaqmd.gov/rules-and-compliance/rules/reg-2-permits?rule_version=2021%20Amendments