THE MARK AIR QUALITY AND GREENHOUSE GAS EMISSION ASSESSMENT

San José, California

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Introduction

The purpose of this report is to address air quality, community health risk, and greenhouse gas (GHG) impacts associated with the proposed residential development located at 459-485 South 4th Street in San José, California. The air quality impacts from this project would be associated with demolition of the existing land uses, construction of the new buildings and infrastructure, and operation of the project. Air pollutants and GHG emissions associated with construction and operation of the project were predicted using models. In addition, the potential project health risk impacts (includes construction and operation) and the impact of existing toxic air contaminant (TAC) sources affecting the nearby and proposed sensitive receptors were evaluated. The analysis was conducted following guidance provided by the Bay Area Air Quality Management District (BAAQMD).[1]

Project Description

The approximately 0.45-acre site is comprised of two parcels located at 459-485 South 4th Street in the downtown San José. The project site is developed with two apartment buildings and a single-family residence. Vehicular access to the project site is currently provided via two access driveways along South 4th Street. As proposed, the project would demolish all three residences and construct a 23-story tower with up to 240 dwelling units and a maximum height of approximately 274 feet. Amenity space for residents is proposed on the third floor, which would include fitness space, and a common study area. The project proposes a roof deck and roof lounge on the roof. The project would include up to 95 parking spaces in triple-high puzzle stackers which would be located on the ground floor.

The intent of the building is to provide student housing for San José State University (SJSU). The 240 dwelling units would have a total of 750 beds. By law, there cannot, however, be restrictions on who may occupy the building. As such, the building may be rented by unit or by bed.

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.

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

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

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.[2]

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

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

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

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

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

The BAAQMD California Environmental Quality Act (*CEQA) Air Quality Guidelines*[4] 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 possibly new natural gas-fired boilers would establish new sources of particulate matter and gaseous emissions. Emissions would primarily result from the testing of the emergency backup generators, operation of the boilers for space and water heating and some minor emissions from cooling towers. The project would also generate emissions from vehicles traveling to and from the project.

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
- Regulation 6 – Particulate Matter and Visible Emissions
- Regulation 9 – Inorganic Gaseous Pollutants

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

Rule 9-1: Sulfur Dioxide
Rule 9-7: Nitrogen Oxides and Carbon Monoxide from Industrial, Institutional, and Commercial Boilers, Steam Generators, And Process Heaters
Rule 9-8: Nitrogen Oxides and Carbon Monoxide from Stationary Internal Combustion Engines

Permits

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

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

Rule 2-1 lists sources that are exempt from permitting. At the proposed facility, the diesel fuel storage tanks are expected to be 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.

BACT for Diesel Generator Engines

Since the generators will be used exclusively for emergency use during involuntary loss of power, the BACT 2 levels listed for IC compression engines in the BAAQMD BACT Guidelines would apply. The BACT 2 NOx emission factor limit is 6.9 grams per horsepower hour (g/hp-hr). The project's proposed engines will have emissions lower than the BACT 2 level and, as such, will comply with the BACT requirements.

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 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.

Stationary Diesel Airborne Toxic Control Measure

The BAAQMD administers the state's Airborne Toxic Control Measure (ACTM) for Stationary Diesel engines (section 93115, title 17 CA Code of Regulations). The project's stationary sources will be new stationary emergency standby diesel engines larger than 50 hp. Since the engines will have an uncontrolled PM emission factor of less than 0.15 g/hp-hour and operate no more than 50 hours per year, the engines will comply with the requirements of the ACTM.

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

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

Applicable Goals – Air Pollutant Emission Reduction

Goal MS-10 Minimize emissions from new development.

Applicable Policies – Air Pollutant Emission Reduction

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

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

MS-10.3 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.

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. ***The proposed project exceeds these screening thresholds, and therefore, an analysis of construction emissions was conducted.***

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.

Sensitive Receptors

There are groups of people more affected by air pollution than others. CARB has identified the following persons who are most likely to be affected by air pollution: children under 16, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, and elementary schools. The closest sensitive receptors to the project site are residences adjacent to the project site (north and south) and across South 4th Street to the east. There are more sensitive receptors at farther distances. This project would introduce new sensitive receptors (i.e. adult students) to the area.

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. Note that the DTS Plan Draft Environmental Impact Report (DEIR) evaluated emissions of criteria air pollutants (and their precursors) and GHGs from planned development that includes the Proposed Project. Operational emissions from the Proposed Project are predicted in this assessment for informational purposes only.

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	>10.0 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	
Greenhouse Gas Emissions			
Land Use Projects – direct and indirect GHG emissions	*Evaluated in DTS Strategy DEIR*		

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

AIR QUALITY IMPACTS AND MITIGATION MEASURES

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

The Bay Area is considered a non-attainment area for ground-level 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 2016.3.2 was used to estimate emissions from construction and operation of the site assuming full build-out of the project. The project land use types and size, and anticipated construction schedule were input to CalEEMod. Traffic generated by construction (i.e. off-site construction activities), which included worker trips, vendor deliveries and material hauling trip were computed separately using the CARB EMission FACtors 2017 model (EMFAC2017). [5] The model output from CalEEMod along with construction inputs are included as *Attachment 2*. EMFAC2017 calculations and outputs are included as *Attachment 3*.

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	240	Dwelling Units	327,412	0.45
Enclosed Parking with Elevator	95	Parking Spaces	28,476	

Construction Inputs

CalEEMod computes annual emissions for construction that are based on the project type, size and acreage. The model provides emission estimates for both on-site and off-site construction activities. On-site activities are primarily made up of construction equipment emissions, while off-site activity includes worker, hauling, and vendor traffic. The construction build-out scenario, including equipment list and schedule, were based on information provided by the project applicant.

[5] See CARB's EMFAC2017 Web Database at https://www.arb.ca.gov/emfac/2017/

The construction schedule assumed that the earliest possible start date would be June 2021 and the project would be built out over a period of approximately 24 months, or 519 construction workdays. The provided construction equipment worksheet included the schedule for each phase. 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.

Construction Traffic Emissions

The latest version of the CalEEMod model is based on the older version of the CARB EMFAC 2014 motor vehicle emission factor model. This model has been superseded by the EMFAC2017 model; however, CalEEMod has not been updated to include EMFAC2017. 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 rate by the number of days in that phase. Haul trips for demolition were estimated from the provided hauling volumes. The traffic information was combined with EMFAC2017 motor vehicle emissions factors.

EMFAC2017 provides aggregate emission rates in grams per mile for each vehicle type. The vehicle mix for this study was based on CalEEMod default assumptions, where worker trips are assumed to be comprised of light-duty autos (EMFAC category LDA) and light duty trucks (EMFAC category LDT1and LDT2). Vendor trips are comprised of delivery and large trucks (EMFAC category MHDT and HHDT) and haul trucks, 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 (7.3 miles). Each trip was assumed to include an idle time of 5 minutes. Emissions associated with vehicle starts were also included. On road emissions in Santa Clara County for 2021, 2022, and 2023 were used in these calculations. Table 3 provides the traffic inputs that were combined with the EMFAC2017 emission database to compute vehicle emissions.

Table 3. Construction Traffic Data Used for EMFAC2017 Model Runs

CalEEMod Run/Land Uses and Construction Phase	Trips by Trip Type			Notes
	Daily Worker Rate[1]	Daily Vendor Rate[1]	Total Haul Rate	
Vehicle mix[1]	72% LDA 6% LDT1 22% LDT2	38% MHDT 62% HHDT	100% HDDT	
Trip Length (miles)	10.8	7.3	20.0 Demo 7.3 Concrete/Asphalt	Truck Idle Time = 5 minutes
Demolition/Site Preparation	396	-	11	8,900 sf of building demolished and 65 tons of pavement hauled. CalEEMod worker trips
Shoring/Grading/Excavation	1,820	-	1,563	CalEEMod Default
Below Slab Utilities	100	-	-	Export = 12,500 cy
Foundation/Structure	45,408	7,392	-	CalEEMod Default
Building - Exterior	25,800	4,200	4,400	2,200 total cement truck round trips. CalEEMod worker and vendor trips
Building - Interior/Architectural Coating	10,030	-	-	CalEEMod Default

Notes:
[1] Based on 2021, 2022, and 2023 EMFAC2017 VMT-based fleet mix for Santa Clara County.
Square feet = sf, Cubic yards = cy

Summary of Computed Construction Period Emissions

Average daily emissions were annualized for each year of construction by dividing the annual construction emissions and dividing those 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. Additionally, the DTS control measures requires to implement best management practices to control dust and exhaust during construction. Therefore, air pollutant emissions from the project would be further reduced.

Table 4. Construction Period Emissions

Year	ROG	NOx	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
Construction Emissions Per Year (Tons)				
2021	0.11	1.09	0.06	0.05
2022	1.81	3.42	0.18	0.16
2023	1.01	0.98	0.05	0.04
Average Daily Construction Emissions Per Year (pounds/day)				
2021 (145 construction workdays)	1.58	15.02	0.85	0.66
2022 (260 construction workdays)	13.92	26.32	1.40	1.21
2023 (114 construction workdays)	17.77	17.23	0.91	0.74
BAAQMD Thresholds (pounds per day)	*54* lbs./day	*54* lbs./day	*82* lbs./day	*54* lbs./day
Exceed Threshold?	No	No	No	No

Operational Period Emissions

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

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. This analysis assumed that the project would be fully built out and operating in the year 2024.

EMFAC2017 Adjustment

The vehicle emission factors and fleet mix used in CalEEMod are based on EMission FACtors from 2014 (EMFAC2014), which is an older CARB emission inventory for on road and off road mobile sources. Since the release of CalEEMod Version 2016.3.2, new emission factors have been produced by CARB. EMFAC2017 became available for use in March 2018 and approved by the EPA in August 2019. It includes the latest data on California's car and truck fleets and travel activity. Additionally, CARB has recently released EMFAC off-model adjustment factors to account for the Safer Affordable Efficient (SAFE) Vehicle Rule Part one.[6,7] The SAFE vehicle Rule Part One revoked California's authority to set its own GHG emission standards and set zero emission vehicle mandates in California. As a result of this ruling, mobile criteria pollutant and GHG emissions would increase. Therefore, the CalEEMod vehicle emission factors and fleet mix were updated with the emission rates and fleet mix from EMFAC2017, which were adjusted with the CARB EMFAC off-model adjustment factors. More details about the updates in emissions calculation methodologies and data are available in the EMFAC2017 Technical Support Document.[8]

Operational Trip Generation Rates

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. The project would produce 735 daily trips after a *Location Based Reduction* and a *Vehicle Miles*

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

[7] California Air Resource Board, 2020. *EMFAC Off-Model Adjustment Factors for Carbon Dioxide (CO_20 Emissions to Accounts for the SAFE Vehicles Rule Part One and the Final SAFE Rule*. June. Web: https://ww3.arb.ca.gov/msei/emfac_off_model_co2_adjustment_factors_06262020-final.pdf?utm_medium=email&utm_source=govdelivery

[8] See CARB 2018: https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-modeling-tools-emfac

Reduction.[9] The daily trip generation was calculated using the size of the project (i.e. dwelling units traffic trip generation rate table) and the adjusted total automobile trips. The adjusted daily trip rate would be 3.06 daily weekday trips per dwelling unit. 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 adjusted Saturday trip rate would be 3.63 trips per dwelling unit and the Sunday trip rate would be 2.66 trips per dwelling unit. The default trip lengths and trip types specified by CalEEMod were used.

Climate Smart San José

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

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

The California Energy Commission (CEC) updates the California Building Energy Efficiency Standards every three years, in alignment with the California Code of regulations. Title 24 Parts 6 and 11 of the California Building Energy Efficiency Standards and the California Green Building Standards Code (CALGreen) address the need for regulations to improve energy efficiency and combat climate change. The 2019 CAL Green standards include substantial changes intended to increase the energy efficiency of buildings. For example, the code encourages the installation of solar and heat pump water heaters in low-rise residential buildings. The 2019 California Code went before City Council in October 2019 for approval, with an effective date of January 1, 2020. As part of this action, the City adopted a "reach code" that requires development projects to exceed the minimum Building Energy Efficiency requirements.[10] The City's reach code applies only to new residential and non-residential construction in San José. It incentivizes all-electric construction, requires increased energy efficiency and electrification-readiness for those choosing to maintain the presence of natural gas. The code requires that non-residential construction include solar readiness. It also requires additional EV charging readiness and/or electric vehicle service equipment (EVSE) installation for all development types.

[9] Hexagon Transportation Consultants, Inc., 2020. *The Mark Traffic Volumes*. November
[10] City of San José Transportation and Environmental Committee, *Building Reach Code for New Construction Memorandum,* August 2019.

Energy – Electricity and Natural Gas

CalEEMod defaults for energy use were used, which include the 2016 Title 24 Building Standards. GHG emissions modeling includes those indirect emissions from electricity consumption. The electricity produced emission rate was modified in CalEEMod. CalEEMod has a default emission factor of 641.3 pounds of CO_2 per megawatt of electricity produced, which is based on PG&E's 2008 emissions rate. PG&E published in 2019 emissions rates for 2010 through 2017, which showed the emission rate for delivered electricity had been reduced to 210 pounds CO2 per megawatt of electricity delivered in the year 2017.[11] This intensity factor was used in the model along with the assumption that the project would use electricity supplied by San José Clean Energy (SJCE). SJCE would provide electricity that would be 100-percent carbon free by 2021 before the project becomes operational.[12] Electricity was assumed to be 100-percent carbon free in the model since this project would be operational post-2021.

Additionally, the City of San José passed an ordinance in October 2019 that prohibits the use of natural gas infrastructure in new residential buildings (e.g. single-family homes and multi-family buildings).[13] This ordinance applies to any new construction starting January 1, 2020. It was assumed in the model then that the residential portion of the project would not use any natural gas.

Project Generators and Fire Pump

The project would include one 1,000 kilowatts (kW) emergency diesel generator and a fire pump with a 150 horsepower (HP) diesel engine. The generator would be powered by a diesel engine, approximately 1,341 HP. This generator would be tested periodically and power the buildings in the event of a power failure. For modeling purposes, it was assumed that the generator and the fire pump would be operated primarily for testing and maintenance purposes. CARB and BAAQMD requirements limit these engine operations to 50 hours each per year of non-emergency operation. During testing periods, the engine would typically be run for less than one hour. The engine would be required to meet CARB and EPA emission standards and consume commercially available California low-sulfur diesel fuel. The generator and fire pump emissions were modeled using CalEEMod.

Other Inputs

Default model assumptions for emissions associated with solid waste generation and water/wastewater use were applied to the project. Water/wastewater use was changed to 100% aerobic conditions to represent wastewater treatment plant conditions.

[11] PG&E, 2019. *Corporate Responsibility and Sustainability Report*. Web: http://www.pgecorp.com/corp_responsibility/reports/2019/assets/PGE_CRSR_2019.pdf

[12] Kerrie Romanow and Rosalynn Hughey, City of San José, 2019. *Building reach Code for New Construction Memorandum*. August. Web: https://sanjose.legistar.com/LegislationDetail.aspx?ID=4090015&GUID=278596A7-1A2B-4248-B794-7A34E2279E85

[13] City of San Jose, 2019. "Ordinance No. 30330", October. Web: https://records.sanjoseca.gov/Ordinances/ORD30330.pdf

Existing Uses

The existing land use consists of one single-family homes and two multi-family buildings. However, since the traffic consultants did not provide project-specific trip generation rates for the existing land uses, an existing land use model was not computed nor included in the analysis.

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 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}	$PM_{2.5}$
2024 Annual Project Operational Emissions (*tons/year*)	1.89	0.78	0.67	0.20
BAAQMD Thresholds (tons /year)	*10 tons*	*10 tons*	*15 tons*	*10 tons*
Exceed Threshold?	*No*	*No*	*No*	*No*
2024 Daily Project Operational Emissions (*pounds/day*)[1]	10.38	4.29	3.66	1.10
BAAQMD Thresholds (pounds/day)	*54* lbs.	*54* lbs.	*82* lbs.	*54* lbs.
Exceed Threshold?	*No*	*No*	*No*	*No*
Notes: [1]Assumes 365-day operation.				

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

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

Project construction activity would generate dust and equipment exhaust that would affect nearby sensitive receptors. The project would include the installation of emergency generators and a fire pump powered by diesel engines that would emit TACs and have air pollutant emissions. The project would also generate some traffic, consisting of mostly light-duty vehicles. However, the number of daily trips generated by the project are small and (i.e. 735 daily trips) are not considered a source of substantial TACs or $PM_{2.5}$.

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

Community Risk Methodology for Construction 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 is the combination of 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 assumed with the residential sensitive receptors being exposed to project construction and operation during this timeframe.

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

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

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 include all adjacent existing residences to the north, south, west, and east of the project site, as shown in Figure 1. Residential receptors are

assumed to include all receptor groups (i.e. infants, children, and adults) with almost continuous exposure to project emissions. Community risks were also computed for students attending Notre Dame High School, which is approximately 290 feet southwest of the project site.

Community Risks from Project Construction

Construction equipment and associated heavy-duty truck traffic generate diesel exhaust, which is a known TAC. Although it was concluded in the previous sections (see Table 4) that construction 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. Diesel exhaust poses both a potential health and nuisance impact to nearby receptors. The primary community risk impact issues associated with construction emissions are cancer risk and exposure to $PM_{2.5}$. 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 $PM_{2.5}$.[14] This assessment included dispersion modeling to predict the off-site concentrations resulting from project construction, so that lifetime cancer risks and non-cancer health effects could be evaluated.

Construction Emissions

The CalEEMod model 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 0.0.2290 tons (147 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 0.0028 tons (6 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 and high school) in the vicinity of the project construction area. The AERMOD dispersion model is a BAAQMD-recommended model for use in modeling analysis of these types of emission activities for CEQA projects.[15] Emission sources for the construction site were grouped into two categories: exhaust emissions of DPM and fugitive $PM_{2.5}$ dust emissions.

Combustion equipment exhaust emissions were modeled as a series of point sources with a nine-foot release height (construction equipment exhaust stack height) placed at 20 feet (6 meter) intervals throughout the construction site. This resulted in 49 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. Construction fugitive $PM_{2.5}$ dust emissions were modeled as an area source encompassing the entire construction site with a near ground level release height of 7 feet (2 meters).

[14] DPM is identified by California as a toxic air contaminant due to the potential to cause cancer.
[15] Bay Area Air Quality Management District (BAAQMD), 2012, *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0.* May.

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. Emissions from vehicle travel on- and off-site were distributed among the point sources throughout the site. Construction emissions were modeled as occurring daily between 7:00 a.m. to 5:00 p.m. Monday through Friday per the project applicant's construction schedule.

The modeling used a 5-year meteorological data set (2013-2017) from the San José Airport prepared for use with the AERMOD model by the BAAQMD. Annual DPM and $PM_{2.5}$ concentrations from construction activities during the 2021-2023 period were calculated using the model. DPM and $PM_{2.5}$ concentrations were calculated at nearby sensitive receptor locations. Receptor heights of 5 feet (1.5 meters) and 15 feet (4.5 meters) used to represent the breathing heights of residences in single-family homes and multi-family developments. A breathing height of 5 feet was also used to model the construction risks for high school students at Notre Dame High School.

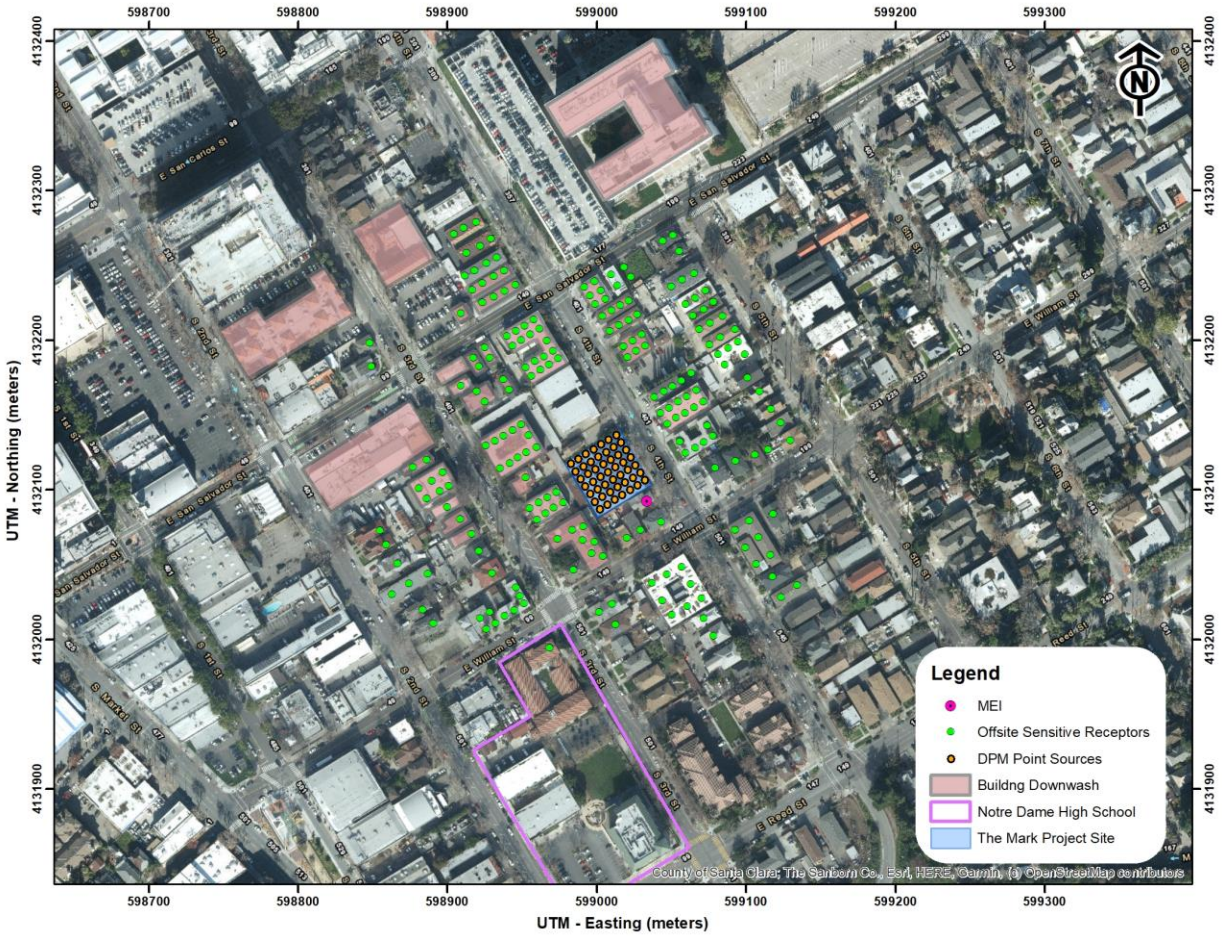
Summary of Construction Community Risk Impacts

The increased cancer risk calculations were based on applying the BAAQMD recommended age sensitivity factors to the TAC concentrations, as described in *Attachment 1*. Age-sensitivity factors reflect the greater sensitivity of infants and small children to cancer causing TACs. Infant and adult exposures were assumed to occur at all residences during the entire construction period. For the high school, students 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 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, which includes both the DPM and fugitive $PM_{2.5}$ concentrations, were identified at nearby sensitive receptors (as shown in Figure 1) to find the maximally exposed individuals (MEI). Table 6 lists the community risks from construction at the location of the residential MEI and at Notre Dame High School. *Attachment 4* to this report includes the emission calculations used for the construction modeling and the cancer risk calculations.

Figure 1. Project Construction Site, Locations of Modeled DPM Point Sources, Buildings Evaluated for Downwash Effects, and Maximum TAC Location



Community Risks from Project Operation – Traffic and Generators

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

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.[16] This project would generate 735 daily trips with a majority of the trips being from light-duty vehicles (i.e. passenger cars), which is less than 10,000 daily vehicles. BAAQMD considers roadways that have less than 10,000 average daily trips (ADT) to be low-impact sources of TACs and do not need to be considered in the CEQA analysis.[17] Therefore, emissions from project traffic would be negligible and not included within this analysis.

Project Emergency Diesel Generator and Fire Pump

As stated before, the project would include one 1,000 kW (approximately 1,341 HP) emergency diesel generator and a fire pump with a 150 HP diesel engine. The generator would be located on the rooftop of the building, while the diesel fire pump engine would be in the basement. Figure 2 shows the location of the modeled emergency generator.

This diesel engine would be subject to CARB's Stationary Diesel Airborne Toxics Control Measure (ATCM) and require permits from the BAAQMD, since it will be equipped with an engine larger than 50 hp. As part of the BAAQMD permit requirements for toxics screening analysis, the engine emissions will have to meet Best Available Control Technology for Toxics (TBACT) 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 obtain an estimate of potential cancer risks and $PM_{2.5}$ impacts from operation of the emergency generators the U.S. EPA AERMOD dispersion model was used to calculate the maximum annual DPM concentration at off-site sensitive receptor locations (nearby residences). The same receptors and breathing heights used in the construction dispersion modeling were used for the generator discern model. Additionally, the BAAQMD San José Airport meteorological data was used. Stack parameters (stack height, exhaust flow rate, and exhaust gas temperature) for modeling the generators were based on BAAQMD default parameters for emergency diesel generators since

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

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

project-specific information is not available.[18] Annual average DPM and $PM_{2.5}$ concentrations were modeled assuming that generator and fire pump 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 generator and fire pump at the MEI, the cancer risks exposure duration was adjusted to account for the residential MEI being exposed to construction for the first three years of the 30-year lifetime period. The exposure duration for the generators was adjusted for 27 years. One year of exposure was assumed for the students at Norte Dame High School since students would be exposed to construction during the first three years of their time at high school. Table 6 lists the community risks from emergency diesel generator and fire pump at the location of residential MEI and Notre Dame High School. The emissions and health risk calculations for the proposed generators are included in *Attachment 4*.

Figure 2. Location of Project Generators, Locations of Off-Site Sensitive Receptors and Maximum TAC Impacts

[18] Bay Area Air Quality Management District, San Francisco Department of Public Health, and San Francisco Planning Department, 2012. *The San Francisco Community Risk Reduction Plan: Technical Support Document*, BAAQMD, December. Web: https://www.gsweventcenter.com/Appeal_Response_References/2012_1201_BAAQMD.pdf

Summary of Project-Related Community Risks at the Offsite Project MEI

For this project, the sensitive receptor identified as the construction MEI is also the project MEI. At this location, the MEI would be exposed to three years of construction cancer risks and 27 years of operational (i.e. fire pump and emergency backup generator) cancer risks. The cancer risks from construction and operation of the project were summed together. The annual $PM_{2.5}$ concentration, and HI values are based on an annual maximum risk for the entirety of the project.

As shown in Table 6, the unmitigated maximum cancer risks and annual $PM_{2.5}$ concentration from construction and operation activities at the residential project MEI location would exceed the single-source significance thresholds. However, the mitigated risk and hazard values would not exceed the BAAQMD single-source significance thresholds. None of the unmitigated risks and hazards at Norte Dame High School would exceed the BAAQMD single-source significance thresholds.

Table 6. Construction and Operation Risk Impacts at the Offsite Project MEI and Norte Dame High School

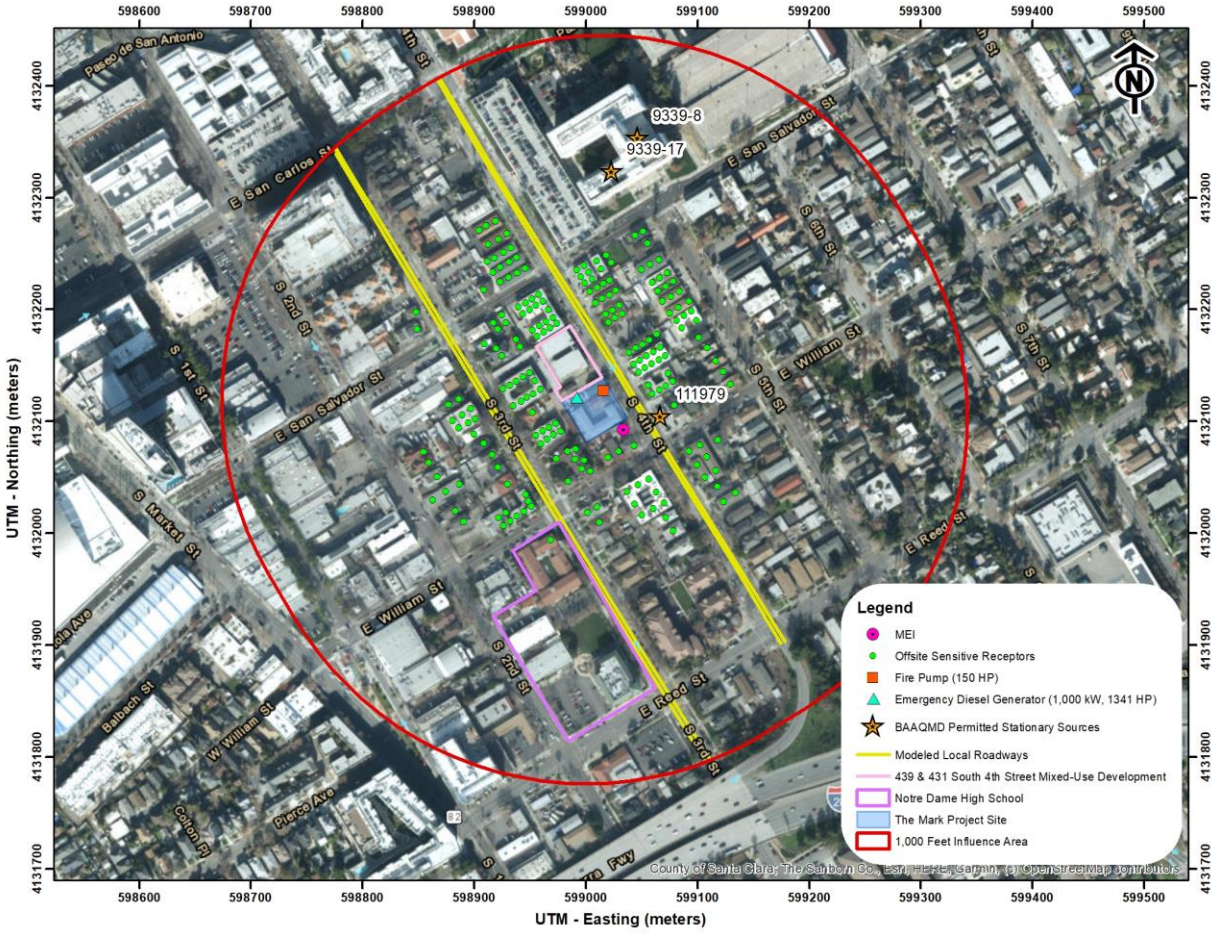
Source	Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Residential Sensitive Receptor			
Project Construction (Residential Exposure, (Years 0-3)			
Unmitigated	151.49 (infant)	0.82	0.16
Mitigated	9.21 (infant)	0.05	0.01
Project Generator and Fire Pump (Years 4-30)	0.24	<0.01	<0.01
Unmitigated Total/Maximum Project (Years 0-30)	**151.73**	**0.82**	0.16
Mitigated Total/Maximum Project (Years 0-30)	9.45	0.05	0.01
BAAQMD Single-Source Threshold	***>10.0***	***>0.3***	***>1.0***
Exceed Threshold (Residential Exposure)?			
Unmitigated	***Yes***	***Yes***	*No*
Mitigated	*No*	*No*	*No*
Norte Dame High School Student Receptor[1]			
Project Construction (Years 1-3)			
Unmitigated	1.23 (Student)	0.02	<0.01
Project Generator and Fire Pump (Years 4)	<0.01 (Student)	<0.01	<0.01
Unmitigated Total/Maximum Project (Years 1-4)	<1.24	0.02	<0.01
BAAQMD Single-Source Threshold	***>10.0***	***>0.3***	***>1.0***
Exceed Threshold (Student Exposure)?	*No*	*No*	*No*

Notes: [1]Listed for informational purposes

Cumulative Community Risks of all TAC Sources at the Offsite Project MEI

Community health risk assessments typically look at all substantial sources of TACs that can affect sensitive receptors that are located within 1,000 feet of a project site (i.e. influence area). These sources include freeways or highways, busy surface streets, and stationary sources identified by BAAQMD. A review of the project area indicates that traffic on South 4th Street and South 3rd 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 three stationary sources with the potential to affect the project MEI. In addition, there is one development projects whose construction would contribute to the cumulative risk. The risk impacts from this development is included within the analysis. Figure 3 shows the location of the sources affecting the MEI. Community risk impacts from these sources upon the MEI reported in Table 7. Details of the modeling and community risk calculations are included in *Attachment 5.*

Figure 3. Project Site and Nearby TAC and $PM_{2.5}$ Sources



Local Roadways – South 4th Street and South 3rd Street

A refined analysis of potential health impacts from vehicle traffic on South 4th Street and South 3rd Street was conducted. The refined analysis involved predicting emissions for the traffic volume and mix of vehicle types on both roadways near the project site and using an atmospheric dispersion model to predict exposure to TACs. The associated cancer risks are then computed based on the modeled exposures. *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, truck percentage for non-state highways in Santa Clara County (3.51 percent),[19] traffic mix assigned by CT-EMFAC2017 for the county, year of analysis, and season.

The average daily traffic (ADT) for South 4th Street and South 3rd Street were based on AM and PM peak-hour data background plus project traffic volumes for the nearby roadways provided by the traffic consultant.[20] The predicted ADT on South 4th street would be 10,900 vehicles and on South 3rd Street the ADT would be 11,755 vehicles. Average hourly traffic distributions for Santa Clara County roadways were developed using the EMFAC model,[21] which were then applied to the ADT volumes to obtain estimated hourly traffic volumes and emissions for both roadways. An average travel speed of 30 miles per hour (mph) were used for all for all hours of the day on South 4th Street and South 3rd Street based on posted speed limit signs on each roadway. A start year of 2024 was used.

Dispersion Modeling

Dispersion modeling of TAC and $PM_{2.5}$ emissions was conducted using the U.S. EPA AERMOD model. Southbound traffic was evaluated on South 4th Street and northbound traffic was evaluated on South 3rd street. The same meteorological data and off-site sensitive receptors were used in the modeling. Other inputs to the model included road geometry and elevations, hourly traffic

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

[20] Hexagon Transportation Consultants, Inc., 2020. *The Mark Traffic Volumes*. November.

[21] 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.

emissions, and receptor locations. Figure 3 shows the roadway segments modeled and residential receptor locations used in the modeling. Table 7 lists the risks and hazards from both 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) map website.[22] This mapping tool identifies the location of nearby stationary sources and their estimated risk and hazard impacts. Three sources were identified with two of the sources being diesel generators (SJSU) and the third source being a gas dispensing facility (Super Gas & Mart). The screening level risks and hazards posted on the GIS website for the sources were adjusted for distance using BAAQMD's *Distance Adjustment Multiplier Tool for Diesel Internal Combustion Engines* and *Gasoline Dispensing Facility Distance Multiplier Tool* when appropriate. Estimated risk values for all permitted stationary sources are listed in Table 7.

Construction Risk Impacts from Nearby Developments

Within the 1,000-ft influence area, there is one development that may have overlapping construction with the proposed project. Figure 3 outlines where this development is in relation to the project site. The mixed-use development at 431 and 439 South 4th Street is adjacent to the project site and is currently under review by the City of San José. The air quality report for this development was prepared by Illingworth & Rodkin, Inc.[23]

For the purpose of this analysis, it was assumed the entire construction period from this proposed mixed-use development would overlap with the first three year of construction of the nearby project's construction schedule of 2021 to 2025. The mitigated construction risks reported in that air quality assessment at the location of the project MEI were included in the cumulative risks table.

Summary of Cumulative Risks at the Project MEI

Table 7 reports both the project and cumulative community risk impacts. The project would have an exceedance with respect to community risk caused by project construction and operation activities, since the maximum unmitigated cancer risk and $PM_{2.5}$ concentration exceeds the BAAQMD single-source thresholds. The combined unmitigated increased cancer risk and annual $PM_{2.5}$ concentration would also exceed the BAAQMD cumulative-source thresholds. However, with the implementation of the DTS best management practices to control dust and exhaust during construction and *Mitigation Measure AQ-1*, the project's risk would be lowered to a level below the single-source thresholds and the cumulative risks would not exceed the cumulative threshold. Therefore, the project would not contribute to a cumulative increase in TAC emissions within the local area.

[22] BAAQMD, Web: https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=2387ae674013413f987b1071715daa65
[23] Illingworth & Rodkin, Inc. 2020. *South 4th Street Apartments Air Quality & Greenhouse Gas Assessment*. February.

Table 7. Cumulative Community Risk Impacts at the Location of the Project MEI

Source	Maximum Cancer Risk (per million)	$PM_{2.5}$ concentration ($\mu g/m^3$)	Hazard Index
Project Impacts			
Unmitigated Total/Maximum Project (Years 0-30)	**151.73**	**0.82**	0.16
Mitigated Total/Maximum Project (Years 0-30)	9.45	0.05	0.01
BAAQMD Single-Source Threshold	***>10.0***	***>0.3***	***>1.0***
Exceed Threshold?			
Unmitigated	***Yes***	***Yes***	*No*
Mitigated	*No*	*No*	*No*
Cumulative Sources			
South 4th Street and South 3rd Street	1.48	0.59	<0.01
Super Gas & Mart (Facility ID #111979, Gas Station), MEI at 90 feet	1.73	-	0.01
San Jose State University (Facility ID #9339-17, Generator), MEI at 650 feet	0.93	<0.01	<0.01
San Jose State University (Facility ID #9339-8, Generator), MEI at 650 feet	<0.01	-	<0.01
Nearby Development – 431 & 439 South 4th Street Mitigated Construction Risks	3.18	0.04	0.01
Combined Sources			
Unmitigated	**<159.06**	**<1.46**	<0.21
Mitigated	16.78	<0.69	<0.06
BAAQMD Cumulative Source Threshold	***>100***	***>0.8***	***>10.0***
Exceed Threshold?			
Unmitigated	***Yes***	***Yes***	*No*
Mitigated	*No*	*No*	*No*

Mitigation Measure AQ-1: Use construction equipment that has low diesel particulate matter exhaust to minimize emissions

A feasible plan to reduce emissions such that increased cancer risk and annual $PM_{2.5}$ concentrations from construction would be reduced below significance levels is as follows:

1. All construction equipment larger than 25 horsepower used at the site for more than two continuous days or 20 hours total shall meet U.S. EPA Tier 4 emission standards for PM (PM_{10} and $PM_{2.5}$), cranes shall be electrified, portable equipment shall be electrified (i.e. welders and air compressors), 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 an 94 percent reduction in particulate matter exhaust in comparison to uncontrolled equipment; alternatively (or in combination).

    b. Use of alternatively fueled equipment with lower NOx emissions that meet the NOx and PM reduction requirements above.

2. Provide line power to the site during the early phases of construction to minimize the use of diesel-powered stationary equipment, such as generators, air compressors, and welders.

3. Stationary construction cranes (building cranes) shall be powered by electricity.

Effectiveness of Mitigation Measure AQ-1

CalEEMod was used to compute emissions associated with this mitigation measure assuming that all equipment met U.S. EPA Tier 4 final engines standards, cranes, air compressors, and welders were electrified, and DTS best management practices for construction were included. With the implementation of the DTS best management practices and *Mitigation Measure AQ-1*, the project's construction cancer risk levels and annual $PM_{2.5}$ concentrations would be reduced to 9.21 per million and 0.05 $\mu g/m^3$, respectively. As a result, the project's construction risks would be reduced below the BAAQMD single-source thresholds.

Non-CEQA: Onsite Community Risk Assessment for TAC Sources

The proposed project would primarily provide housing for college students attending SJSU; however, restrictions cannot be placed on who can occupy the building. Therefore, onsite residential sensitive receptors were assumed to include infant, child, and adult exposure. The existing sources of TACs and their impacts upon the onsite sensitive receptors was assessed.[24] Figure 4 shows the onsite sensitive receptors in relation to the nearby TAC sources.

Local Roadways

The roadway analysis was done in the same manner for the new project sensitive receptors as described in the project traffic dispersion modeling section (see above). A 30-year exposure period was used in the risk calculations. Additionally, a breathing height of 32 feet (9.8 meters) was used since the residences would start on the second floor of the residential developments.

Stationary Sources

The stationary source analysis was done in the same manner as described above for the project MEI.

Construction Risk Impacts from Nearby Developments

The same mitigated construction risks were included in the cumulative table for the onsite project sensitive receptors. However, the onsite project sensitive receptors would most likely only be exposed to the last two years of construction (i.e. 2024 and 2025) from the 431 and 439 South 4th Street mixed-use development. Therefore, the construction risks from the nearby development would be lower.

Summary of Cumulative Community Risks at the Project Site

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

[24] 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

Table 8. Cumulative Community Risk Impacts Upon the Onsite Sensitive Receptors

Source	Maximum Cancer Risk (per million)	$PM_{2.5}$ concentration ($\mu g/m^3$)	Hazard Index
Cumulative Sources			
South 4th Street and South 3rd Street	0.75	0.27	<0.01
Super Gas & Mart (Facility ID #111979, Gas Station), MEI at 90 feet	1.73	-	0.01
San Jose State University (Facility ID #9339-17, Generator), MEI at 650 feet	1.16	<0.01	<0.01
San Jose State University (Facility ID #9339-8, Generator), MEI at 650 feet	<0.01	-	<0.01
Nearby Development – 431 & 439 South 4th Street Mitigated Construction Risks	3.18	0.04	<0.01
BAAQMD Single-Source Threshold	***>10.0***	***>0.3***	***>1.0***
Exceed Threshold?	*No*	*No*	*No*
Combined Sources	6.83	<0.32	<0.05
BAAQMD Cumulative Source Threshold	***>100***	***>0.8***	***>10.0***
Exceed Threshold?	*No*	*No*	*No*

Figure 4. Onsite Project Sensitive Receptors and Nearby TAC and $PM_{2.5}$ Sources

Greenhouse Gas Emissions

Setting

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

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

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

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

Recent Regulatory Actions for GHG Emissions

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

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

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

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

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

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

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

In April 2015, Governor Brown signed EO B-30-15, which extended the goals of AB 32, setting a greenhouse gas emissions target at 40 percent of 1990 levels by 2030. On September 8, 2016, Governor Brown signed Senate Bill (SB) 32, which legislatively established the GHG reduction target of 40 percent of 1990 levels by 2030. In November 2017, CARB issued *California's 2017 Climate Change Scoping Plan*. [25] While the State is on track to exceed the AB 32 scoping plan 2020 targets, this plan is an update to reflect the enacted SB 32 reduction target.

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

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

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

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

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

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

Executive Order B-55-18 – Carbon Neutrality

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

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

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

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

Senate Bill 350 - Renewable Portfolio Standards

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

Senate Bill 100 – Current Renewable Portfolio Standards

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

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

The California Green Building Standards Code (CALGreen Code) is part of the California Building Standards Code under Title 24, Part 11.[26] The CALGreen Code encourages sustainable construction standards that involve planning/design, energy efficiency, water efficiency resource efficiency, and environmental quality. These green building standard codes are mandatory statewide and are applicable to residential and non-residential developments. The most recent CALGreen Code (2019 California Building Standard Code) was effective as of January 1, 2020.

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

[26] See: https://www.dgs.ca.gov/BSC/Resources/Page-Content/Building-Standards-Commission-Resources-List-Folder/CALGreen#:~:text=CALGreen%20is%20the%20first%2Din,to%201990%20levels%20by%202020.

systems. For nonresidential developments, it is predicted that these buildings will use 30 percent less energy due to lightening upgrades.[27]

Federal and Statewide GHG Emissions

The U.S. EPA reported that in 2018, total gross nationwide GHG emissions were 6,676.6 million metric tons (MMT) carbon dioxide equivalent (CO_2e).[28] These emissions were lower than peak levels of 7,416 MMT that were emitted in 2007. CARB updates the statewide GHG emission inventory on an annual basis where the latest inventory includes 2000 through 2017 emissions.[29] In 2017, GHG emissions from statewide emitting activities were 424 MMT. The 2017 emissions have decreased by 14 percent since peak levels in 2004 and are 7 MMT below the 1990 emissions level and the State's 2020 GHG limit. Per capita GHG emissions in California have dropped from a 2001 peak of 14.1 MT per person to 10.7 MT per person in 2017. The most recent Bay Area emission inventory was computed for the year 2011.[30] The Bay Area GHG emission were 87 MMT. As a point of comparison, statewide emissions were about 444 MMT in 2011

Significance Thresholds

The BAAQMD's CEQA Air Quality Guidelines recommended a GHG threshold of 1,100 metric tons or 4.6 metric tons (MT) per capita. These thresholds were developed based on meeting the 2020 GHG targets set in the scoping plan that addressed AB 32. Development of the project would occur beyond 2020, so a threshold that addresses a future target is appropriate. Although BAAQMD has not published a quantified threshold for 2030 yet, this assessment uses a "Substantial Progress" efficiency metric of 2.6 MT CO_2e/year/service population and a bright-line threshold of 660 MT CO_{2e}/year based on the GHG reduction goals of EO B-30-15. The service population metric of 2.6 is calculated for 2030 based on the 1990 inventory and the projected 2030 statewide population and employment levels.[31] The 2030 bright-line threshold is a 40 percent reduction of the 2020 1,100 MT CO_{2e}/year threshold.

[27] See: https://www.energy.ca.gov/sites/default/files/2020-03/Title_24_2019_Building_Standards_FAQ_ada.pdf
[28] United States Environmental Protection Agency, 2020. *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2018*. April. Web: https://www.epa.gov/sites/production/files/2020-04/documents/us-ghg-inventory-2020-main-text.pdf
[29] CARB. 2019. *2019 Edition, California Greenhouse Gas Emission Inventory: 2000 – 2017*. Web: https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2017/ghg_inventory_trends_00-17.pdf
[30] BAAQMD. 2015. *Bay Area Emissions Inventory Summary Report: Greenhouse Gases Base Year 2011*. January. Web: http://www.baaqmd.gov/~/media/files/planning-and-research/emission-inventory/by2011_ghgsummary.pdf accessed Nov. 26, 2019.
[31] Association of Environmental Professionals, 2016. *Beyond 2020 and Newhall: A Field Guide to New CEQA Greenhouse Gas Thresholds and Climate Action Plan Targets for California*. April.

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

GHG emissions associated with development of the proposed project would occur over the short-term from construction activities, consisting primarily of emissions from equipment exhaust and worker and vendor trips. There would also be long-term operational emissions associated with vehicular traffic within the project vicinity, the generator, energy and water usage, and solid waste disposal. The impact of GHG emissions were addressed in the DTS DEIR and found to be significant and unavoidable under 2040 conditions. Emissions from the project were computed for informational purposes. Emissions for the proposed project are discussed below and were analyzed using the methodology recommended in the BAAQMD CEQA Air Quality Guidelines.

CalEEMod Modeling

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

Service Population

The project service population efficiency rate is based on the number of future residents. The student housing building would have 750 beds. Therefore, the total service population would be 750 residents.

Construction GHG Emissions

GHG emissions associated with construction were computed to be 1,341 MT of CO_2e for the total construction period. These are the emissions from on-site operation of construction equipment, vendor and hauling truck trips, and worker trips. Neither the City nor BAAQMD have an adopted threshold of significance for construction related GHG emissions, though BAAQMD recommends quantifying emissions and disclosing that GHG emissions would occur during construction. BAAQMD also encourages the incorporation of best management practices (i.e. DTS control measures) to reduce GHG emissions during construction where feasible and applicable.

Operational GHG Emissions

The CalEEMod model, along with the project vehicle trip generation rates, was used to estimate daily emissions associated with operation of the fully developed site under the proposed project. The effects from project-specific sustainability measures were not included in this analysis.

To be considered an exceedance, the project must exceed both the GHG significance threshold in metric tons per year and the service population significance threshold in the future year of 2030. As shown in Table 9, annual emissions from the proposed project are predicted to be 704 MT of CO_2e in 2030. The service population emissions for the year 2030 are predicted to be 0.98 MT/CO_2e/year/service population. Although the GHG emissions exceed the bright-line metric ton threshold, the emissions do not exceed the service population threshold. Therefore, the project would not be in exceedance for GHG emissions.

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

Source Category	Proposed Project in 2025	Proposed Project in 2030
Area	3	3
Energy Consumption	111	111
Mobile	577	513
Solid Waste Generation	56	56
Water Usage	21	21
Metric Ton Total	768	704
Bright-Line Significance Threshold	-	*660 MT of CO_2e*
Service Population Emissions	1.02	0.94
Service Population Significance Threshold	-	*2.6 MT of CO_2e/year/service population*
Exceed Both Thresholds?		***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. The operational output for existing uses and 2030 project uses are also included in this attachment. Also included are any modeling assumptions.

Attachment 3 includes the EMFAC2017 emissions modeling. The input files for these calculations are voluminous and are available upon request in digital format.

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

Attachment 5 includes the screening community risk calculations from sources affecting the MEI. Due to the large size of the BAAQMD health risk calculators, these files were not included but are available upon request and would be provided in digital format.

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.[32] 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.[33] 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.[34] 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.

[32] 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.
[33] CARB, 2015. *Risk Management Guidance for Stationary Sources of Air Toxics*. July 23.
[34] 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: "The Mark" 459 - 475 Fourth Street

Complete ALL Portions in Yellow

See Equipment Type TAB for type, horsepower and load factor

Project Size
- 222 Dwelling Units
- 0.45 total project acres disturbed
- 265,000 s.f. residential
- 0 s.f. retail
- 0 s.f. office/commercial
- 25,000 s.f. other, specify: Amenties/Leasing
- 25,000 s.f. parking garage — 95 spaces
- 0 s.f. parking lot — 0 spaces

Construction Hours 7:00 am to 5:00 pm

Pile Driving? Yes

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 Powered

Location in project (Plans Desired if Available):

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

Quantity	Description	HP	Load Factor	Hours/day	Total Work Days	Avg. Hours per day	Annual Hours	Comments
	Demolition / Site Preparation	**Start Date:**	**6/14/2021**	**Total phase:**	**22**			**Overall Import/Export Volumes**
		End Date:	**7/15/2021**					
1	Concrete/Industrial Saws	81	0.73	4	22	4	88	**Demolition Volume**
1	Excavators	158	0.38	6.5	22	6.5	143	Square footage of buildings to be demolished
1	Rubber-Tired Dozers	247	0.4	6	22	6	132	(*or* total tons to be hauled)
2	Rollers	80	0.38	4	22	4	176	
2	Tractors/Loaders/Backhoes	97	0.37	6	22	6	264	**8,900** square feet *or*
								50 Hauling volume (tons)
								Any pavement demolished and hauled? **65 tons**
	Shoring / Grading / Excavation	**Start Date:**	**7/15/2021**	**Total phase:**	**91**			
		End Date:	**11/23/2021**					**Soil Hauling Volume**
1	Excavators	158	0.38	7	91	7	637	Export volume = **12,500** cubic yards
3	Tractors/Loaders/Backhoes	97	0.37	7	91	7	1911	Import volume = **0** cubic yards
2	Augercast Pile Drill Rig	221	0.5	6	91	6	1092	
2	Skid Steer Loader	65	0.37	6	91	6	1092	
	Below Slab Utilities	**Start Date:**	**11/23/2021**	**Total phase:**	**20**			
		End Date:	**12/23/2021**					
2	Tractor/Loader/Backhoes	97	0.37	7	20	7	280	Ejector Pits/Utility Trenches
	Foundation / Structure	**Start Date:**	**12/23/2021**	**Total phase:**	**264**			
		End Date:	**1/16/2023**					
2	Tractor/Loader/Backhoes	97	0.37	7	264	7	3696	
2	Concrete Pumper	220	0.42	8	264	8	4224	
1	Tractors/Loaders/Backhoes	97	0.37	7	264	7	1848	
1	Cranes	231	0.29	8	264	8	2112	Electric? (Y/N) _Y_ Otherwise assumed diesel
1	Welders	46	0.45	4	264	4	1056	Electric? (Y/N) _Y_ Otherwise assumed diesel
	Building - Exterior	**Start Date:**	**9/23/2022**	**Total phase:**	**150**			**Cement Trucks 2,200 Total Round-Trips**
		End Date:	**5/3/2023**					
1	Cranes	231	0.29	8	150	8	1200	Electric? (Y/N) _Y_ Otherwise assumed diesel
4	Forklifts	89	0.2	6	150	6	3600	Liquid Propane (LPG)? (Y/N) _Y_ Otherwise Assumed diesel
0	Generator Sets	84	0.74	0	0	0	0	Or temporary line power? (Y/N) _Y_
2	Tractors/Loaders/Backhoes	97	0.37	5	150	5	1500	
4	Welders	46	0.45	5	150	5	3000	
	Other Equipment?							
Building - Interior/Architectural Coating		**Start Date:**	**4/22/2022**	**Total phase:**	**295**			
		End Date:	**6/27/2023**					
3	Air Compressors	78	0.48	6	295	6	5310	
5	Aerial Lift	62	0.31	8	295	8	11800	

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 horsepower or load factor, as appropriate

Complete one sheet for each project component

Construction Criteria Air Pollutants						
Unmitigated	ROG	NOX	PM10 Exhaust	PM2.5 Exhaust	**CO2e**	
Year	Tons				MT	
Construction Equipment						
2021	0.08	0.86	0.04	0.04	154	
2022	1.76	3.06	0.15	0.14	514	
2023	0.99	0.86	0.04	0.04	155	
EMFAC						
2021	0.03	0.23	0.02	0.01	149	
2022	0.05	0.36	0.03	0.02	264	
2023	0.02	0.13	0.01	0.01	111	
Total Construction Emissions by Year						
2021	0.11	1.09	0.06	0.05	304	
2022	1.81	3.42	0.18	0.16	779	
2023	1.01	0.98	0.05	0.04	266	
	Total Construction Emissions					
Tons	2.9	5.5	0.3	0.2	1,348	
Pounds/Workdays	*Average Daily Emissions*				Workdays	
2021	1.58	15.02	0.85	0.66		145
2022	13.92	26.32	1.40	1.21		260
2023	17.77	17.23	0.91	0.74		114

Operational Criteria Air Pollutants						
Unmitigated	ROG	NOX	Total PM10	Total PM2.5		
Year	Tons					
Total	1.8937	0.7824	0.6671	0.2014		
	Existing Use Emissions					
Total						
	Net Annual Operational Emissions					
Tons/year	1.89	0.78	0.67	0.20		
	Average Daily Emissions					
Pounds Per Day	10.38	4.29	3.66	1.10		

Category	**CO2e**			
	Project	Existing	Project 2030	Existing
Area	3		3	
Energy	111		111	
Mobile	577		513	
Waste	56		56	
Water	21		21	
TOTAL	768	0	704	0
Net GHG Emissions		768		704
Service Population	715			
Per Capita Emissions		1.07		0.98

Traffic Consultant Trip Gen					CalEEMod Default			
Land Use	**Size**	**Daily Trips**	**New Trips**	**Weekday Trip Gen**	**Weekday**		**Sat**	**Sun**
General Office Building	240	1068	735	***3.06***		4.2	4.98	3.65
Reduction		*-310*			*Rev*		***3.63***	***2.66***
Reduction		*-23*						

The Mark Residential Development VMT Trip Generation Estimates

Land Use	ITE Land Use Code	VMT[3] Existing	VMT[3] Project	% Reduction	Size		Daily Rate	Daily Trip	AM Peak Hour Pk-Hr Rate	AM Peak Hour Split In	AM Peak Hour Split Out	AM Peak Hour Trip In	AM Peak Hour Trip Out	AM Peak Hour Trip Total	PM Peak Hour Pk-Hr Rate	PM Peak Hour Split In	PM Peak Hour Split Out	PM Peak Hour Trip In	PM Peak Hour Trip Out	PM Peak Hour Trip Total
Proposed Land Uses																				
Multifamily Housing (High-Rise)[1]	222				240	Dwelling Units	4.450	1,068	0.310	24%	76%	18	56	74	0.360	61%	39%	52	34	86
- Location Based Reduction[2]				*29%*				*-310*				*-5*	*-17*	*-22*				*-15*	*-10*	*-25*
- VMT Reduction[3]		*9.23*	*8.95*	*3.0%*				*-23*				*-1*	*-1*	*-2*				*-1*	*-1*	*-2*
Gross Project Trips								**735**				**12**	**38**	**50**				**36**	**23**	**59**

Notes:

[1] Source: ITE *Trip Generation Manual*, 10th Edition 2017, average trip generation rates.

[2] The project site is located within a central city urban area based on the City of San Jose VMT Evaluation Tool (February 29, 2019). The location-based vehicle mode shares are obtained from Table 6 of the City of San Jose Transportation Analysis Handbook (April 2018). The trip reductions are based on the percent of mode share for all of the other modes of travel besides vehicle.

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

The Mark 459-475 Fourth Street

Santa Clara County, Annual

CalEEMod Output for Construction & Operational Criteria Pollutants, Construction TAC Emissions, and Opening Year GHG Emissions

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	95.00	Space	0.00	28,476.00	0
Apartments High Rise	240.00	Dwelling Unit	0.45	327,412.00	686

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	210	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E 2017 210 Intensity Factor

Land Use - Residential: 327,412 sqft (based on plans) and 240 Dwelling Units. Parking Garage: 28,476 sqft and 95 spaces

Construction Phase - Project Applicant Schedule 7.22.2020 based on total workdays per phase

Off-road Equipment - Project Applicant Equipment List 7.22.2020

Off-road Equipment - Project Applicant Equipment List 7.22.2020

Off-road Equipment - Project Applicant Equipment List 7.22.2020

Off-road Equipment - Project Applicant Equipment List 7.22.2020

Off-road Equipment - Project Applicant Equipment List 7.22.2020

Off-road Equipment - Project Applicant Equipment List 7.22.2020

Trips and VMT - EMFAC2017 for construction truck trips

Demolition - Demolish 8,900 sf of building (50 tons) and haul 65 tons of pavemnet

Grading - 12,500 cubic yards of soil exported

Architectural Coating -

Vehicle Trips - Trip Gen Rate Adjustment based on traffic consultant trip gen table

Vehicle Emission Factors - 2024 EMFAC2017 Santa Clara County

Woodstoves - No Hearth Activity

Area Coating -

Energy Use - San jose natural gas prohibition and reach code ordinance (ORD NO 30330) does not apply to high-rise multi-family (4+ stories)

Water And Wastewater - 100% WTP

Construction Off-road Equipment Mitigation - Advanced BMPs, Tier 4 final exhaust mitigation, electrical equpiment

Energy Mitigation - SVCE by 2021 will provide carbon-free electricity

Stationary Sources - Emergency Generators and Fire Pumps - 1000 kW (1341 HP) diesel emergency generator, fire pump - 150 HP

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
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	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
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tblConstructionPhase	NumDays	100.00	264.00
tblConstructionPhase	NumDays	5.00	295.00
tblConstructionPhase	NumDays	100.00	150.00
tblFireplaces	FireplaceDayYear	11.14	0.00
tblFireplaces	FireplaceHourDay	3.50	0.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	36.00	0.00
tblFireplaces	NumberNoFireplace	9.60	0.00
tblFireplaces	NumberWood	40.80	0.00
tblFleetMix	HHD	0.02	0.02
tblFleetMix	HHD	0.02	0.02
tblFleetMix	LDA	0.61	0.59
tblFleetMix	LDA	0.61	0.59
tblFleetMix	LDT1	0.04	0.05
tblFleetMix	LDT1	0.04	0.05
tblFleetMix	LDT2	0.18	0.18

tblFleetMix	LDT2	0.18	0.18
tblFleetMix	LHD1	0.01	0.02
tblFleetMix	LHD1	0.01	0.02
tblFleetMix	LHD2	5.0150e-003	5.3025e-003
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tblFleetMix	MCY	5.2490e-003	5.0760e-003
tblFleetMix	MCY	5.2490e-003	5.0760e-003
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tblFleetMix	MDV	0.10	0.11
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tblFleetMix	MHD	0.01	0.01
tblFleetMix	OBUS	2.1770e-003	1.5888e-003
tblFleetMix	OBUS	2.1770e-003	1.5888e-003
tblFleetMix	SBUS	6.3200e-004	9.2007e-004
tblFleetMix	SBUS	6.3200e-004	9.2007e-004
tblFleetMix	UBUS	1.5140e-003	1.2476e-003
tblFleetMix	UBUS	1.5140e-003	1.2476e-003
tblGrading	MaterialExported	0.00	12,500.00
tblLandUse	LandUseSquareFeet	38,000.00	28,476.00
tblLandUse	LandUseSquareFeet	240,000.00	327,412.00
tblLandUse	LotAcreage	0.86	0.00
tblLandUse	LotAcreage	3.87	0.45
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00

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tblOffRoadEquipment	UsageHours	6.00	7.00
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tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
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tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
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tblVehicleEF	LDA	0.08	0.08
tblVehicleEF	LDA	0.02	0.03
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tblVehicleEF	LDA	0.06	0.19
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tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.01	9.3280e-003
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tblVehicleEF	LDA	0.06	0.21
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tblVehicleEF	LDT1	0.11	0.21
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tblVehicleEF	LDT1	2.8260e-003	2.1080e-003
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tblVehicleEF	LDT1	0.19	0.15
tblVehicleEF	LDT1	0.06	0.06
tblVehicleEF	LDT1	0.02	0.02
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tblVehicleEF	LDT1	0.19	0.15
tblVehicleEF	LDT1	0.06	0.06
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tblVehicleEF	LDT2	1.5190e-003	1.2400e-003
tblVehicleEF	LDT2	2.1270e-003	1.5640e-003
tblVehicleEF	LDT2	0.04	0.06
tblVehicleEF	LDT2	0.10	0.12
tblVehicleEF	LDT2	0.04	0.06
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.07	0.41
tblVehicleEF	LDT2	0.08	0.28
tblVehicleEF	LDT2	3.2020e-003	0.01
tblVehicleEF	LDT2	7.6800e-004	9.1000e-005
tblVehicleEF	LDT2	0.04	0.06
tblVehicleEF	LDT2	0.10	0.12
tblVehicleEF	LDT2	0.04	0.06
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.41

tblVehicleEF	LDT2	0.09	0.31
tblVehicleEF	LHD1	5.1130e-003	4.9880e-003
tblVehicleEF	LHD1	0.02	7.8580e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	0.15	0.18
tblVehicleEF	LHD1	0.94	0.71
tblVehicleEF	LHD1	2.42	1.05
tblVehicleEF	LHD1	8.98	8.86
tblVehicleEF	LHD1	679.88	779.34
tblVehicleEF	LHD1	31.45	11.55
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	1.00	0.65
tblVehicleEF	LHD1	0.94	0.30
tblVehicleEF	LHD1	8.5700e-004	8.4200e-004
tblVehicleEF	LHD1	0.01	9.7790e-003
tblVehicleEF	LHD1	0.01	9.6230e-003
tblVehicleEF	LHD1	9.0500e-004	2.4700e-004
tblVehicleEF	LHD1	8.2000e-004	8.0500e-004
tblVehicleEF	LHD1	2.5360e-003	2.4450e-003
tblVehicleEF	LHD1	0.01	9.1590e-003
tblVehicleEF	LHD1	8.3200e-004	2.2800e-004
tblVehicleEF	LHD1	2.5370e-003	1.9120e-003
tblVehicleEF	LHD1	0.10	0.07
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.3080e-003	9.8500e-004
tblVehicleEF	LHD1	0.12	0.09
tblVehicleEF	LHD1	0.32	0.50
tblVehicleEF	LHD1	0.24	0.07
tblVehicleEF	LHD1	9.0000e-005	8.6000e-005
tblVehicleEF	LHD1	6.6680e-003	7.6080e-003

tblVehicleEF	LHD1	3.6000e-004	1.1400e-004
tblVehicleEF	LHD1	2.5370e-003	1.9120e-003
tblVehicleEF	LHD1	0.10	0.07
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.3080e-003	9.8500e-004
tblVehicleEF	LHD1	0.14	0.11
tblVehicleEF	LHD1	0.32	0.50
tblVehicleEF	LHD1	0.26	0.08
tblVehicleEF	LHD2	3.1970e-003	3.0380e-003
tblVehicleEF	LHD2	7.0200e-003	6.6540e-003
tblVehicleEF	LHD2	5.9370e-003	7.7290e-003
tblVehicleEF	LHD2	0.12	0.14
tblVehicleEF	LHD2	0.53	0.59
tblVehicleEF	LHD2	1.09	0.60
tblVehicleEF	LHD2	13.93	13.88
tblVehicleEF	LHD2	699.69	754.92
tblVehicleEF	LHD2	23.61	7.59
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.59	0.77
tblVehicleEF	LHD2	0.41	0.17
tblVehicleEF	LHD2	1.2120e-003	1.4370e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.0000e-004	1.2700e-004
tblVehicleEF	LHD2	1.1590e-003	1.3750e-003
tblVehicleEF	LHD2	2.6950e-003	2.6920e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.6800e-004	1.1700e-004
tblVehicleEF	LHD2	7.4700e-004	9.8500e-004
tblVehicleEF	LHD2	0.03	0.04

tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.0800e-004	5.1400e-004
tblVehicleEF	LHD2	0.10	0.11
tblVehicleEF	LHD2	0.06	0.25
tblVehicleEF	LHD2	0.08	0.04
tblVehicleEF	LHD2	1.3600e-004	1.3300e-004
tblVehicleEF	LHD2	6.8030e-003	7.2900e-003
tblVehicleEF	LHD2	2.5500e-004	7.5000e-005
tblVehicleEF	LHD2	7.4700e-004	9.8500e-004
tblVehicleEF	LHD2	0.03	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	4.0800e-004	5.1400e-004
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.06	0.25
tblVehicleEF	LHD2	0.09	0.04
tblVehicleEF	MCY	0.45	0.33
tblVehicleEF	MCY	0.16	0.25
tblVehicleEF	MCY	18.47	18.60
tblVehicleEF	MCY	10.21	9.06
tblVehicleEF	MCY	170.05	210.08
tblVehicleEF	MCY	44.74	60.71
tblVehicleEF	MCY	1.14	1.15
tblVehicleEF	MCY	0.32	0.27
tblVehicleEF	MCY	2.0290e-003	1.9970e-003
tblVehicleEF	MCY	3.5220e-003	2.9300e-003
tblVehicleEF	MCY	1.8960e-003	1.8650e-003
tblVehicleEF	MCY	3.3110e-003	2.7520e-003
tblVehicleEF	MCY	0.90	1.80
tblVehicleEF	MCY	0.68	0.68
tblVehicleEF	MCY	0.49	0.98

tblVehicleEF	MCY	2.18	2.19
tblVehicleEF	MCY	0.58	1.89
tblVehicleEF	MCY	2.18	1.93
tblVehicleEF	MCY	2.0670e-003	2.0790e-003
tblVehicleEF	MCY	6.7900e-004	6.0100e-004
tblVehicleEF	MCY	0.90	1.80
tblVehicleEF	MCY	0.68	0.68
tblVehicleEF	MCY	0.49	0.98
tblVehicleEF	MCY	2.71	2.72
tblVehicleEF	MCY	0.58	1.89
tblVehicleEF	MCY	2.38	2.10
tblVehicleEF	MDV	8.4590e-003	3.4000e-003
tblVehicleEF	MDV	0.01	0.07
tblVehicleEF	MDV	0.97	0.78
tblVehicleEF	MDV	2.43	2.96
tblVehicleEF	MDV	429.38	372.42
tblVehicleEF	MDV	98.57	79.53
tblVehicleEF	MDV	0.12	0.07
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	1.7680e-003	1.4380e-003
tblVehicleEF	MDV	2.4430e-003	1.8100e-003
tblVehicleEF	MDV	1.6290e-003	1.3260e-003
tblVehicleEF	MDV	2.2460e-003	1.6640e-003
tblVehicleEF	MDV	0.06	0.07
tblVehicleEF	MDV	0.16	0.13
tblVehicleEF	MDV	0.06	0.07
tblVehicleEF	MDV	0.02	0.01
tblVehicleEF	MDV	0.10	0.43
tblVehicleEF	MDV	0.18	0.34
tblVehicleEF	MDV	4.2980e-003	3.6060e-003

tblVehicleEF	MDV	1.0280e-003	7.7100e-004
tblVehicleEF	MDV	0.06	0.07
tblVehicleEF	MDV	0.16	0.13
tblVehicleEF	MDV	0.06	0.07
tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.10	0.43
tblVehicleEF	MDV	0.20	0.38
tblVehicleEF	MH	0.02	9.5570e-003
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	1.61	0.93
tblVehicleEF	MH	5.16	2.03
tblVehicleEF	MH	1,207.03	1,501.42
tblVehicleEF	MH	58.43	18.14
tblVehicleEF	MH	1.20	1.31
tblVehicleEF	MH	0.77	0.24
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	1.0680e-003	2.6100e-004
tblVehicleEF	MH	3.2200e-003	3.2790e-003
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	9.8200e-004	2.4000e-004
tblVehicleEF	MH	0.74	0.64
tblVehicleEF	MH	0.06	0.05
tblVehicleEF	MH	0.26	0.23
tblVehicleEF	MH	0.08	0.06
tblVehicleEF	MH	0.02	1.30
tblVehicleEF	MH	0.30	0.09
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	6.7400e-004	1.7900e-004
tblVehicleEF	MH	0.74	0.64

tblVehicleEF	MH	0.06	0.05
tblVehicleEF	MH	0.26	0.23
tblVehicleEF	MH	0.11	0.08
tblVehicleEF	MH	0.02	1.30
tblVehicleEF	MH	0.33	0.10
tblVehicleEF	MHD	0.02	3.5790e-003
tblVehicleEF	MHD	4.0660e-003	1.6940e-003
tblVehicleEF	MHD	0.04	9.1320e-003
tblVehicleEF	MHD	0.37	0.39
tblVehicleEF	MHD	0.33	0.23
tblVehicleEF	MHD	5.40	1.07
tblVehicleEF	MHD	133.37	72.08
tblVehicleEF	MHD	1,186.25	1,080.76
tblVehicleEF	MHD	60.77	9.15
tblVehicleEF	MHD	0.36	0.41
tblVehicleEF	MHD	1.10	1.45
tblVehicleEF	MHD	10.18	1.70
tblVehicleEF	MHD	1.0800e-004	3.6900e-004
tblVehicleEF	MHD	3.1100e-003	7.0230e-003
tblVehicleEF	MHD	8.7400e-004	1.1500e-004
tblVehicleEF	MHD	1.0300e-004	3.5300e-004
tblVehicleEF	MHD	2.9690e-003	6.7130e-003
tblVehicleEF	MHD	8.0400e-004	1.0600e-004
tblVehicleEF	MHD	8.3100e-004	3.8300e-004
tblVehicleEF	MHD	0.04	0.02
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	4.4000e-004	1.9800e-004
tblVehicleEF	MHD	0.04	0.02
tblVehicleEF	MHD	0.02	0.10
tblVehicleEF	MHD	0.32	0.05

tblVehicleEF	MHD	1.2850e-003	6.8400e-004
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.0200e-004	9.1000e-005
tblVehicleEF	MHD	8.3100e-004	3.8300e-004
tblVehicleEF	MHD	0.04	0.02
tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	4.4000e-004	1.9800e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.02	0.10
tblVehicleEF	MHD	0.35	0.05
tblVehicleEF	OBUS	0.01	7.0640e-003
tblVehicleEF	OBUS	5.8410e-003	3.6240e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.24	0.58
tblVehicleEF	OBUS	0.41	0.43
tblVehicleEF	OBUS	4.81	1.84
tblVehicleEF	OBUS	100.21	92.66
tblVehicleEF	OBUS	1,290.88	1,326.08
tblVehicleEF	OBUS	66.64	15.18
tblVehicleEF	OBUS	0.21	0.38
tblVehicleEF	OBUS	0.91	1.47
tblVehicleEF	OBUS	2.68	1.09
tblVehicleEF	OBUS	1.9000e-005	1.2200e-004
tblVehicleEF	OBUS	2.7550e-003	7.3930e-003
tblVehicleEF	OBUS	8.3600e-004	1.4500e-004
tblVehicleEF	OBUS	1.9000e-005	1.1700e-004
tblVehicleEF	OBUS	2.6160e-003	7.0600e-003
tblVehicleEF	OBUS	7.6900e-004	1.3300e-004
tblVehicleEF	OBUS	1.1720e-003	1.0900e-003
tblVehicleEF	OBUS	0.02	0.02

tblVehicleEF	OBUS	0.03	0.05
tblVehicleEF	OBUS	5.1800e-004	4.8500e-004
tblVehicleEF	OBUS	0.04	0.02
tblVehicleEF	OBUS	0.03	0.18
tblVehicleEF	OBUS	0.30	0.09
tblVehicleEF	OBUS	9.6800e-004	8.8000e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	7.5100e-004	1.5000e-004
tblVehicleEF	OBUS	1.1720e-003	1.0900e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.04	0.06
tblVehicleEF	OBUS	5.1800e-004	4.8500e-004
tblVehicleEF	OBUS	0.05	0.03
tblVehicleEF	OBUS	0.03	0.18
tblVehicleEF	OBUS	0.33	0.10
tblVehicleEF	SBUS	0.82	0.05
tblVehicleEF	SBUS	0.02	6.0180e-003
tblVehicleEF	SBUS	0.07	4.9720e-003
tblVehicleEF	SBUS	8.25	2.27
tblVehicleEF	SBUS	0.95	0.49
tblVehicleEF	SBUS	9.30	0.72
tblVehicleEF	SBUS	1,096.83	346.78
tblVehicleEF	SBUS	1,045.14	1,049.23
tblVehicleEF	SBUS	56.99	4.12
tblVehicleEF	SBUS	7.84	3.44
tblVehicleEF	SBUS	3.38	4.65
tblVehicleEF	SBUS	11.88	0.86
tblVehicleEF	SBUS	6.9900e-003	3.6120e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.03

tblVehicleEF	SBUS	9.2200e-004	4.8000e-005
tblVehicleEF	SBUS	6.6880e-003	3.4560e-003
tblVehicleEF	SBUS	2.6210e-003	2.7190e-003
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	8.4800e-004	4.4000e-005
tblVehicleEF	SBUS	3.3520e-003	5.6700e-004
tblVehicleEF	SBUS	0.04	5.5090e-003
tblVehicleEF	SBUS	0.98	0.25
tblVehicleEF	SBUS	1.4930e-003	2.4700e-004
tblVehicleEF	SBUS	0.10	0.08
tblVehicleEF	SBUS	0.02	0.04
tblVehicleEF	SBUS	0.46	0.03
tblVehicleEF	SBUS	0.01	3.3010e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	7.3000e-004	4.1000e-005
tblVehicleEF	SBUS	3.3520e-003	5.6700e-004
tblVehicleEF	SBUS	0.04	5.5090e-003
tblVehicleEF	SBUS	1.42	0.36
tblVehicleEF	SBUS	1.4930e-003	2.4700e-004
tblVehicleEF	SBUS	0.13	0.10
tblVehicleEF	SBUS	0.02	0.04
tblVehicleEF	SBUS	0.51	0.03
tblVehicleEF	UBUS	0.23	1.35
tblVehicleEF	UBUS	0.04	1.5380e-003
tblVehicleEF	UBUS	4.19	10.12
tblVehicleEF	UBUS	7.24	0.14
tblVehicleEF	UBUS	2,047.05	1,597.16
tblVehicleEF	UBUS	107.16	1.39
tblVehicleEF	UBUS	8.64	0.73
tblVehicleEF	UBUS	14.31	0.01

tblVehicleEF	UBUS	0.59	0.07
tblVehicleEF	UBUS	0.01	0.03
tblVehicleEF	UBUS	0.19	5.3300e-003
tblVehicleEF	UBUS	1.1060e-003	1.5000e-005
tblVehicleEF	UBUS	0.25	0.03
tblVehicleEF	UBUS	3.0000e-003	8.3320e-003
tblVehicleEF	UBUS	0.18	5.1000e-003
tblVehicleEF	UBUS	1.0170e-003	1.4000e-005
tblVehicleEF	UBUS	1.8960e-003	2.1000e-005
tblVehicleEF	UBUS	0.03	1.6100e-004
tblVehicleEF	UBUS	9.9500e-004	9.0000e-006
tblVehicleEF	UBUS	0.45	0.02
tblVehicleEF	UBUS	7.1180e-003	8.1400e-004
tblVehicleEF	UBUS	0.55	6.4070e-003
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	1.2020e-003	1.4000e-005
tblVehicleEF	UBUS	1.8960e-003	2.1000e-005
tblVehicleEF	UBUS	0.03	1.6100e-004
tblVehicleEF	UBUS	9.9500e-004	9.0000e-006
tblVehicleEF	UBUS	0.73	1.38
tblVehicleEF	UBUS	7.1180e-003	8.1400e-004
tblVehicleEF	UBUS	0.61	7.0150e-003
tblVehicleTrips	ST_TR	4.98	3.63
tblVehicleTrips	SU_TR	3.65	2.66
tblVehicleTrips	WD_TR	4.20	3.06
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	NumberCatalytic	4.80	0.00
tblWoodstoves	NumberNoncatalytic	4.80	0.00
tblWoodstoves	WoodstoveDayYear	14.12	0.00
tblWoodstoves	WoodstoveWoodMass	582.40	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0819	0.8586	0.8738	1.7500e-003	1.9400e-003	0.0410	0.0430	2.9000e-004	0.0379	0.0382	0.0000	153.1239	153.1239	0.0476	0.0000	154.3142
2022	1.7585	3.0609	3.4934	5.9500e-003	0.0000	0.1470	0.1470	0.0000	0.1410	0.1410	0.0000	511.8837	511.8837	0.1022	0.0000	514.4390
2023	0.9942	0.8553	1.1049	1.8000e-003	0.0000	0.0372	0.0372	0.0000	0.0357	0.0357	0.0000	153.7388	153.7388	0.0342	0.0000	154.5946
Maximum	**1.7585**	**3.0609**	**3.4934**	**5.9500e-003**	**1.9400e-003**	**0.1470**	**0.1470**	**2.9000e-004**	**0.1410**	**0.1410**	**0.0000**	**511.8837**	**511.8837**	**0.1022**	**0.0000**	**514.4390**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0228	0.1629	1.0747	1.7500e-003	7.6000e-004	2.8000e-003	3.5600e-003	6.0000e-005	2.8000e-003	2.8600e-003	0.0000	151.0203	151.0203	0.0470	0.0000	152.1952

2022	1.4699	0.5718	2.6368	5.9500e-003	0.0000	5.7000e-003	5.7000e-003	0.0000	5.7000e-003	5.7000e-003	0.0000	330.6229	330.6229	0.0674	0.0000	332.3070
2023	0.9089	0.2868	0.6165	1.8000e-003	0.0000	1.3300e-003	1.3300e-003	0.0000	1.3300e-003	1.3300e-003	0.0000	71.4667	71.4667	0.0231	0.0000	72.0446
Maximum	**1.4699**	**0.5718**	**2.6368**	**5.9500e-003**	**7.6000e-004**	**5.7000e-003**	**5.7000e-003**	**6.0000e-005**	**5.7000e-003**	**5.7000e-003**	**0.0000**	**330.6229**	**330.6229**	**0.0674**	**0.0000**	**332.3070**

	ROG	NOx	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	**15.28**	**78.61**	**20.91**	**0.00**	**60.82**	**95.64**	**95.34**	**79.31**	**95.42**	**95.40**	**0.00**	**32.44**	**32.44**	**25.31**	**0.00**	**32.40**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**6-14-2021**	**9-13-2021**	0.4988	0.0924
2	**9-14-2021**	**12-13-2021**	0.3595	0.0871
3	**12-14-2021**	**3-13-2022**	0.5042	0.0366
4	**3-14-2022**	**6-13-2022**	0.9998	0.4303
5	**6-14-2022**	**9-13-2022**	1.3270	0.7171
6	**9-14-2022**	**12-13-2022**	1.7434	0.7256
7	**12-14-2022**	**3-13-2023**	1.2722	0.6859
8	**3-14-2023**	**6-13-2023**	0.8996	0.6473
		Highest	1.7434	0.7256

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	1.5653	0.0205	1.7822	9.0000e-005		9.8800e-003	9.8800e-003		9.8800e-003	9.8800e-003	0.0000	2.9126	2.9126	2.8000e-003	0.0000	2.9825
Energy	0.0112	0.0955	0.0407	6.1000e-004		7.7200e-003	7.7200e-003		7.7200e-003	7.7200e-003	0.0000	220.9216	220.9216	0.0174	5.1800e-003	222.8988
Mobile	0.2561	0.4031	2.0461	5.9100e-003	0.6353	4.7500e-003	0.6401	0.1700	4.4400e-003	0.1744	0.0000	576.1613	576.1613	0.0251	0.0000	576.7877

Stationary	0.0612	0.2632	0.1626	2.9000e-004		9.4200e-003	9.4200e-003		9.4200e-003	9.4200e-003	0.0000	28.3884	28.3884	3.9800e-003	0.0000	28.4879
Waste						0.0000	0.0000		0.0000	0.0000	22.4102	0.0000	22.4102	1.3244	0.0000	55.5203
Water						0.0000	0.0000		0.0000	0.0000	5.5324	11.3462	16.8786	0.0206	0.0124	21.0757
Total	**1.8937**	**0.7824**	**4.0315**	**6.9000e-003**	**0.6353**	**0.0318**	**0.6671**	**0.1700**	**0.0315**	**0.2014**	**27.9426**	**839.7302**	**867.6728**	**1.3942**	**0.0175**	**907.7530**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.5653	0.0205	1.7822	9.0000e-005		9.8800e-003	9.8800e-003		9.8800e-003	9.8800e-003	0.0000	2.9126	2.9126	2.8000e-003	0.0000	2.9825
Energy	0.0112	0.0955	0.0407	6.1000e-004		7.7200e-003	7.7200e-003		7.7200e-003	7.7200e-003	0.0000	110.6482	110.6482	2.1200e-003	2.0300e-003	111.3057
Mobile	0.2561	0.4031	2.0461	5.9100e-003	0.6353	4.7500e-003	0.6401	0.1700	4.4400e-003	0.1744	0.0000	576.1613	576.1613	0.0251	0.0000	576.7877
Stationary	0.0612	0.2632	0.1626	2.9000e-004		9.4200e-003	9.4200e-003		9.4200e-003	9.4200e-003	0.0000	28.3884	28.3884	3.9800e-003	0.0000	28.4879
Waste						0.0000	0.0000		0.0000	0.0000	22.4102	0.0000	22.4102	1.3244	0.0000	55.5203
Water						0.0000	0.0000		0.0000	0.0000	5.5324	11.3462	16.8786	0.0206	0.0124	21.0757
Total	**1.8937**	**0.7824**	**4.0315**	**6.9000e-003**	**0.6353**	**0.0318**	**0.6671**	**0.1700**	**0.0315**	**0.2014**	**27.9426**	**729.4567**	**757.3993**	**1.3790**	**0.0144**	**796.1599**

	ROG	NOx	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**	**13.13**	**12.71**	**1.09**	**17.96**	**12.29**

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/Site Preparation	Demolition	6/14/2021	7/13/2021	5	22	
2	Shoring/Grading/Excavation	Grading	7/15/2021	11/18/2021	5	91	
3	Below Slab Utilities	Trenching	11/23/2021	12/20/2021	5	20	
4	Foundation/Structure	Building Construction	12/23/2021	12/27/2022	5	264	
5	Building - Interior/Architectural Coating	Architectural Coating	4/22/2022	6/8/2023	5	295	
6	Building - Exterior	Building Construction	9/23/2022	4/20/2023	5	150	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 663,009; Residential Outdoor: 221,003; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition/Site Preparation	Concrete/Industrial Saws	1	4.00	81	0.73
Demolition/Site Preparation	Excavators	1	6.50	158	0.38
Demolition/Site Preparation	Rollers	2	4.00	80	0.38
Demolition/Site Preparation	Rubber Tired Dozers	1	6.00	247	0.40
Demolition/Site Preparation	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Demolition/Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Shoring/Grading/Excavation	Bore/Drill Rigs	2	6.00	221	0.50
Shoring/Grading/Excavation	Concrete/Industrial Saws	0	0.00	81	0.73
Shoring/Grading/Excavation	Excavators	1	7.00	158	0.38
Shoring/Grading/Excavation	Rubber Tired Dozers	0	0.00	247	0.40
Shoring/Grading/Excavation	Skid Steer Loaders	2	6.00	65	0.37
Shoring/Grading/Excavation	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Below Slab Utilities	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Foundation/Structure	Cranes	1	8.00	231	0.29

Foundation/Structure	Forklifts	0	0.00	89	0.20
Foundation/Structure	Pumps	2	8.00	84	0.74
Foundation/Structure	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Foundation/Structure	Welders	1	4.00	46	0.45
Building - Exterior	Cranes	1	8.00	231	0.29
Building - Exterior	Forklifts	4	6.00	89	0.20
Building - Exterior	Tractors/Loaders/Backhoes	2	5.00	97	0.37
Building - Exterior	Welders	4	5.00	46	0.45
Building - Interior/Architectural Coating	Aerial Lifts	5	8.00	63	0.31
Building - Interior/Architectural Coating	Air Compressors	3	6.00	78	0.48

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/Site Preparation	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Shoring/Grading/Excavation	8	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Below Slab Utilities	2	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Foundation/Structure	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building - Exterior	11	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building - Interior/Architectural	8	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

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition/Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.2300e-003	0.0000	1.2300e-003	1.9000e-004	0.0000	1.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0180	0.1789	0.1407	2.3000e-004		9.4200e-003	9.4200e-003		8.7400e-003	8.7400e-003	0.0000	20.2444	20.2444	5.7600e-003	0.0000	20.3885
Total	**0.0180**	**0.1789**	**0.1407**	**2.3000e-004**	**1.2300e-003**	**9.4200e-003**	**0.0107**	**1.9000e-004**	**8.7400e-003**	**8.9300e-003**	**0.0000**	**20.2444**	**20.2444**	**5.7600e-003**	**0.0000**	**20.3885**

Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

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

Fugitive Dust					4.8000e-004	0.0000	4.8000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7600e-003	0.0119	0.1483	2.3000e-004		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	20.2444	20.2444	5.7600e-003	0.0000	20.3884
Total	**2.7600e-003**	**0.0119**	**0.1483**	**2.3000e-004**	**4.8000e-004**	**3.7000e-004**	**8.5000e-004**	**4.0000e-005**	**3.7000e-004**	**4.1000e-004**	**0.0000**	**20.2444**	**20.2444**	**5.7600e-003**	**0.0000**	**20.3884**

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 Shoring/Grading/Excavation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.1000e-004	0.0000	7.1000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0543	0.5870	0.6366	1.3600e-003		0.0266	0.0266		0.0244	0.0244	0.0000	119.5347	119.5347	0.0387	0.0000	120.5012
Total	**0.0543**	**0.5870**	**0.6366**	**1.3600e-003**	**7.1000e-004**	**0.0266**	**0.0273**	**1.1000e-004**	**0.0244**	**0.0245**	**0.0000**	**119.5347**	**119.5347**	**0.0387**	**0.0000**	**120.5012**

Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.8000e-004	0.0000	2.8000e-004	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0185	0.1445	0.8355	1.3600e-003		2.2400e-003	2.2400e-003		2.2400e-003	2.2400e-003	0.0000	119.5346	119.5346	0.0387	0.0000	120.5011
Total	**0.0185**	**0.1445**	**0.8355**	**1.3600e-003**	**2.8000e-004**	**2.2400e-003**	**2.5200e-003**	**2.0000e-005**	**2.2400e-003**	**2.2600e-003**	**0.0000**	**119.5346**	**119.5346**	**0.0387**	**0.0000**	**120.5011**

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 Below Slab Utilities - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.2800e-003	0.0332	0.0396	5.0000e-005		1.9600e-003	1.9600e-003		1.8000e-003	1.8000e-003	0.0000	4.7770	4.7770	1.5400e-003	0.0000	4.8156
Total	**3.2800e-003**	**0.0332**	**0.0396**	**5.0000e-005**		**1.9600e-003**	**1.9600e-003**		**1.8000e-003**	**1.8000e-003**	**0.0000**	**4.7770**	**4.7770**	**1.5400e-003**	**0.0000**	**4.8156**

Unmitigated Construction Off-Site

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

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.6000e-004	2.8800e-003	0.0410	5.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	4.7770	4.7770	1.5400e-003	0.0000	4.8156
Total	**6.6000e-004**	**2.8800e-003**	**0.0410**	**5.0000e-005**		**9.0000e-005**	**9.0000e-005**		**9.0000e-005**	**9.0000e-005**	**0.0000**	**4.7770**	**4.7770**	**1.5400e-003**	**0.0000**	**4.8156**

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 Foundation/Structure - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.3600e-003	0.0595	0.0569	1.0000e-004		3.0900e-003	3.0900e-003		2.9500e-003	2.9500e-003	0.0000	8.5679	8.5679	1.6400e-003	0.0000	8.6089
Total	**6.3600e-003**	**0.0595**	**0.0569**	**1.0000e-004**		**3.0900e-003**	**3.0900e-003**		**2.9500e-003**	**2.9500e-003**	**0.0000**	**8.5679**	**8.5679**	**1.6400e-003**	**0.0000**	**8.6089**

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	8.1000e-004	3.5100e-003	0.0499	1.0000e-004		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	6.4644	6.4644	1.0300e-003	0.0000	6.4901
Total	**8.1000e-004**	**3.5100e-003**	**0.0499**	**1.0000e-004**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**	**0.0000**	**6.4644**	**6.4644**	**1.0300e-003**	**0.0000**	**6.4901**

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 Foundation/Structure - 2022

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	0.2117	1.9599	2.0661	3.6500e-003		0.0968	0.0968		0.0926	0.0926	0.0000	314.6767	314.6767	0.0597	0.0000	316.1703

Total	**0.2117**	**1.9599**	**2.0661**	**3.6500e-003**		**0.0968**	**0.0968**		**0.0926**	**0.0926**	**0.0000**	**314.6767**	**314.6767**	**0.0597**	**0.0000**	**316.1703**

Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0297	0.1288	1.8325	3.6500e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	237.4386	237.4386	0.0372	0.0000	238.3692
Total	**0.0297**	**0.1288**	**1.8325**	**3.6500e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**237.4386**	**237.4386**	**0.0372**	**0.0000**	**238.3692**

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 - Interior/Architectural Coating - 2022

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	1.4178					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0719	0.6359	0.9874	1.5700e-003		0.0269	0.0269		0.0265	0.0265	0.0000	136.0765	136.0765	0.0261	0.0000	136.7291
Total	**1.4896**	**0.6359**	**0.9874**	**1.5700e-003**		**0.0269**	**0.0269**		**0.0265**	**0.0265**	**0.0000**	**136.0765**	**136.0765**	**0.0261**	**0.0000**	**136.7291**

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	1.4178					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0187	0.4271	0.5767	1.5700e-003		1.2500e-003	1.2500e-003		1.2500e-003	1.2500e-003	0.0000	66.7556	66.7556	0.0216	0.0000	67.2953
Total	**1.4365**	**0.4271**	**0.5767**	**1.5700e-003**		**1.2500e-003**	**1.2500e-003**		**1.2500e-003**	**1.2500e-003**	**0.0000**	**66.7556**	**66.7556**	**0.0216**	**0.0000**	**67.2953**

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 - Interior/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	0.8930					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0426	0.3748	0.6209	9.9000e-004		0.0147	0.0147		0.0145	0.0145	0.0000	85.7056	85.7056	0.0162	0.0000	86.1109
Total	**0.9356**	**0.3748**	**0.6209**	**9.9000e-004**		**0.0147**	**0.0147**		**0.0145**	**0.0145**	**0.0000**	**85.7056**	**85.7056**	**0.0162**	**0.0000**	**86.1109**

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	0.8930					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0118	0.2690	0.3632	9.9000e-004		7.9000e-004	7.9000e-004		7.9000e-004	7.9000e-004	0.0000	42.0449	42.0449	0.0136	0.0000	42.3849
Total	**0.9047**	**0.2690**	**0.3632**	**9.9000e-004**		**7.9000e-004**	**7.9000e-004**		**7.9000e-004**	**7.9000e-004**	**0.0000**	**42.0449**	**42.0449**	**0.0136**	**0.0000**	**42.3849**

Mitigated Construction Off-Site

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

3.7 Building - Exterior - 2022

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	0.0572	0.4651	0.4399	7.3000e-004		0.0233	0.0233		0.0219	0.0219	0.0000	61.1305	61.1305	0.0164	0.0000	61.5397
Total	**0.0572**	**0.4651**	**0.4399**	**7.3000e-004**		**0.0233**	**0.0233**		**0.0219**	**0.0219**	**0.0000**	**61.1305**	**61.1305**	**0.0164**	**0.0000**	**61.5397**

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	3.6900e-003	0.0160	0.2276	7.3000e-004		4.9000e-004	4.9000e-004		4.9000e-004	4.9000e-004	0.0000	26.4288	26.4288	8.5500e-003	0.0000	26.6425
Total	**3.6900e-003**	**0.0160**	**0.2276**	**7.3000e-004**		**4.9000e-004**	**4.9000e-004**		**4.9000e-004**	**4.9000e-004**	**0.0000**	**26.4288**	**26.4288**	**8.5500e-003**	**0.0000**	**26.6425**

Mitigated Construction Off-Site

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

3.7 Building - Exterior - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0586	0.4805	0.4840	8.2000e-004		0.0225	0.0225		0.0211	0.0211	0.0000	68.0332	68.0332	0.0180	0.0000	68.4837
Total	**0.0586**	**0.4805**	**0.4840**	**8.2000e-004**		**0.0225**	**0.0225**		**0.0211**	**0.0211**	**0.0000**	**68.0332**	**68.0332**	**0.0180**	**0.0000**	**68.4837**

Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.1100e-003	0.0178	0.2533	8.2000e-004		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	29.4218	29.4218	9.5200e-003	0.0000	29.6597
Total	**4.1100e-003**	**0.0178**	**0.2533**	**8.2000e-004**		**5.5000e-004**	**5.5000e-004**		**5.5000e-004**	**5.5000e-004**	**0.0000**	**29.4218**	**29.4218**	**9.5200e-003**	**0.0000**	**29.6597**

Mitigated Construction Off-Site

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

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2561	0.4031	2.0461	5.9100e-003	0.6353	4.7500e-003	0.6401	0.1700	4.4400e-003	0.1744	0.0000	576.1613	576.1613	0.0251	0.0000	576.7877
Unmitigated	0.2561	0.4031	2.0461	5.9100e-003	0.6353	4.7500e-003	0.6401	0.1700	4.4400e-003	0.1744	0.0000	576.1613	576.1613	0.0251	0.0000	576.7877

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments High Rise	734.40	871.20	638.40	1,709,637	1,709,637
Enclosed Parking with Elevator	0.00	0.00	0.00		
Total	734.40	871.20	638.40	1,709,637	1,709,637

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	0.591953	0.053004	0.176619	0.106733	0.020956	0.005303	0.013483	0.022364	0.001589	0.001248	0.005076	0.000920	0.000752
Enclosed Parking with Elevator	0.591953	0.053004	0.176619	0.106733	0.020956	0.005303	0.013483	0.022364	0.001589	0.001248	0.005076	0.000920	0.000752

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Percent of Electricity Use Generated with Renewable Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	110.2735	110.2735	0.0152	3.1500e-003	111.5931
NaturalGas Mitigated	0.0112	0.0955	0.0407	6.1000e-004		7.7200e-003	7.7200e-003		7.7200e-003	7.7200e-003	0.0000	110.6482	110.6482	2.1200e-003	2.0300e-003	111.3057
NaturalGas Unmitigated	0.0112	0.0955	0.0407	6.1000e-004		7.7200e-003	7.7200e-003		7.7200e-003	7.7200e-003	0.0000	110.6482	110.6482	2.1200e-003	2.0300e-003	111.3057

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	2.07347e+006	0.0112	0.0955	0.0407	6.1000e-004		7.7200e-003	7.7200e-003		7.7200e-003	7.7200e-003	0.0000	110.6482	110.6482	2.1200e-003	2.0300e-003	111.3057
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		**0.0112**	**0.0955**	**0.0407**	**6.1000e-004**		**7.7200e-003**	**7.7200e-003**		**7.7200e-003**	**7.7200e-003**	**0.0000**	**110.6482**	**110.6482**	**2.1200e-003**	**2.0300e-003**	**111.3057**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments High Rise	2.07347e+006	0.0112	0.0955	0.0407	6.1000e-004		7.7200e-003	7.7200e-003		7.7200e-003	7.7200e-003	0.0000	110.6482	110.6482	2.1200e-003	2.0300e-003	111.3057
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		**0.0112**	**0.0955**	**0.0407**	**6.1000e-004**		**7.7200e-003**	**7.7200e-003**		**7.7200e-003**	**7.7200e-003**	**0.0000**	**110.6482**	**110.6482**	**2.1200e-003**	**2.0300e-003**	**111.3057**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	990804	94.3784	0.0130	2.7000e-003	95.5078

Enclosed Parking with Elevator	166869	15.8950	2.2000e-003	4.5000e-004	16.0853
Total		**110.2735**	**0.0152**	**3.1500e-003**	**111.5931**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	0	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.5653	0.0205	1.7822	9.0000e-005		9.8800e-003	9.8800e-003		9.8800e-003	9.8800e-003	0.0000	2.9126	2.9126	2.8000e-003	0.0000	2.9825
Unmitigated	1.5653	0.0205	1.7822	9.0000e-005		9.8800e-003	9.8800e-003		9.8800e-003	9.8800e-003	0.0000	2.9126	2.9126	2.8000e-003	0.0000	2.9825

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	0.2311					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.2806					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	0.0536	0.0205	1.7822	9.0000e-005		9.8800e-003	9.8800e-003		9.8800e-003	9.8800e-003	0.0000	2.9126	2.9126	2.8000e-003	0.0000	2.9825
Total	**1.5653**	**0.0205**	**1.7822**	**9.0000e-005**		**9.8800e-003**	**9.8800e-003**		**9.8800e-003**	**9.8800e-003**	**0.0000**	**2.9126**	**2.9126**	**2.8000e-003**	**0.0000**	**2.9825**

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	0.2311					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.2806					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	0.0536	0.0205	1.7822	9.0000e-005		9.8800e-003	9.8800e-003		9.8800e-003	9.8800e-003	0.0000	2.9126	2.9126	2.8000e-003	0.0000	2.9825
Total	**1.5653**	**0.0205**	**1.7822**	**9.0000e-005**		**9.8800e-003**	**9.8800e-003**		**9.8800e-003**	**9.8800e-003**	**0.0000**	**2.9126**	**2.9126**	**2.8000e-003**	**0.0000**	**2.9825**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	16.8786	0.0206	0.0124	21.0757
Unmitigated	16.8786	0.0206	0.0124	21.0757

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	15.637 / 9.85809	16.8786	0.0206	0.0124	21.0757
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**16.8786**	**0.0206**	**0.0124**	**21.0757**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	15.637 / 9.85809	16.8786	0.0206	0.0124	21.0757
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**16.8786**	**0.0206**	**0.0124**	**21.0757**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	22.4102	1.3244	0.0000	55.5203
Unmitigated	22.4102	1.3244	0.0000	55.5203

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			

Apartments High Rise	110.4	22.4102	1.3244	0.0000	55.5203
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		**22.4102**	**1.3244**	**0.0000**	**55.5203**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	110.4	22.4102	1.3244	0.0000	55.5203
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		**22.4102**	**1.3244**	**0.0000**	**55.5203**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0	50	1341	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	0.2460	0.1403	2.6000e-004		8.0900e-003	8.0900e-003		8.0900e-003	8.0900e-003	0.0000	25.5325	25.5325	3.5800e-003	0.0000	25.6219
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	**0.0612**	**0.2632**	**0.1626**	**2.9000e-004**		**9.4200e-003**	**9.4200e-003**		**9.4200e-003**	**9.4200e-003**	**0.0000**	**28.3884**	**28.3884**	**3.9800e-003**	**0.0000**	**28.4879**

11.0 Vegetation

The Mark 459-475 Fourth Street - Santa Clara County, Annual

The Mark 459-475 Fourth Street - 2030 GHG Emissions

Santa Clara County, Annual

CalEEMod Output for 2030 GHG Emissions

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	95.00	Space	0.00	28,476.00	0
Apartments High Rise	240.00	Dwelling Unit	0.45	327,412.00	686

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2030
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	210	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E 2017 210 Intensity Factor

Land Use - Residential: 327,412 sqft (based on plans) and 240 Dwelling Units. Parking Garage: 28,476 sqft and 95 spaces

Construction Phase - Project Applicant Schedule 7.22.2020 based on total workdays per phase

Off-road Equipment - Project Applicant Equipment List 7.22.2020

Off-road Equipment - Project Applicant Equipment List 7.22.2020

Off-road Equipment - Project Applicant Equipment List 7.22.2020

Off-road Equipment - Project Applicant Equipment List 7.22.2020

Off-road Equipment - Project Applicant Equipment List 7.22.2020

Off-road Equipment - Project Applicant Equipment List 7.22.2020

Trips and VMT - EMFAC2017 for construction truck trips

Demolition - Demolish 8,900 sf of building (50 tons) and haul 65 tons of pavemnet

Grading - 12,500 cubic yards of soil exported

Architectural Coating -

Vehicle Trips - Trip Gen Rate Adjustment based on traffic consultant trip gen table

Vehicle Emission Factors - 2030 EMFAC2017 Santa Clara County

Woodstoves - No Hearth Activity

Area Coating -

Energy Use - San jose natural gas prohibition and reach code ordinance (ORD NO 30330) does not apply to high-rise multi-family (4+ stories)

Water And Wastewater - 100% WTP

Construction Off-road Equipment Mitigation - Advanced BMPs, Tier 4 final exhaust mitigation, electrical equpiment

Energy Mitigation - SVCE by 2021 will provide carbon-free electricity

Stationary Sources - Emergency Generators and Fire Pumps - 1000 kW (1341 HP) diesel emergency generator, fire pump - 150 HP

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
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	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	12.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	10.00	22.00
tblConstructionPhase	NumDays	2.00	91.00
tblConstructionPhase	NumDays	100.00	264.00
tblConstructionPhase	NumDays	5.00	295.00
tblConstructionPhase	NumDays	100.00	150.00
tblFireplaces	FireplaceDayYear	11.14	0.00
tblFireplaces	FireplaceHourDay	3.50	0.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	36.00	0.00
tblFireplaces	NumberNoFireplace	9.60	0.00
tblFireplaces	NumberWood	40.80	0.00
tblFleetMix	HHD	0.02	0.02
tblFleetMix	HHD	0.02	0.02
tblFleetMix	LDA	0.62	0.60
tblFleetMix	LDA	0.62	0.60
tblFleetMix	LDT1	0.03	0.05
tblFleetMix	LDT1	0.03	0.05
tblFleetMix	LDT2	0.18	0.17

tblFleetMix	LDT2	0.18	0.17
tblFleetMix	LHD1	0.01	0.02
tblFleetMix	LHD1	0.01	0.02
tblFleetMix	LHD2	5.0600e-003	5.5563e-003
tblFleetMix	LHD2	5.0600e-003	5.5563e-003
tblFleetMix	MCY	5.1220e-003	4.7803e-003
tblFleetMix	MCY	5.1220e-003	4.7803e-003
tblFleetMix	MDV	0.10	0.11
tblFleetMix	MDV	0.10	0.11
tblFleetMix	MH	6.5100e-004	7.2763e-004
tblFleetMix	MH	6.5100e-004	7.2763e-004
tblFleetMix	MHD	0.01	0.01
tblFleetMix	MHD	0.01	0.01
tblFleetMix	OBUS	2.2210e-003	1.4429e-003
tblFleetMix	OBUS	2.2210e-003	1.4429e-003
tblFleetMix	SBUS	6.4600e-004	9.0041e-004
tblFleetMix	SBUS	6.4600e-004	9.0041e-004
tblFleetMix	UBUS	1.4700e-003	1.1782e-003
tblFleetMix	UBUS	1.4700e-003	1.1782e-003
tblGrading	MaterialExported	0.00	12,500.00
tblLandUse	LandUseSquareFeet	38,000.00	28,476.00
tblLandUse	LandUseSquareFeet	240,000.00	327,412.00
tblLandUse	LotAcreage	0.86	0.00
tblLandUse	LotAcreage	3.87	0.45
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	4.00	8.00
tblOffRoadEquipment	UsageHours	4.00	8.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	1.00	6.00
tblOffRoadEquipment	UsageHours	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	5.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	6.00	7.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	210
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	1,341.00
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	11.00	0.00
tblTripsAndVMT	HaulingTripNumber	1,563.00	0.00
tblTripsAndVMT	VendorTripNumber	30.00	0.00
tblTripsAndVMT	VendorTripNumber	30.00	0.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00

tblTripsAndVMT	WorkerTripNumber	5.00	0.00
tblTripsAndVMT	WorkerTripNumber	185.00	0.00
tblTripsAndVMT	WorkerTripNumber	185.00	0.00
tblTripsAndVMT	WorkerTripNumber	37.00	0.00
tblVehicleEF	HHD	0.27	0.02
tblVehicleEF	HHD	0.06	0.05
tblVehicleEF	HHD	0.06	0.00
tblVehicleEF	HHD	1.43	6.28
tblVehicleEF	HHD	0.94	0.41
tblVehicleEF	HHD	4.01	6.6850e-003
tblVehicleEF	HHD	4,037.05	930.05
tblVehicleEF	HHD	1,498.85	1,226.35
tblVehicleEF	HHD	12.27	0.05
tblVehicleEF	HHD	12.16	5.20
tblVehicleEF	HHD	1.59	2.52
tblVehicleEF	HHD	19.20	2.31
tblVehicleEF	HHD	3.6830e-003	2.1460e-003
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	5.6600e-003	0.02
tblVehicleEF	HHD	1.3500e-004	1.0000e-006
tblVehicleEF	HHD	3.5230e-003	2.0530e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8550e-003	8.9050e-003
tblVehicleEF	HHD	5.4140e-003	0.02
tblVehicleEF	HHD	1.2400e-004	1.0000e-006
tblVehicleEF	HHD	1.0100e-004	1.0000e-006
tblVehicleEF	HHD	4.6010e-003	5.8000e-005
tblVehicleEF	HHD	0.37	0.42
tblVehicleEF	HHD	6.4000e-005	1.0000e-006

tblVehicleEF	HHD	0.08	0.02
tblVehicleEF	HHD	4.1900e-004	2.8400e-004
tblVehicleEF	HHD	0.07	2.0000e-006
tblVehicleEF	HHD	0.04	8.6530e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	1.8800e-004	1.0000e-006
tblVehicleEF	HHD	1.0100e-004	1.0000e-006
tblVehicleEF	HHD	4.6010e-003	5.8000e-005
tblVehicleEF	HHD	0.43	0.49
tblVehicleEF	HHD	6.4000e-005	1.0000e-006
tblVehicleEF	HHD	0.15	0.07
tblVehicleEF	HHD	4.1900e-004	2.8400e-004
tblVehicleEF	HHD	0.08	2.0000e-006
tblVehicleEF	LDA	1.8990e-003	9.5900e-004
tblVehicleEF	LDA	2.1050e-003	0.03
tblVehicleEF	LDA	0.33	0.41
tblVehicleEF	LDA	0.63	1.72
tblVehicleEF	LDA	181.37	213.89
tblVehicleEF	LDA	42.51	45.13
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.03	0.13
tblVehicleEF	LDA	1.1470e-003	9.2900e-004
tblVehicleEF	LDA	1.8260e-003	1.2750e-003
tblVehicleEF	LDA	1.0560e-003	8.5500e-004
tblVehicleEF	LDA	1.6790e-003	1.1720e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.06	0.06
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	4.7560e-003	3.2470e-003
tblVehicleEF	LDA	0.03	0.17

tblVehicleEF	LDA	0.03	0.12
tblVehicleEF	LDA	1.8150e-003	9.0000e-005
tblVehicleEF	LDA	4.3500e-004	0.00
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.06	0.06
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	6.9190e-003	4.7160e-003
tblVehicleEF	LDA	0.03	0.17
tblVehicleEF	LDA	0.03	0.13
tblVehicleEF	LDT1	3.6800e-003	1.6710e-003
tblVehicleEF	LDT1	4.5270e-003	0.04
tblVehicleEF	LDT1	0.55	0.54
tblVehicleEF	LDT1	1.12	1.85
tblVehicleEF	LDT1	233.07	258.41
tblVehicleEF	LDT1	54.62	55.17
tblVehicleEF	LDT1	0.05	0.03
tblVehicleEF	LDT1	0.06	0.15
tblVehicleEF	LDT1	1.4520e-003	1.0700e-003
tblVehicleEF	LDT1	2.1870e-003	1.4610e-003
tblVehicleEF	LDT1	1.3350e-003	9.8400e-004
tblVehicleEF	LDT1	2.0110e-003	1.3440e-003
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.12	0.09
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	9.1170e-003	6.5000e-003
tblVehicleEF	LDT1	0.09	0.36
tblVehicleEF	LDT1	0.06	0.15
tblVehicleEF	LDT1	2.3350e-003	2.5670e-003
tblVehicleEF	LDT1	5.6500e-004	0.00
tblVehicleEF	LDT1	0.05	0.05

tblVehicleEF	LDT1	0.12	0.09
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.01	9.4830e-003
tblVehicleEF	LDT1	0.09	0.36
tblVehicleEF	LDT1	0.07	0.17
tblVehicleEF	LDT2	2.9960e-003	1.7260e-003
tblVehicleEF	LDT2	3.1970e-003	0.04
tblVehicleEF	LDT2	0.49	0.56
tblVehicleEF	LDT2	0.89	2.29
tblVehicleEF	LDT2	264.16	267.33
tblVehicleEF	LDT2	61.38	57.57
tblVehicleEF	LDT2	0.04	0.03
tblVehicleEF	LDT2	0.05	0.17
tblVehicleEF	LDT2	1.3060e-003	1.0250e-003
tblVehicleEF	LDT2	2.0190e-003	1.3400e-003
tblVehicleEF	LDT2	1.2010e-003	9.4400e-004
tblVehicleEF	LDT2	1.8570e-003	1.2320e-003
tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	0.07	0.09
tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	7.4390e-003	6.5530e-003
tblVehicleEF	LDT2	0.06	0.34
tblVehicleEF	LDT2	0.04	0.18
tblVehicleEF	LDT2	2.6450e-003	9.4800e-003
tblVehicleEF	LDT2	6.2800e-004	8.5000e-005
tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	0.07	0.09
tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	0.01	9.5240e-003
tblVehicleEF	LDT2	0.06	0.34

tblVehicleEF	LDT2	0.05	0.20
tblVehicleEF	LHD1	3.9820e-003	4.1480e-003
tblVehicleEF	LHD1	8.6490e-003	5.1950e-003
tblVehicleEF	LHD1	0.01	9.0230e-003
tblVehicleEF	LHD1	0.14	0.18
tblVehicleEF	LHD1	0.61	0.47
tblVehicleEF	LHD1	1.67	0.89
tblVehicleEF	LHD1	8.93	8.25
tblVehicleEF	LHD1	641.43	698.55
tblVehicleEF	LHD1	26.94	10.09
tblVehicleEF	LHD1	0.06	0.05
tblVehicleEF	LHD1	0.53	0.30
tblVehicleEF	LHD1	0.67	0.23
tblVehicleEF	LHD1	7.8900e-004	9.1500e-004
tblVehicleEF	LHD1	0.01	9.9010e-003
tblVehicleEF	LHD1	0.01	7.0190e-003
tblVehicleEF	LHD1	6.6500e-004	2.1000e-004
tblVehicleEF	LHD1	7.5500e-004	8.7500e-004
tblVehicleEF	LHD1	2.6030e-003	2.4750e-003
tblVehicleEF	LHD1	9.7020e-003	6.6710e-003
tblVehicleEF	LHD1	6.1100e-004	1.9300e-004
tblVehicleEF	LHD1	1.8620e-003	1.4030e-003
tblVehicleEF	LHD1	0.08	0.05
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	1.0210e-003	7.7200e-004
tblVehicleEF	LHD1	0.10	0.07
tblVehicleEF	LHD1	0.26	0.43
tblVehicleEF	LHD1	0.15	0.04
tblVehicleEF	LHD1	8.9000e-005	8.0000e-005
tblVehicleEF	LHD1	6.2670e-003	6.8120e-003

tblVehicleEF	LHD1	3.0000e-004	1.0000e-004
tblVehicleEF	LHD1	1.8620e-003	1.4030e-003
tblVehicleEF	LHD1	0.08	0.05
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.0210e-003	7.7200e-004
tblVehicleEF	LHD1	0.11	0.09
tblVehicleEF	LHD1	0.26	0.43
tblVehicleEF	LHD1	0.16	0.05
tblVehicleEF	LHD2	2.5430e-003	2.5050e-003
tblVehicleEF	LHD2	5.3180e-003	5.3390e-003
tblVehicleEF	LHD2	3.2330e-003	4.8110e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.45	0.49
tblVehicleEF	LHD2	0.88	0.48
tblVehicleEF	LHD2	13.62	13.00
tblVehicleEF	LHD2	675.95	679.81
tblVehicleEF	LHD2	21.83	6.44
tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.22	0.38
tblVehicleEF	LHD2	0.26	0.12
tblVehicleEF	LHD2	1.0460e-003	1.5020e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	9.3120e-003	0.01
tblVehicleEF	LHD2	3.7400e-004	1.0600e-004
tblVehicleEF	LHD2	1.0000e-003	1.4370e-003
tblVehicleEF	LHD2	2.7080e-003	2.7110e-003
tblVehicleEF	LHD2	8.8860e-003	0.01
tblVehicleEF	LHD2	3.4400e-004	9.8000e-005
tblVehicleEF	LHD2	5.1500e-004	6.4200e-004
tblVehicleEF	LHD2	0.02	0.02

tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.0800e-004	3.7400e-004
tblVehicleEF	LHD2	0.09	0.10
tblVehicleEF	LHD2	0.04	0.14
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	1.3300e-004	1.2400e-004
tblVehicleEF	LHD2	6.5670e-003	6.5570e-003
tblVehicleEF	LHD2	2.3300e-004	6.4000e-005
tblVehicleEF	LHD2	5.1500e-004	6.4200e-004
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.0800e-004	3.7400e-004
tblVehicleEF	LHD2	0.11	0.11
tblVehicleEF	LHD2	0.04	0.14
tblVehicleEF	LHD2	0.05	0.02
tblVehicleEF	MCY	0.46	0.32
tblVehicleEF	MCY	0.16	0.25
tblVehicleEF	MCY	17.52	17.61
tblVehicleEF	MCY	10.34	9.20
tblVehicleEF	MCY	171.38	209.76
tblVehicleEF	MCY	42.85	59.23
tblVehicleEF	MCY	1.14	1.14
tblVehicleEF	MCY	0.32	0.27
tblVehicleEF	MCY	2.1570e-003	2.1380e-003
tblVehicleEF	MCY	3.3210e-003	2.8620e-003
tblVehicleEF	MCY	2.0120e-003	1.9940e-003
tblVehicleEF	MCY	3.1070e-003	2.6760e-003
tblVehicleEF	MCY	0.88	1.79
tblVehicleEF	MCY	0.61	0.63
tblVehicleEF	MCY	0.46	0.95

tblVehicleEF	MCY	2.12	2.13
tblVehicleEF	MCY	0.46	1.49
tblVehicleEF	MCY	2.11	1.88
tblVehicleEF	MCY	2.0640e-003	2.0760e-003
tblVehicleEF	MCY	6.5900e-004	5.8600e-004
tblVehicleEF	MCY	0.88	1.79
tblVehicleEF	MCY	0.61	0.63
tblVehicleEF	MCY	0.46	0.95
tblVehicleEF	MCY	2.66	2.67
tblVehicleEF	MCY	0.46	1.49
tblVehicleEF	MCY	2.30	2.04
tblVehicleEF	MDV	5.1180e-003	1.7720e-003
tblVehicleEF	MDV	7.2260e-003	0.04
tblVehicleEF	MDV	0.68	0.55
tblVehicleEF	MDV	1.51	2.32
tblVehicleEF	MDV	358.67	322.27
tblVehicleEF	MDV	82.28	67.92
tblVehicleEF	MDV	0.07	0.04
tblVehicleEF	MDV	0.11	0.18
tblVehicleEF	MDV	1.3880e-003	1.0340e-003
tblVehicleEF	MDV	2.0820e-003	1.3440e-003
tblVehicleEF	MDV	1.2780e-003	9.5400e-004
tblVehicleEF	MDV	1.9150e-003	1.2360e-003
tblVehicleEF	MDV	0.05	0.06
tblVehicleEF	MDV	0.13	0.10
tblVehicleEF	MDV	0.05	0.06
tblVehicleEF	MDV	0.01	6.8870e-003
tblVehicleEF	MDV	0.09	0.34
tblVehicleEF	MDV	0.10	0.20
tblVehicleEF	MDV	3.5870e-003	2.9760e-003

tblVehicleEF	MDV	8.4800e-004	6.2800e-004
tblVehicleEF	MDV	0.05	0.06
tblVehicleEF	MDV	0.13	0.10
tblVehicleEF	MDV	0.05	0.06
tblVehicleEF	MDV	0.02	9.9830e-003
tblVehicleEF	MDV	0.09	0.34
tblVehicleEF	MDV	0.11	0.22
tblVehicleEF	MH	8.2310e-003	5.0270e-003
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.45	0.31
tblVehicleEF	MH	3.72	1.64
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tblVehicleEF	MH	56.79	15.54
tblVehicleEF	MH	0.84	1.06
tblVehicleEF	MH	0.62	0.24
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	8.8300e-004	2.1200e-004
tblVehicleEF	MH	3.2210e-003	3.2970e-003
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	8.1200e-004	1.9500e-004
tblVehicleEF	MH	0.46	0.35
tblVehicleEF	MH	0.04	0.03
tblVehicleEF	MH	0.18	0.14
tblVehicleEF	MH	0.04	0.04
tblVehicleEF	MH	0.01	0.54
tblVehicleEF	MH	0.22	0.07
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	6.3200e-004	1.5400e-004
tblVehicleEF	MH	0.46	0.35

tblVehicleEF	MH	0.04	0.03
tblVehicleEF	MH	0.18	0.14
tblVehicleEF	MH	0.05	0.05
tblVehicleEF	MH	0.01	0.54
tblVehicleEF	MH	0.24	0.08
tblVehicleEF	MHD	0.02	3.8320e-003
tblVehicleEF	MHD	2.7470e-003	1.0340e-003
tblVehicleEF	MHD	0.03	8.3830e-003
tblVehicleEF	MHD	0.37	0.41
tblVehicleEF	MHD	0.25	0.15
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tblVehicleEF	MHD	0.34	0.34
tblVehicleEF	MHD	1.04	1.43
tblVehicleEF	MHD	9.99	1.69
tblVehicleEF	MHD	5.2000e-005	1.6200e-004
tblVehicleEF	MHD	3.0080e-003	7.0060e-003
tblVehicleEF	MHD	8.2100e-004	1.1200e-004
tblVehicleEF	MHD	5.0000e-005	1.5500e-004
tblVehicleEF	MHD	2.8710e-003	6.6960e-003
tblVehicleEF	MHD	7.5400e-004	1.0300e-004
tblVehicleEF	MHD	6.4300e-004	2.8900e-004
tblVehicleEF	MHD	0.03	0.01
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	3.8200e-004	1.6800e-004
tblVehicleEF	MHD	0.04	0.01
tblVehicleEF	MHD	0.02	0.07
tblVehicleEF	MHD	0.23	0.04

tblVehicleEF	MHD	1.2710e-003	6.1800e-004
tblVehicleEF	MHD	0.01	9.4800e-003
tblVehicleEF	MHD	6.6000e-004	8.5000e-005
tblVehicleEF	MHD	6.4300e-004	2.8900e-004
tblVehicleEF	MHD	0.03	0.01
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	3.8200e-004	1.6800e-004
tblVehicleEF	MHD	0.05	0.01
tblVehicleEF	MHD	0.02	0.07
tblVehicleEF	MHD	0.25	0.05
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tblVehicleEF	OBUS	4.0840e-003	2.1970e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.24	0.64
tblVehicleEF	OBUS	0.30	0.26
tblVehicleEF	OBUS	4.08	1.58
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tblVehicleEF	OBUS	0.85	1.45
tblVehicleEF	OBUS	2.74	1.13
tblVehicleEF	OBUS	2.2000e-005	1.4200e-004
tblVehicleEF	OBUS	2.8340e-003	7.8820e-003
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tblVehicleEF	OBUS	1.1660e-003	1.0620e-003
tblVehicleEF	OBUS	0.01	0.02

tblVehicleEF	OBUS	0.03	0.05
tblVehicleEF	OBUS	5.3200e-004	4.8700e-004
tblVehicleEF	OBUS	0.04	0.02
tblVehicleEF	OBUS	0.03	0.18
tblVehicleEF	OBUS	0.26	0.08
tblVehicleEF	OBUS	1.0660e-003	9.2400e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	7.2100e-004	1.3300e-004
tblVehicleEF	OBUS	1.1660e-003	1.0620e-003
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	0.05	0.06
tblVehicleEF	OBUS	5.3200e-004	4.8700e-004
tblVehicleEF	OBUS	0.05	0.02
tblVehicleEF	OBUS	0.03	0.18
tblVehicleEF	OBUS	0.28	0.08
tblVehicleEF	SBUS	0.81	0.07
tblVehicleEF	SBUS	7.6490e-003	4.4040e-003
tblVehicleEF	SBUS	0.06	6.3380e-003
tblVehicleEF	SBUS	8.87	2.93
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tblVehicleEF	SBUS	7.57	0.86
tblVehicleEF	SBUS	1,023.58	337.48
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tblVehicleEF	SBUS	10.76	1.18
tblVehicleEF	SBUS	2.1870e-003	2.0480e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	8.4940e-003	0.02

tblVehicleEF	SBUS	1.1020e-003	6.8000e-005
tblVehicleEF	SBUS	2.0920e-003	1.9600e-003
tblVehicleEF	SBUS	2.5880e-003	2.6690e-003
tblVehicleEF	SBUS	8.1060e-003	0.02
tblVehicleEF	SBUS	1.0130e-003	6.2000e-005
tblVehicleEF	SBUS	3.7080e-003	8.7000e-004
tblVehicleEF	SBUS	0.03	8.3040e-003
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tblVehicleEF	SBUS	1.7580e-003	4.1400e-004
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tblVehicleEF	SBUS	0.02	0.05
tblVehicleEF	SBUS	0.40	0.04
tblVehicleEF	SBUS	0.01	3.2190e-003
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tblVehicleEF	SBUS	7.4900e-004	5.0000e-005
tblVehicleEF	SBUS	3.7080e-003	8.7000e-004
tblVehicleEF	SBUS	0.03	8.3040e-003
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tblVehicleEF	SBUS	1.7580e-003	4.1400e-004
tblVehicleEF	SBUS	0.08	0.07
tblVehicleEF	SBUS	0.02	0.05
tblVehicleEF	SBUS	0.43	0.04
tblVehicleEF	UBUS	0.23	1.86
tblVehicleEF	UBUS	0.05	2.1860e-003
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tblVehicleEF	UBUS	13.02	0.02

tblVehicleEF	UBUS	0.54	0.07
tblVehicleEF	UBUS	0.01	0.03
tblVehicleEF	UBUS	0.10	5.1160e-003
tblVehicleEF	UBUS	1.3960e-003	1.5000e-005
tblVehicleEF	UBUS	0.23	0.03
tblVehicleEF	UBUS	3.0000e-003	8.3320e-003
tblVehicleEF	UBUS	0.10	4.8930e-003
tblVehicleEF	UBUS	1.2840e-003	1.4000e-005
tblVehicleEF	UBUS	2.5990e-003	6.1000e-005
tblVehicleEF	UBUS	0.04	8.1400e-004
tblVehicleEF	UBUS	1.5170e-003	3.6000e-005
tblVehicleEF	UBUS	0.23	0.03
tblVehicleEF	UBUS	9.4350e-003	4.9280e-003
tblVehicleEF	UBUS	0.65	9.2610e-003
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	1.4020e-003	1.4000e-005
tblVehicleEF	UBUS	2.5990e-003	6.1000e-005
tblVehicleEF	UBUS	0.04	8.1400e-004
tblVehicleEF	UBUS	1.5170e-003	3.6000e-005
tblVehicleEF	UBUS	0.48	1.90
tblVehicleEF	UBUS	9.4350e-003	4.9280e-003
tblVehicleEF	UBUS	0.71	0.01
tblVehicleTrips	ST_TR	4.98	3.63
tblVehicleTrips	SU_TR	3.65	2.66
tblVehicleTrips	WD_TR	4.20	3.06
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	NumberCatalytic	4.80	0.00
tblWoodstoves	NumberNoncatalytic	4.80	0.00
tblWoodstoves	WoodstoveDayYear	14.12	0.00
tblWoodstoves	WoodstoveWoodMass	582.40	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.5649	0.0205	1.7782	9.0000e-005		9.8900e-003	9.8900e-003		9.8900e-003	9.8900e-003	0.0000	2.9126	2.9126	2.7800e-003	0.0000	2.9821
Energy	0.0112	0.0955	0.0407	6.1000e-004		7.7200e-003	7.7200e-003		7.7200e-003	7.7200e-003	0.0000	220.9216	220.9216	0.0174	5.1800e-003	222.8988
Mobile	0.1913	0.3327	1.6384	5.2900e-003	0.6355	3.8400e-003	0.6393	0.1700	3.6000e-003	0.1736	0.0000	512.2179	512.2179	0.0194	0.0000	512.7019
Stationary	0.0612	0.2632	0.1626	2.9000e-004		9.4200e-003	9.4200e-003		9.4200e-003	9.4200e-003	0.0000	28.3884	28.3884	3.9800e-003	0.0000	28.4879
Waste						0.0000	0.0000		0.0000	0.0000	22.4102	0.0000	22.4102	1.3244	0.0000	55.5203
Water						0.0000	0.0000		0.0000	0.0000	5.5324	11.3462	16.8786	0.0206	0.0124	21.0757
Total	**1.8285**	**0.7120**	**3.6198**	**6.2800e-003**	**0.6355**	**0.0309**	**0.6663**	**0.1700**	**0.0306**	**0.2007**	**27.9426**	**775.7868**	**803.7294**	**1.3885**	**0.0175**	**843.6666**

Mitigated Operational

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

Category	tons/yr										MT/yr					
Area	1.5649	0.0205	1.7782	9.0000e-005		9.8900e-003	9.8900e-003		9.8900e-003	9.8900e-003	0.0000	2.9126	2.9126	2.7800e-003	0.0000	2.9821
Energy	0.0112	0.0955	0.0407	6.1000e-004		7.7200e-003	7.7200e-003		7.7200e-003	7.7200e-003	0.0000	110.6482	110.6482	2.1200e-003	2.0300e-003	111.3057
Mobile	0.1913	0.3327	1.6384	5.2900e-003	0.6355	3.8400e-003	0.6393	0.1700	3.6000e-003	0.1736	0.0000	512.2179	512.2179	0.0194	0.0000	512.7019
Stationary	0.0612	0.2632	0.1626	2.9000e-004		9.4200e-003	9.4200e-003		9.4200e-003	9.4200e-003	0.0000	28.3884	28.3884	3.9800e-003	0.0000	28.4879
Waste						0.0000	0.0000		0.0000	0.0000	22.4102	0.0000	22.4102	1.3244	0.0000	55.5203
Water						0.0000	0.0000		0.0000	0.0000	5.5324	11.3462	16.8786	0.0206	0.0124	21.0757
Total	**1.8285**	**0.7120**	**3.6198**	**6.2800e-003**	**0.6355**	**0.0309**	**0.6663**	**0.1700**	**0.0306**	**0.2007**	**27.9426**	**665.5133**	**693.4559**	**1.3733**	**0.0144**	**732.0736**

	ROG	NOx	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**	**14.21**	**13.72**	**1.10**	**17.96**	**13.23**

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	0.1913	0.3327	1.6384	5.2900e-003	0.6355	3.8400e-003	0.6393	0.1700	3.6000e-003	0.1736	0.0000	512.2179	512.2179	0.0194	0.0000	512.7019
Unmitigated	0.1913	0.3327	1.6384	5.2900e-003	0.6355	3.8400e-003	0.6393	0.1700	3.6000e-003	0.1736	0.0000	512.2179	512.2179	0.0194	0.0000	512.7019

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments High Rise	734.40	871.20	638.40	1,709,637	1,709,637
Enclosed Parking with Elevator	0.00	0.00	0.00		
Total	734.40	871.20	638.40	1,709,637	1,709,637

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	0.595423	0.053963	0.171400	0.106522	0.021043	0.005556	0.013639	0.023425	0.001443	0.001178	0.004780	0.000900	0.000728
Enclosed Parking with Elevator	0.595423	0.053963	0.171400	0.106522	0.021043	0.005556	0.013639	0.023425	0.001443	0.001178	0.004780	0.000900	0.000728

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Percent of Electricity Use Generated with Renewable Energy

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

Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	110.2735	110.2735	0.0152	3.1500e-003	111.5931	
NaturalGas Mitigated	0.0112	0.0955	0.0407	6.1000e-004		7.7200e-003	7.7200e-003		7.7200e-003	7.7200e-003	0.0000	110.6482	110.6482	2.1200e-003	2.0300e-003	111.3057	
NaturalGas Unmitigated	0.0112	0.0955	0.0407	6.1000e-004		7.7200e-003	7.7200e-003		7.7200e-003	7.7200e-003	0.0000	110.6482	110.6482	2.1200e-003	2.0300e-003	111.3057	

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	2.07347e+006	0.0112	0.0955	0.0407	6.1000e-004		7.7200e-003	7.7200e-003		7.7200e-003	7.7200e-003	0.0000	110.6482	110.6482	2.1200e-003	2.0300e-003	111.3057
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		**0.0112**	**0.0955**	**0.0407**	**6.1000e-004**		**7.7200e-003**	**7.7200e-003**		**7.7200e-003**	**7.7200e-003**	**0.0000**	**110.6482**	**110.6482**	**2.1200e-003**	**2.0300e-003**	**111.3057**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments High Rise	2.07347e+006	0.0112	0.0955	0.0407	6.1000e-004		7.7200e-003	7.7200e-003		7.7200e-003	7.7200e-003	0.0000	110.6482	110.6482	2.1200e-003	2.0300e-003	111.3057
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		**0.0112**	**0.0955**	**0.0407**	**6.1000e-004**		**7.7200e-003**	**7.7200e-003**		**7.7200e-003**	**7.7200e-003**	**0.0000**	**110.6482**	**110.6482**	**2.1200e-003**	**2.0300e-003**	**111.3057**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	990804	94.3784	0.0130	2.7000e-003	95.5078
Enclosed Parking with Elevator	166869	15.8950	2.2000e-003	4.5000e-004	16.0853
Total		**110.2735**	**0.0152**	**3.1500e-003**	**111.5931**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	0	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.5649	0.0205	1.7782	9.0000e-005		9.8900e-003	9.8900e-003		9.8900e-003	9.8900e-003	0.0000	2.9126	2.9126	2.7800e-003	0.0000	2.9821
Unmitigated	1.5649	0.0205	1.7782	9.0000e-005		9.8900e-003	9.8900e-003		9.8900e-003	9.8900e-003	0.0000	2.9126	2.9126	2.7800e-003	0.0000	2.9821

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	0.2311					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.2806					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	0.0532	0.0205	1.7782	9.0000e-005		9.8900e-003	9.8900e-003		9.8900e-003	9.8900e-003	0.0000	2.9126	2.9126	2.7800e-003	0.0000	2.9821
Total	**1.5649**	**0.0205**	**1.7782**	**9.0000e-005**		**9.8900e-003**	**9.8900e-003**		**9.8900e-003**	**9.8900e-003**	**0.0000**	**2.9126**	**2.9126**	**2.7800e-003**	**0.0000**	**2.9821**

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	0.2311					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.2806					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	0.0532	0.0205	1.7782	9.0000e-005		9.8900e-003	9.8900e-003		9.8900e-003	9.8900e-003	0.0000	2.9126	2.9126	2.7800e-003	0.0000	2.9821
Total	**1.5649**	**0.0205**	**1.7782**	**9.0000e-005**		**9.8900e-003**	**9.8900e-003**		**9.8900e-003**	**9.8900e-003**	**0.0000**	**2.9126**	**2.9126**	**2.7800e-003**	**0.0000**	**2.9821**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	16.8786	0.0206	0.0124	21.0757
Unmitigated	16.8786	0.0206	0.0124	21.0757

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	15.637 / 9.85809	16.8786	0.0206	0.0124	21.0757
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**16.8786**	**0.0206**	**0.0124**	**21.0757**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	15.637 / 9.85809	16.8786	0.0206	0.0124	21.0757
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**16.8786**	**0.0206**	**0.0124**	**21.0757**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			

Mitigated	22.4102	1.3244	0.0000	55.5203
Unmitigated	22.4102	1.3244	0.0000	55.5203

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	110.4	22.4102	1.3244	0.0000	55.5203
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		**22.4102**	**1.3244**	**0.0000**	**55.5203**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	110.4	22.4102	1.3244	0.0000	55.5203
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		**22.4102**	**1.3244**	**0.0000**	**55.5203**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0	50	1341	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	0.2460	0.1403	2.6000e-004		8.0900e-003	8.0900e-003		8.0900e-003	8.0900e-003	0.0000	25.5325	25.5325	3.5800e-003	0.0000	25.6219
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	**0.0612**	**0.2632**	**0.1626**	**2.9000e-004**		**9.4200e-003**	**9.4200e-003**		**9.4200e-003**	**9.4200e-003**	**0.0000**	**28.3884**	**28.3884**	**3.9800e-003**	**0.0000**	**28.4879**

11.0 Vegetation

Attachment 3: EMFAC2017 Emissions and CARB SAFE Off-Model Adjustment Factors

Summary of Construction Traffic Emissions (EMFAC2017)

Pollutants YEAR	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total		NBio- CO2
					Tons							*Metric Tons*
Criteria Pollutants												
2021	0.033	0.230	0.327	0.001	0.096	0.021	0.117	0.014	0.010	0.024		149.189
2022	0.051	0.361	0.545	0.002	0.174	0.035	0.209	0.026	0.016	0.042		264.111
2023	0.019	0.127	0.220	0.001	0.076	0.015	0.091	0.011	0.006	0.018	0.000	111.017
Toxic Air Contaminants (0.5 Mile Trip Length)												
2021	0.023	0.051	0.099	0.000	0.005	0.001	0.006	0.001	0.001	0.001		13.460
2022	0.039	0.089	0.176	0.000	0.008	0.002	0.010	0.001	0.001	0.002		24.146
2023	0.016	0.037	0.076	0.000	0.004	0.001	0.004	0.001	0.000	0.001		10.156

The Mark CalEEMod Construction Inputs & Project Haul Trips

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/Site Preparation	18	0	396	-	11	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	4,277	-	220
Shoring/Grading/Excavation	20	0	1,820	-	1,563	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	19,656	-	31,260
Below Slab Utilities	5	0	100	-	-	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	1,080	-	-
Foundation/Structure	172	28	45,408	7,392	-	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	490,406	53,962	-
Building - Exterior	172	28	25,800	4,200	4,400	10.8	7.3	7.3	LD_Mix	HDT_Mix	HHDT	278,640	30,660	32,120
Building - Interior/Archietectural Coating	34	0	10,030	-	-	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	108,324	-	-

Number of Days Per Year					
2021	6/14/21	12/31/21	201	**145**	
2022	1/1/22	12/31/22	365	**260**	
2023	1/1/23	6/8/2023	159	**114**	
			725	**519**	***Total Workdays***

Phase	Start Date	End Date	Days/Week	Workdays
Demolition/Site Preparation	6/14/2021	7/13/2021	5	22
Shoring/Grading/Excavation	7/15/2021	11/18/2021	5	91
Below Slab Utilities	11/23/2021	12/20/2021	5	20
Foundation/Structure	12/23/2021	12/27/2022	5	264
Building - Exterior	9/23/2022	4/20/2023	5	150
Building - Interior/Archietectural Coating	4/22/2022	6/8/2023	5	295

Summary of Construction Traffic Emissions (EMFAC2017)

CATEGORY	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	NBio- CO2
					Grams						
Hauling	11,444.11	308,620.62	76,691.80	966.59	19,016.40	10,032.66	29,049.06	2,861.36	5,960.15	8,821.51	105,213,903
Vendor	17,530.14	373,087.04	107,255.42	1,178.89	25,301.86	15,297.60	40,599.46	3,807.13	9,145.57	12,952.69	126,891,140
Worker	78,401.94	70,991.24	885,308.33	2,412.36	269,812.58	41,921.90	311,734.48	40,598.22	17,435.71	58,033.93	256,067,754
Total (g)	107,376.20	752,698.90	###########	4,557.83	314,130.84	67,252.16	381,383.00	47,266.71	32,541.43	79,808.14	488,172,797
Total (lbs)	236.72	1,659.42	2,357.30	10.05	692.54	148.27	840.81	104.21	71.74	175.95	1,076,237
Total (tons)	0.12	0.83	1.18	0.01	0.35	0.07	0.42	0.05	0.04	0.09	538
Total (MT)											488

YEAR											
						Tons					
	2021	0.0328	0.2300	0.3268	0.0014	0.0960	0.0206	0.1166	0.0144	0.0099	0.0244	149.1887

				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_PMBW	PM10_PMTW	PM10_IDLEX	PM10_RUNEX	PM10_STREX	Road Dust PM25	PM25_PMBW	PM25_PMTW	PM25_IDLEX	PM25_RUNEX	PM25_STREX	CO2_NBIO_IDLEX	CO2_NBIO_RUNEX	CO2_NBIO_STREX
		Mix %	Adj																															
Category																													19	22	23	8	9	10
Hauling	HHDT	100.0	1	4.16173E-06	0.000184922	0.434467644	2.29522E-06	0.13900353	0.00114182	2.55505E-06	5.9660776	4.11760691	1.857963365	5.630239	0.67643733	0.0059162	0.01013772	0.014245597	5.51426E-07		0.06085	0.035473	0.008566	0.060619	1.05485E-06		0.026078	0.008868	0.0081958	0.0579964	9.699E-07	1088.7861	1552.0308	0.0557231
	MHD	0.0	0	0.000487808	0.021812603	0.021034603	0.000236584	0.19015319	0.12779685	0.052960704	0.6687192	2.890356526	1.169875105	0.370014	0.75814415	1.203259	0.00073142	0.01105482	9.01406E-05	0.299	0.13034	0.012	0.002134	0.074904	0.000122619	0.04499	0.05586	0.003	0.0020414	0.0716576	0.0001127	77.128984	1160.4052	9.1089764
Vendor	HHDT	61.9	0.61874	2.57503E-06	0.000114418	0.268822304	1.42015E-06	0.08600698	0.00070649	1.58091E-06	3.691448	2.547726143	1.14959537	3.483651	0.41853851	0.0036606	0.00627261	0.008814314	3.41189E-07		0.03765	0.021949	0.0053	0.037507	6.52679E-07		0.016136	0.005487	0.0050711	0.0358847	6.001E-07	673.67502	960.30282	0.0344781
	MHD	38.1	0.38126	0.000185982	0.008316283	0.008019663	9.02002E-05	0.0724979	0.04872389	0.020191823	0.2549562	1.101978703	0.446027139	0.141072	0.2890504	0.4587551	0.00027886	0.004214766	3.43671E-05		0.049694	0.004575	0.000814	0.028558	4.67497E-05		0.021297	0.001144	0.0007783	0.0273202	4.298E-05	29.406233	442.41664	3.4728927
			1	0.000188557	0.008430702	0.276841966	9.16203E-05	0.15850488	0.04943038	0.020193404	3.9464042	3.649704846	1.595622508	3.624723	0.70758891	0.4624157	0.00655147	0.01302908	3.47082E-05	0.299	0.087344	0.026524	0.006114	0.066065	4.74024E-05	0.04499	0.037433	0.006631	0.0058494	0.0632049	4.358E-05	703.08125	1402.7195	3.5073708
Worker	LDA	71.5	0.71531	0.032356992	0.074537563	0	0.027925009	0.00741584	0.1578651	0.184530222	0	0.031184457	0.14495028	0	0.47490777	1.6391858	0	6.40185E-05	0		0.026288	0.005723	0	0.001067	0.00135696		0.011266	0.001431	0	0.0009833	0.0012477	0	184.45167	39.076478
	LDT1	6.4	0.0637	0.006312515	0.011963767	0	0.004904484	0.00157907	0.04309569	0.024338938	0	0.006713175	0.017206334	0	0.07593017	0.1604786	0	0.000164506	0		0.002341	0.00051	0	0.000131	0.000163964		0.001003	0.000127	0	0.000121	0.0001508	0	19.529136	4.1945977
	LDT2	22.1	0.22098	0.01437858	0.029016459	0	0.013334911	0.00366633	0.09718754	0.079849501	0	0.019175669	0.071096765	0	0.20286241	0.6560146	0	0.002442948	1.99197E-05		0.008121	0.001768	0	0.000329	0.000410964		0.003481	0.000442	0	0.0003031	0.0003779	0	74.292964	16.069943
			1	0.053048088	0.115517789	0	0.046164405	0.01266123	0.29814833	0.28871866	0	0.057073301	0.233253379	0	0.75370035	2.4556789	0	0.002671473	1.99197E-05	0.299	0.03675	0.008	0	0.001528	0.001931888	0.04499	0.01575	0.002	0	0.0014074	0.0017764	0	278.27377	59.341019

Source: EMFAC2017 (v1.0.2) Emission Rates
Region Type: County
Region: Santa Clara
Calendar Year: 2021
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX, RESTLOSS and DIURN

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Population	VMT	Trips	NOx_RUNE	NOx_IDLEX	NOx_STREX	PM2.5_RU	PM2.5_IDL	PM2.5_STF	PM2.5_PM	PM2.5_PM	PM10_RUN	PM10_IDLI	PM10_STR	PM10_PM	PM10_PMI	CO2_RUNE	CO2_IDLEX	CO2_STREX	CH4_RUNE	CH4_IDLEX	CH4_STREX	N2O_RUNE	N2O_IDLEX	N2O_STRE	ROG_RUNI	ROG_IDLEX	ROG_STRE	ROG_HOTS	ROG_RUNI	ROG_REST	ROG_DIUR	TOG_RUNI	TOG_IDLEX	TOG_STRE	TOG_HOTS	TOG_RUNI	TOG_REST	TOG_DIUR	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNE	SOx_IDLEX	SOx_STREX
Santa Clara	2021	HHDT	Aggregate	Aggregate	Gasoline	5.162845	484.6824	103.2982	4.062598	0	0.407731	0.001311	0	0.000823	0.005	0.02646	0.001426	0	0.000895	0.02	0.06174	2025.269	0	47.29512	0.112325	0	0.000414	0.149526	0	0.012575	0.585782	0	0.002169	0.156953	0.96912	0.038977	0.070674	0.854771	0	0.002374	0.156953	0.96912	0.038977	0.070674	32.05552	0	5.02137	0.020042	0	0.000468
Santa Clara	2021	HHDT	Aggregate	Aggregate	Diesel	8105.749	988266.7	86260.08	4.147844	63.6365	1.887942	0.058758	0.087222	0	0.008868	0.026073	0.061415	0.091165	0	0.035473	0.060837	1528.481	11606.57	0	0.006422	0.218177	0	0.240256	1.824391	0	0.138263	4.697294	0	0	0	0	0.157402	5.347512	0	0	0	0	0	0.5229	60.00634	0	0.01444	0.109653	0
Santa Clara	2021	HHDT	Aggregate	Aggregate	Natural Ga	336.2009	13706.54	1311.183	1.939434	21.5699	0	0.005088	0.034407	0	0	0.009	0.02646	0.005318	0.035962	0	0.036	0.06174	3233.282	4101.533	0	3.57235	1.261083	0	0.659126	0.836124	0	0.176593	0.0496	0	0	0	3.788896	1.323011	0	0	0	0	0	10.63714	21.51231	0	0	0	0
Santa Clara	2021	LDA	Aggregate	Aggregate	Gasoline	715693.3	26189161	3369392	0.044609	0	0.21159	0.001358	0	0.001822	0.002	0.01575	0.001477	0	0.001981	0.008	0.03675	266.3197	0	56.92202	0.002711	0	0.058853	0.004863	0	0.027764	0.010662	0	0.269366	0.108645	0.230465	0.191774	0.221801	0.015551	0	0.294921	0.108645	0.230465	0.191774	0.221801	0.690036	0	2.392069	0.002635	0	0.000563
Santa Clara	2021	LDA	Aggregate	Aggregate	Diesel	6670.999	255156.4	31695.34	0.087271	0	0	0.007648	0	0	0.002	0.01575	0.007994	0	0	0.008	0.03675	205.4073	0	0	0.000708	0	0	0.032287	0	0	0.015244	0	0	0	0	0	0.017354	0	0	0	0	0	0	0.210705	0	0	0.001942	0	0
Santa Clara	2021	LDA	Aggregate	Aggregate	Electricity	24022.27	869835.7	117842.5	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0	0
Santa Clara	2021	LDT1	Aggregate	Aggregate	Gasoline	71628.15	2413668	331256	0.105802	0	0.272111	0.001862	0	0.002385	0.002	0.01575	0.002025	0	0.002594	0.008	0.03675	308.1227	0	66.19689	0.005661	0	0.076866	0.008066	0	0.03002	0.024911	0	0.384911	0.189186	0.681609	0.358705	0.461608	0.036311	0	0.421425	0.189186	0.681609	0.358705	0.461608	1.200263	0	2.537143	0.003049	0	0.000655
Santa Clara	2021	LDT1	Aggregate	Aggregate	Diesel	39.89374	725.5582	131.2284	1.268412	0	0	0.168474	0	0	0.002	0.01575	0.176091	0	0	0.008	0.03675	413.9966	0	0	0.010139	0	0	0.065074	0	0	0.218297	0	0	0	0	0	0.248517	0	0	0	0	0	0	1.237222	0	0	0.003914	0	0
Santa Clara	2021	LDT1	Aggregate	Aggregate	Electricity	483.8807	18039.76	2391.303	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0	0
Santa Clara	2021	LDT2	Aggregate	Aggregate	Gasoline	246759.9	8311704	1150425	0.087782	0	0.326789	0.001356	0	0.001737	0.002	0.01575	0.001475	0	0.001889	0.008	0.03675	338.518	0	73.70907	0.004072	0	0.077467	0.007118	0	0.035187	0.01674	0	0.36702	0.133338	0.446757	0.285742	0.307995	0.024414	0	0.40184	0.133338	0.446757	0.285742	0.307995	0.930639	0	3.014399	0.00335	0	0.000729
Santa Clara	2021	LDT2	Aggregate	Aggregate	Diesel	1518.218	59025.65	7458.416	0.041668	0	0	0.004904	0	0	0.002	0.01575	0.005126	0	0	0.008	0.03675	282.8504	0	0	0.000657	0	0	0.04446	0	0	0.01415	0	0	0	0	0	0.016109	0	0	0	0	0	0	0.12212	0	0	0.002674	0	0
Santa Clara	2021	LDT2	Aggregate	Aggregate	Electricity	2166.546	67548.49	10876.24	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0	0
Santa Clara	2021	LHDT1	Aggregate	Aggregate	Gasoline	16540.61	571642.7	246430.4	0.262338	0.03949	0.549198	0.002191	0	0.000401	0.002	0.03276	0.002383	0	0.000436	0.008	0.07644	1017.255	122.0379	19.14342	0.012124	0.123606	0.02716	0.015765	0.003154	0.042297	0.059375	0.45228	0.137987	0.130258	0.89758	0.02599	0.052227	0.08664	0.659966	0.151079	0.130258	0.89758	0.02599	0.052227	1.086844	3.748723	1.811769	0.010067	0.001208	0.000189
Santa Clara	2021	LHDT1	Aggregate	Aggregate	Diesel	10609.08	409397.3	133448.8	1.862203	2.152154	0	0.023297	0.02704	0	0.003	0.03276	0.02435	0.028263	0	0.012	0.07644	552.5074	134.745	0	0.007585	0.005098	0	0.086846	0.02118	0	0.163311	0.10976	0	0	0	0	0.185919	0.124954	0	0	0	0	0	0.686231	0.909745	0	0.005223	0.001274	0
Santa Clara	2021	LHDT2	Aggregate	Aggregate	Gasoline	2219.575	77018.29	33068.36	0.272207	0.039035	0.535592	0.002122	0	0.00036	0.002	0.03822	0.002307	0	0.000392	0.008	0.08918	1160.22	140.2323	21.7453	0.010038	0.122897	0.026292	0.016913	0.003077	0.040901	0.045762	0.447168	0.133103	0.127611	0.884759	0.023996	0.048928	0.066776	0.652507	0.145731	0.127611	0.884759	0.023996	0.048928	0.835401	3.750559	1.839341	0.011481	0.001388	0.000215
Santa Clara	2021	LHDT2	Aggregate	Aggregate	Diesel	4214.571	160661.6	53014	1.542154	2.158821	0	0.022944	0.027219	0	0.003	0.03822	0.023981	0.02845	0	0.012	0.08918	621.5562	215.9968	0	0.007204	0.005098	0	0.0977	0.033952	0	0.155094	0.10976	0	0	0	0	0.176564	0.124954	0	0	0	0	0	0.650931	0.909745	0	0.005876	0.002042	0
Santa Clara	2021	MCY	Aggregate	Aggregate	Gasoline	32119.63	239436.8	64239.26	1.15497	0	0.270443	0.001772	0	0.00303	0.001	0.00504	0.001893	0	0.003213	0.004	0.01176	210.3906	0	61.75755	0.33122	0	0.25818	0.066438	0	0.015338	2.253066	0	1.967635	0.716612	2.132348	1.002545	1.822873	2.774349	0	2.14098	0.716612	2.132348	1.002545	1.822873	19.56337	0	8.976601	0.002082	0	0.000611
Santa Clara	2021	MDV	Aggregate	Aggregate	Gasoline	149542.9	4865312	690430.3	0.11839	0	0.410054	0.001476	0	0.002019	0.002	0.01575	0.001604	0	0.002194	0.008	0.03675	409.4409	0	89.81723	0.005494	0	0.095775	0.008922	0	0.03884	0.024634	0	0.48393	0.15482	0.49034	0.340146	0.361645	0.034949	0	0.529797	0.15482	0.49034	0.340146	0.361645	1.127252	0	3.59329	0.004052	0	0.000889
Santa Clara	2021	MDV	Aggregate	Aggregate	Diesel	3426.389	128242	16726.03	0.044109	0	0	0.004602	0	0	0.002	0.01575	0.00481	0	0	0.008	0.03675	370.3019	0	0	0.000514	0	0	0.058206	0	0	0.011068	0	0	0	0	0	0.0126	0	0	0	0	0	0	0.188966	0	0	0.003501	0	0
Santa Clara	2021	MDV	Aggregate	Aggregate	Electricity	687.5446	22639.78	3509.471	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0	0
Santa Clara	2021	MH	Aggregate	Aggregate	Gasoline	2931.22	26379	293.2393	0.474084	0	0.332292	0.001724	0	0.000381	0.003	0.05586	0.001875	0	0.000414	0.012	0.13034	1782.907	0	26.40751	0.017557	0	0.033119	0.028008	0	0.03399	0.078746	0	0.143103	0.096257	2.347589	0.039223	0.115979	0.114906	0	0.15668	0.096257	2.347589	0.039223	0.115979	2.065959	0	3.165436	0.017643	0	0.000261
Santa Clara	2021	MH	Aggregate	Aggregate	Diesel	984.446	9504.941	98.4446	4.382014	0	0	0.092722	0	0	0.004	0.05586	0.096914	0	0	0.016	0.13034	1031.304	0	0	0.005198	0	0	0.162107	0	0	0.111901	0	0	0	0	0	0.127391	0	0	0	0	0	0	0.400207	0	0	0.00975	0	0
Santa Clara	2021	MHDT	Aggregate	Aggregate	Gasoline	1410.134	72248.39	28213.97	0.591018	0.088168	0.389628	0.001358	0	0.000497	0.003	0.05586	0.001477	0	0.00054	0.012	0.13034	1752.404	539.4334	40.1358	0.018696	0.257865	0.042095	0.027833	0.0072	0.028931	0.092815	1.007984	0.233354	0.09611	0.563096	0.020857	0.043005	0.135436	1.470848	0.255494	0.09611	0.563096	0.020857	0.043005	2.155492	15.06152	5.301778	0.017341	0.005338	0.000397
Santa Clara	2021	MHDT	Aggregate	Aggregate	Diesel	9487.148	545455.1	96101.91	3.194916	8.74953	1.398943	0.080969	0.02675	0	0.003	0.05586	0.08463	0.02796	0	0.012	0.13034	1081.992	930.4887	0	0.009431	0.005843	0	0.170074	0.14626	0	0.203046	0.125806	0	0	0	0	0.231153	0.143221	0	0	0	0	0	0.573058	2.609835	0	0.010222	0.008791	0
Santa Clara	2021	OBUS	Aggregate	Aggregate	Gasoline	502.2127	24696.47	10048.27	0.501682	0.065104	0.329488	0.000916	0	0.000212	0.003	0.05586	0.000996	0	0.00023	0.012	0.13034	1793.018	381.4064	26.74037	0.014791	0.200187	0.030949	0.025044	0.005583	0.026445	0.070359	0.746923	0.159737	0.026848	0.294072	0.016083	0.036997	0.102667	1.089908	0.174892	0.026848	0.294072	0.016083	0.036997	1.576822	5.778528	3.351004	0.017743	0.003774	0.000265
Santa Clara	2021	OBUS	Aggregate	Aggregate	Diesel	767.9729	54443.73	7049.223	2.779706	13.63199	1.84	0.044765	0.045778	0	0.003	0.05586	0.046789	0.047848	0	0.012	0.13034	1202.163	1945.083	0	0.005321	0.035079	0	0.188963	0.30574	0	0.114561	0.755235	0	0	0	0	0.130419	0.859777	0	0	0	0	0	0.397353	8.822131	0	0.011357	0.018376	0
Santa Clara	2021	SBUS	Aggregate	Aggregate	Gasoline	235.3456	11037.57	941.3825	0.448701	0.923977	0.560273	0.001205	0	0.000494	0.002	0.3192	0.001311	0	0.000537	0.008	0.7448	872.735	2601.946	49.24562	0.012804	2.443216	0.058897	0.025163	0.088108	0.05292	0.063019	10.60409	0.336056	0.060254	0.423958	0.009983	0.025	0.091957	15.47346	0.367939	0.060254	0.423958	0.009983	0.025	1.371308	82.01386	8.8054	0.008636	0.025748	0.000487
Santa Clara	2021	SBUS	Aggregate	Aggregate	Diesel	1013.214	32006.31	11692.35	6.970742	45.79682	0.74176	0.043352	0.053733	0	0.003	0.3192	0.045313	0.056163	0	0.012	0.7448	1153.149	3727.733	0	0.004763	0.013307	0	0.181259	0.585948	0	0.102551	0.286497	0	0	0	0	0.116746	0.326154	0	0	0	0	0	0.279558	5.707206	0	0.010894	0.035218	0
Santa Clara	2021	UBUS	Aggregate	Aggregate	Gasoline	8.415569	1059.368	33.66228	0.456042	0	1.173674	0.000327	0	9.66E-05	0.003	0.05586	0.000355	0	0.000105	0.012	0.13034	2351.957	0	104.4673	0.006811	0	0.169572	0.0345	0	0.088962	0.022728	0	0.727258	0.171351	1.189018	0.028073	0.044636	0.033164	0	0.796256	0.171351	1.189018	0.028073	0.044636	0.499495	0	8.852622	0.023275	0	0.001034
Santa Clara	2021	UBUS	Aggregate	Aggregate	Diesel	423.0651	46463.12	1692.26	0.803452	0	0	0.005651	0	0	0.008415	0.029326	0.005907	0	0	0.033661	0.068427	1481.161	0	0	0.077358	0	0	0.232818	0	0	0.001105	0	0	0	0	0	0.078949	0	0	0	0	0	0	0.131304	0	0	0.014002	0	0
Santa Clara	2021	UBUS	Aggregate	Aggregate	Natural Ga	103.9599	12318.22	415.8396	0.489341	0	0	0.003183	0	0	0.008475	0.029034	0.003327	0	0	0.033899	0.067745	2016.304	0	0	6.413624	0	0	0.411037	0	0	0.091638	0	0	0	0	0	6.545574	0	0	0	0	0	0	49.80412	0	0	0	0	0

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

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

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

Enter NA in the date field if adjustments do not apply

Summary of Construction Traffic Emissions (EMFAC2017)

CATEGORY	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	NBio- CO2
					Grams						
Hauling	7,994.97	270,868.89	68,911.05	942.55	19,016.40	8,378.49	27,394.89	2,861.36	4,375.47	7,236.84	102,683,540
Vendor	11,448.18	316,376.57	92,648.26	1,151.23	25,301.86	12,683.11	37,984.97	3,807.13	6,645.56	10,452.69	123,981,623
Worker	72,261.21	62,725.76	820,494.39	2,339.55	269,812.58	41,849.14	311,661.72	40,598.22	17,368.60	57,966.83	249,248,465
Total (g)	91,704.37	649,971.23	982,053.69	4,433.33	314,130.84	62,910.74	377,041.58	47,266.71	28,389.64	75,656.35	475,913,628
Total (lbs)	202.17	1,432.94	2,165.06	9.77	692.54	138.69	831.23	104.21	62.59	166.79	1,049,210
Total (tons)	0.10	0.72	1.08	0.00	0.35	0.07	0.42	0.05	0.03	0.08	525
Total (MT)											476

YEAR											
						Tons					
	2021										
	2022	0.0509	0.3607	0.5450	0.0025	0.1743	0.0349	0.2092	0.0262	0.0158	0.0420	264.1115
	2023										

		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_PMBW	PM10_PMTW	PM10_IDLEX	PM10_RUNEX	PM10_STREX	Road Dust PM25	PM25_PMBW	PM25_PMTW	PM25_IDLEX	PM25_RUNEX	PM25_STREX	CO2_NBIO_IDLEX	CO2_NBIO_RUNEX	CO2_NBIO_STREX
Category																													19	22	23	8	9	10
Hauling	HHDT	100.0	1	3.39912E-06	0.000152206	0.429371666	1.88626E-06	0.08527405	0.00092348	2.55882E-06	5.9173485	3.510881155	2.046637574	5.939213	0.52508074	0.0058678	0.01029663	0.013852697	5.1568E-07		0.060884	0.035493	0.003362	0.035044	9.00263E-07		0.026093	0.008873	0.0032166	0.033528	8.278E-07	1105.7031	1510.6566	0.0521109
	MHD	0.0	0	0.00044818	0.02058451	0.019512587	0.000221882	0.09170637	0.11899793	0.05147655	0.5645581	2.060753772	1.380182496	0.373927	0.48464994	1.1601125	0.00071898	0.010780742	9.08685E-05	0.299	0.13034	0.012	0.001235	0.03679	0.000119776	0.04499	0.05586	0.003	0.0011811	0.0351917	0.0001101	75.80618	1131.3081	9.182511
Vendor	HHDT	62.1	0.62055	2.10934E-06	9.44524E-05	0.266448661	1.17053E-06	0.05291722	0.00057307	1.58789E-06	3.6720392	2.178694257	1.270050831	3.685607	0.32584139	0.0036413	0.00638963	0.008596358	3.20007E-07		0.037782	0.022025	0.002086	0.021747	5.58663E-07		0.016192	0.005506	0.0019961	0.0208059	5.137E-07	686.14938	937.44524	0.0323377
	MHD	37.9	0.37945	0.00017006	0.007810693	0.007403957	8.41922E-05	0.03479754	0.04515319	0.019532528	0.2142188	0.781943066	0.523703582	0.141885	0.18389808	0.4401991	0.00027281	0.004090701	3.44796E-05		0.049457	0.004553	0.000468	0.01396	4.54485E-05		0.021196	0.001138	0.0004482	0.0133533	4.179E-05	28.764289	429.2694	3.4842594
			1	0.000172169	0.007905145	0.273852618	8.53627E-05	0.08771476	0.04572626	0.019534116	3.8862581	2.960637323	1.793754413	3.827492	0.50973947	0.4438404	0.00666244	0.012687058	3.47996E-05	0.299	0.087239	0.026579	0.002555	0.035706	4.60072E-05	0.04499	0.037388	0.006645	0.0024442	0.0341593	4.23E-05	714.91367	1366.7146	3.5165971
Worker	LDA	71.7	0.71721	0.029679934	0.069287895	0	0.025948717	0.00627875	0.15142537	0.167118784	0	0.027062697	0.135235315	0	0.43554167	1.5959914	0	6.55844E-05	0		0.026358	0.005738	0	0.001019	0.001303368		0.011296	0.001434	0	0.0009386	0.0011984	0	180.32718	38.214126
	LDT1	6.4	0.06398	0.005759375	0.011009833	0	0.004555719	0.00134912	0.03986886	0.02186246	0	0.005796546	0.015933435	0	0.06778579	0.155553	0	0.000166314	0		0.002351	0.000512	0	0.000122	0.000153462		0.001008	0.000128	0	0.0001121	0.0001411	0	19.165858	4.1143018
	LDT2	21.9	0.21881	0.013816282	0.027554601	0	0.012979481	0.00322961	0.09379893	0.072917494	0	0.016689277	0.064428443	0	0.18550531	0.628991	0	0.002358898	1.98826E-05		0.008041	0.00175	0	0.000314	0.000393391		0.003446	0.000438	0	0.0002892	0.0003617	0	71.368997	15.443923
			1	0.049255591	0.107852329	0	0.043483917	0.01085748	0.28509316	0.261898738	0	0.04954852	0.215597193	0	0.68883278	2.3805355	0	0.002590796	1.98826E-05	0.299	0.03675	0.008	0	0.001455	0.001850221	0.04499	0.01575	0.002	0	0.00134	0.0017013	0	270.86204	57.772351

Source: EMFAC2017 (v1.0.2) Emission Rates
Region Type: County
Region: Santa Clara
Calendar Year: 2021, 2022, 2023, 2024
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX, RESTLOSS and DIURN

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Population	VMT	Trips	NOx_RUNE	NOx_IDLE	NOx_STRE	PM2.5_RU	PM2.5_IDL	PM2.5_STF	PM2.5_PM	PM2.5_PM	PM10_RUI	PM10_IDLI	PM10_STR	PM10_PM	PM10_PMI	CO2_RUNE	CO2_IDLE	CO2_STRE	CH4_RUNE	CH4_IDLE	CH4_STRE	N2O_RUNI	N2O_IDLE	N2O_STRE	ROG_RUNI	ROG_IDLE	ROG_STRE	ROG_HOTS	ROG_RUNI	ROG_REST	ROG_DIUR	TOG_RUNI	TOG_IDLE	TOG_STRE	TOG_HOTS	TOG_RUNI	TOG_REST	TOG_DIUR	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNE	SOx_IDLEX	SOx_STREX
Santa Clara	2022	HHDT	Aggregate	Aggregate	Gasoline	4.973172	516.9338	99.50323	3.654204	0	0.338391	0.001236	0	0.000744	0.005	0.02646	0.001344	0	0.00081	0.02	0.06174	1964.961	0	46.86739	0.097725	0	0.00044	0.140899	0	0.010576	0.494672	0	0.002301	0.136891	0.830556	0.033943	0.061166	0.721824	0	0.00252	0.136891	0.830556	0.033943	0.061166	30.00648	0	5.27737	0.019445	0	0.000464
Santa Clara	2022	HHDT	Aggregate	Aggregate	Diesel	8277.463	1011.013	88031.26	3.535499	63.08378	2.080194	0.033949	0.03347	0	0.008873	0.026088	0.035484	0.034983	0	0.035494	0.060872	1486.606	11783.13	0	0.003901	0.215524	0	0.233674	1.852143	0	0.08399	4.640183	0	0	0	0	0.095616	5.282495	0	0	0	0	0	0	0.366847	63.30293	0	0.014045	0.111321	0
Santa Clara	2022	HHDT	Aggregate	Aggregate	Natural Ga	348.7902	14223.14	1360.282	1.755776	21.14752	0	0.004789	0.030991	0	0.009	0.02646	0.005006	0.032392	0	0.036	0.06174	3203.692	4060.116	0	3.511574	1.248503	0	0.653093	0.827681	0	0.161697	0.045805	0	0	0	0	3.710887	1.306054	0	0	0	0	0	0	10.70122	21.55662	0	0	0	0
Santa Clara	2022	LDA	Aggregate	Aggregate	Gasoline	733557.7	26455304	3456649	0.03872	0	0.197227	0.001299	0	0.001748	0.002	0.01575	0.001413	0	0.001902	0.008	0.03675	259.2126	0	55.39361	0.002345	0	0.054199	0.004449	0	0.026685	0.009015	0	0.243726	0.100881	0.22086	0.178182	0.20337	0.013151	0	0.266848	0.100881	0.22086	0.178182	0.20337	0.63218	0	2.325265	0.002565	0	0.000548
Santa Clara	2022	LDA	Aggregate	Aggregate	Diesel	7146.668	268335.1	33963.02	0.071556	0	0	0.006579	0	0	0.002	0.01575	0.006877	0	0	0.008	0.03675	200.3149	0	0	0.000626	0	0	0.031487	0	0	0.013485	0	0	0	0	0	0.015352	0	0	0	0	0	0	0.198488	0	0	0.001894	0	0
Santa Clara	2022	LDA	Aggregate	Aggregate	Electricity	25894.61	943282.8	126428	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0	0
Santa Clara	2022	LDT1	Aggregate	Aggregate	Gasoline	73556.92	2443329	340743.8	0.091156	0	0.251292	0.001724	0	0.002226	0.002	0.01575	0.001875	0	0.002421	0.008	0.03675	300.527	0	64.49485	0.004882	0	0.070027	0.007217	0	0.028775	0.021236	0	0.344801	0.173613	0.628849	0.332831	0.420667	0.030964	0	0.377511	0.173613	0.628849	0.332831	0.420667	1.068397	0	2.450832	0.002974	0	0.000638
Santa Clara	2022	LDT1	Aggregate	Aggregate	Diesel	36.8388	667.9121	121.0603	1.185315	0	0	0.157566	0	0	0.002	0.01575	0.164691	0	0	0.008	0.03675	408.3259	0	0	0.009501	0	0	0.064183	0	0	0	0	0	0	0	0	0.232879	0	0	0	0	0	0	1.159574	0	0	0.00386	0	0
Santa Clara	2022	LDT1	Aggregate	Aggregate	Electricity	624.8771	24059.07	3099.469	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0	0
Santa Clara	2022	LDT2	Aggregate	Aggregate	Gasoline	250455.4	8295824	1167439	0.077278	0	0.299792	0.001307	0	0.001684	0.002	0.01575	0.001421	0	0.001831	0.008	0.03675	327.6413	0	71.42656	0.003665	0	0.072415	0.006473	0	0.033384	0.014906	0	0.339292	0.128171	0.436499	0.281495	0.299507	0.021744	0	0.371482	0.128171	0.436499	0.281495	0.299507	0.860463	0	2.923834	0.003242	0	0.000707
Santa Clara	2022	LDT2	Aggregate	Aggregate	Diesel	1663.513	62652.21	8136.947	0.039252	0	0	0.004754	0	0	0.002	0.01575	0.004969	0	0	0.008	0.03675	275.5741	0	0	0.000647	0	0	0.043316	0	0	0.013935	0	0	0	0	0	0.015864	0	0	0	0	0	0	0.123161	0	0	0.002605	0	0
Santa Clara	2022	LDT2	Aggregate	Aggregate	Electricity	2695.96	82111.52	13502.44	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0	0
Santa Clara	2022	LHDT1	Aggregate	Aggregate	Gasoline	16536.9	566343.8	246375.2	0.235238	0.038471	0.530556	0.002161	0	0.000388	0.002	0.03276	0.00235	0	0.000422	0.008	0.07644	1006.569	121.1222	18.98971	0.01086	0.121305	0.025473	0.014262	0.003125	0.041267	0.052874	0.440699	0.129054	0.125369	0.861898	0.025267	0.050121	0.077153	0.643067	0.141298	0.125369	0.861898	0.025267	0.050121	0.97349	3.751848	1.764958	0.009961	0.001199	0.000188
Santa Clara	2022	LHDT1	Aggregate	Aggregate	Diesel	11104.44	423266.4	139679.8	1.613919	2.033114	0	0.021273	0.026869	0	0.003	0.03276	0.022235	0.028084	0	0.012	0.07644	544.3042	133.047	0	0.007318	0.005098	0	0.085557	0.020913	0	0.157544	0.10976	0	0	0	0	0.179353	0.124954	0	0	0	0	0	0	0.661457	0.909745	0	0.005146	0.001258	0
Santa Clara	2022	LHDT2	Aggregate	Aggregate	Gasoline	2253.3	77523.96	33570.81	0.240034	0.037891	0.516259	0.002078	0	0.000346	0.002	0.03822	0.00226	0	0.000377	0.008	0.08918	1147.291	139.0737	21.54397	0.008737	0.120275	0.024583	0.015135	0.003045	0.039911	0.039365	0.434196	0.123837	0.121118	0.819863	0.023133	0.046225	0.057441	0.633578	0.135586	0.121118	0.819863	0.023133	0.046225	0.722025	3.75488	1.776904	0.011353	0.001376	0.000213
Santa Clara	2022	LHDT2	Aggregate	Aggregate	Diesel	4438.985	166319.5	55836.85	1.346918	2.041795	0	0.021771	0.027131	0	0.003	0.03822	0.022756	0.028358	0	0.012	0.08918	612.5422	213.4891	0	0.007003	0.005098	0	0.096283	0.033558	0	0.150761	0.10976	0	0	0	0	0.171631	0.124954	0	0	0	0	0	0	0.634383	0.909745	0	0.005791	0.002018	0
Santa Clara	2022	MCY	Aggregate	Aggregate	Gasoline	32925.36	241011	65850.71	1.151611	0	0.270649	0.001812	0	0.002978	0.001	0.00504	0.001937	0	0.003161	0.004	0.01176	210.2729	0	61.39967	0.328946	0	0.256691	0.06628	0	0.015352	2.228751	0	1.954835	0.704215	2.060677	0.995009	1.817765	2.753726	0	2.127328	0.704215	2.060677	0.995009	1.817765	19.18808	0	9.0045	0.002081	0	0.000608
Santa Clara	2022	MDV	Aggregate	Aggregate	Gasoline	151961.1	4876240	702265.7	0.099589	0	0.371177	0.001397	0	0.001912	0.002	0.01575	0.001519	0	0.002079	0.008	0.03675	396.236	0	86.90417	0.004621	0	0.087878	0.007887	0	0.036541	0.019446	0	0.437645	0.147462	0.472734	0.331376	0.347901	0.028322	0	0.479161	0.147462	0.472734	0.331376	0.347901	0.980018	0	3.406111	0.003921	0	0.00086
Santa Clara	2022	MDV	Aggregate	Aggregate	Diesel	3721.225	135478.8	18101.22	0.038775	0	0	0.004203	0	0	0.002	0.01575	0.004393	0	0	0.008	0.03675	360.3121	0	0	0.000478	0	0	0.056636	0	0	0.010285	0	0	0	0	0	0.011709	0	0	0	0	0	0	0.184421	0	0	0.003406	0	0
Santa Clara	2022	MDV	Aggregate	Aggregate	Electricity	1080.167	34834.41	5508.057	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0	0
Santa Clara	2022	MH	Aggregate	Aggregate	Gasoline	2891.835	26265.33	289.2992	0.413359	0	0.334516	0.001633	0	0.000362	0.003	0.05586	0.001776	0	0.000394	0.012	0.13034	1756.095	0	25.97914	0.015124	0	0.032419	0.025426	0	0.034963	0.066433	0	0.137518	0.088945	2.156488	0.036513	0.106238	0.096939	0	0.150564	0.088945	2.156488	0.036513	0.106238	1.697423	0	3.037213	0.017378	0	0.000257
Santa Clara	2022	MH	Aggregate	Aggregate	Diesel	1019.353	9712.32	101.9353	4.184918	0	0	0.085576	0	0	0.004	0.05586	0.089445	0	0	0.016	0.13034	1018.587	0	0	0.005027	0	0	0.160108	0	0	0.108225	0	0	0	0	0	0.123206	0	0	0	0	0	0	0.382773	0	0	0.009629	0	0
Santa Clara	2022	MHDT	Aggregate	Aggregate	Gasoline	1456.112	75284.48	29133.88	0.474932	0.088412	0.377896	0.001319	0	0.000469	0.003	0.05586	0.001435	0	0.00051	0.012	0.13034	1722.789	532.6547	39.09003	0.014881	0.262553	0.04023	0.023376	0.007484	0.029181	0.072945	1.011617	0.219187	0.087649	0.506692	0.018903	0.038182	0.106442	1.47615	0.239982	0.087649	0.506692	0.018903	0.038182	1.680953	15.10368	4.939745	0.017048	0.005271	0.000387
Santa Clara	2022	MHDT	Aggregate	Aggregate	Diesel	9430.024	551923.8	94917.85	2.277066	7.413096	1.687822	0.039812	0.015538	0	0.003	0.05586	0.041612	0.01624	0	0.012	0.13034	1050.628	914.98	0	0.004378	0.004667	0	0.165144	0.143822	0	0.094265	0.100481	0	0	0	0	0.107314	0.11439	0	0	0	0	0	0	0.32147	2.58681	0	0.009926	0.008644	0
Santa Clara	2022	OBUS	Aggregate	Aggregate	Gasoline	501.9655	24150.25	10043.33	0.443255	0.065137	0.32561	0.000952	0	0.000213	0.003	0.05586	0.001035	0	0.000232	0.012	0.13034	1767.375	377.9272	26.38965	0.013022	0.200837	0.030332	0.022732	0.005646	0.026387	0.061436	0.747416	0.156088	0.026802	0.295531	0.015889	0.036065	0.089647	1.090627	0.170897	0.026802	0.295531	0.015889	0.036065	1.365657	5.781487	3.261978	0.01749	0.00374	0.000261
Santa Clara	2022	OBUS	Aggregate	Aggregate	Diesel	762.3964	53839.19	6991.348	2.314382	10.4182	2.005848	0.021086	0.015288	0	0.003	0.05586	0.02204	0.015979	0	0.012	0.13034	1185.916	1892.098	0	0.002538	0.027964	0	0.18641	0.297411	0	0.054653	0.602048	0	0	0	0	0.062218	0.685386	0	0	0	0	0	0	0.239321	8.657847	0	0.011204	0.017876	0
Santa Clara	2022	SBUS	Aggregate	Aggregate	Gasoline	249.3134	11500.83	997.2534	0.430325	0.924415	0.566946	0.001196	0	0.000498	0.002	0.3192	0.001301	0	0.000541	0.008	0.7448	865.5448	2582.545	48.67377	0.011856	2.442701	0.058309	0.024366	0.088243	0.053528	0.058325	10.61061	0.332747	0.061157	0.415506	0.010413	0.025261	0.085108	15.48298	0.364316	0.061157	0.415506	0.010413	0.025261	1.259002	82.05319	8.624782	0.008565	0.025556	0.000482
Santa Clara	2022	SBUS	Aggregate	Aggregate	Diesel	1014.086	31965.96	11702.42	6.765334	45.00081	0.786274	0.042018	0.05033	0	0.003	0.3192	0.043917	0.052605	0	0.012	0.7448	1145.085	3716.49	0	0.004669	0.013069	0	0.179991	0.584181	0	0.100532	0.281366	0	0	0	0	0.114448	0.320314	0	0	0	0	0	0	0.27746	5.867721	0	0.010818	0.035112	0
Santa Clara	2022	UBUS	Aggregate	Aggregate	Gasoline	8.419396	1059.849	33.67758	0.491737	0	1.236285	0.000328	0	9.7E-05	0.003	0.05586	0.000356	0	0.000105	0.012	0.13034	2351.817	0	104.599	0.006789	0	0.178596	0.036386	0	0.091633	0.022728	0	0.768536	0.190076	1.35875	0.031079	0.049249	0.033164	0	0.84145	0.190076	1.35875	0.031079	0.049249	0.527722	0	8.852622	0.023273	0	0.001035
Santa Clara	2022	UBUS	Aggregate	Aggregate	Diesel	423.2358	46482.16	1692.943	0.803453	0	0	0.005651	0	0	0.008415	0.029326	0.005907	0	0	0.033661	0.068427	1481.178	0	0	0.077358	0	0	0.232821	0	0	0.001105	0	0	0	0	0	0.078949	0	0	0	0	0	0	0.131304	0	0	0.014002	0	0
Santa Clara	2022	UBUS	Aggregate	Aggregate	Natural Ga	104.0289	12325.91	416.1154	0.48934	0	0	0.003183	0	0	0.008475	0.029034	0.003327	0	0	0.033899	0.067746	2016.3	0	0	6.413607	0	0	0.411036	0	0	0.091638	0	0	0	0	0	6.545556	0	0	0	0	0	0	49.80397	0	0	0	0	0

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

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

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

Enter NA in the date field if adjustments do not apply

Summary of Construction Traffic Emissions (EMFAC2017)

CATEGORY	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	NBio- CO2
					Grams						
Hauling	4,205.15	216,863.36	63,090.49	895.79	19,016.40	7,718.12	26,734.52	2,861.36	3,741.59	6,602.96	97,737,450
Vendor	5,883.57	252,614.16	81,648.09	1,101.27	25,301.86	11,170.81	36,472.67	3,807.13	5,199.82	9,006.95	118,700,717
Worker	66,942.38	55,880.53	766,439.02	2,255.59	269,812.58	41,783.67	311,596.25	40,598.22	17,308.19	57,906.41	242,785,959
Total (g)	77,031.10	525,358.06	911,177.60	4,252.65	314,130.84	60,672.60	374,803.43	47,266.71	26,249.61	73,516.32	459,224,126
Total (lbs)	169.82	1,158.22	2,008.80	9.38	692.54	133.76	826.30	104.21	57.87	162.08	1,012,416
Total (tons)	0.08	0.58	1.00	0.00	0.35	0.07	0.41	0.05	0.03	0.08	506
Total (MT)											459

YEAR											
						Tons					
	2021										
	2022										
	2023	0.0186	0.1270	0.2203	0.0010	0.0759	0.0147	0.0906	0.0114	0.0063	0.0178	111.0166

		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_PMBW	PM10_PMTW	PM10_IDLEX	PM10_RUNEX	PM10_STREX	Road Dust PM25	PM25_PMBW	PM25_PMTW	PM25_IDLEX	PM25_RUNEX	PM25_STREX	CO2_NBIO_IDLEX	CO2_NBIO_RUNEX	CO2_NBIO_STREX
Category																																		
																												19	22	23	8	9	10
Hauling	HHDT	100.0	1	2.53874E-06	0.00011586	0.428946296	1.40536E-06	0.02576025	0.0005936	2.56712E-06	5.438234	2.680938629	2.321334598	6.342288	0.39569661	0.0059193	0.0099143	0.013153522	4.87714E-07		0.060919	0.035513	0.00267	0.024671	7.19411E-07		0.026108	0.008878	0.0025549	0.0236035	6.615E-07	1065.3765	1436.676	0.0492849
	MHD	0.0	0	0.000416758	0.019674477	0.018316083	0.000210691	0.01707099	0.11201874	0.050852602	0.4315191	1.444055765	1.696525892	0.388783	0.26106305	1.1362253	0.00069591	0.010439184	9.28254E-05	0.299	0.13034	0.012	0.000427	0.006955	0.000119183	0.04499	0.05586	0.003	0.0004085	0.0066477	0.0001096	73.354013	1095.0648	9.3802733
Vendor	HHDT	62.2	0.62224	1.57969E-06	7.20921E-05	0.266905884	8.74466E-07	0.01602896	0.00036936	1.59735E-06	3.3838657	1.668176879	1.444418259	3.9464	0.24621673	0.0036832	0.00616903	0.008184597	3.03473E-07		0.037906	0.022097	0.001662	0.015351	4.47643E-07		0.016246	0.005524	0.0015898	0.0146869	4.116E-07	662.91573	893.95174	0.0306668
	MHD	37.8	0.37776	0.000157436	0.007432307	0.006919154	7.95914E-05	0.0064488	0.04231663	0.019210276	0.1630123	0.545512093	0.640886185	0.146868	0.09862019	0.4292249	0.00026289	0.003943546	3.50661E-05		0.049238	0.004533	0.000161	0.002627	4.50232E-05		0.021102	0.001133	0.0001543	0.0025113	4.14E-05	27.710496	413.67593	3.5435283
			1	0.000159016	0.007504399	0.273825038	8.04658E-05	0.02247776	0.04268599	0.019211873	3.546878	2.213688972	2.085304444	4.093269	0.34483691	0.4329081	0.00643192	0.012128143	3.53696E-05	0.299	0.087144	0.026631	0.001823	0.017978	4.54708E-05	0.04499	0.037347	0.006658	0.0017441	0.0171982	4.181E-05	690.62622	1307.6277	3.5741952
Worker	LDA	71.9	0.71896	0.027380942	0.064750152	0	0.024204142	0.00536307	0.14583291	0.151957547	0	0.023777706	0.126651097	0	0.40410757	1.5533647	0	6.66007E-05	0		0.026422	0.005752	0	0.000975	0.001254204		0.011324	0.001438	0	0.0008976	0.0011532	0	176.34721	37.39822
	LDT1	6.4	0.06425	0.005267635	0.010153724	0	0.004238065	0.00115119	0.03711994	0.019666733	0	0.005016321	0.014794948	0	0.06081036	0.1507512	0	0.000168067	0		0.002361	0.000514	0	0.000113	0.000144162		0.001012	0.000129	0	0.0001044	0.0001326	0	18.819901	4.0395556
	LDT2	21.7	0.21678	0.013286385	0.026191042	0	0.012625971	0.00284977	0.09071986	0.066660319	0	0.014606619	0.058622405	0	0.17073258	0.6038367	0	0.002263058	2.01232E-05		0.007967	0.001734	0	0.000301	0.000378357		0.003414	0.000434	0	0.0002772	0.0003479	0	68.669223	14.86696
			1	0.045934962	0.101094918	0	0.041068178	0.00936404	0.27367271	0.238284599	0	0.043400647	0.200068449	0	0.63565051	2.3079527	0	0.002497725	2.01232E-05	0.299	0.03675	0.008	0	0.001389	0.001776723	0.04499	0.01575	0.002	0	0.0012793	0.0016337	0	263.83633	56.304735

Source: EMFAC2017 (v1.0.2) Emission Rates
Region Type: County
Region: Santa Clara
Calendar Year: 2021, 2022, 2023, 2024
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX, RESTLOSS and DIURN

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Population	VMT	Trips	NOx_RUNE	NOx_IDLEX	NOx_STRE	PM2.5_RU	PM2.5_IDL	PM2.5_STF	PM2.5_PM	PM2.5_PM	PM10_RUN	PM10_IDLI	PM10_STR	PM10_PM	PM10_PMI	CO2_RUNE	CO2_IDLEX	CO2_STRE	CH4_RUNE	CH4_IDLEX	CH4_STRE	N2O_RUNI	N2O_IDLE	N2O_STRE	ROG_RUNI	ROG_IDLE	ROG_STRE	ROG_HOTS	ROG_RUNI	ROG_REST	ROG_DIUR	TOG_RUNI	TOG_IDLE	TOG_STRE	TOG_HOTS	TOG_RUNI	TOG_REST	TOG_DIUR	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNE	SOx_IDLEX	SOx_STREX
Santa Clara	2023	HHDT	Aggregate	Aggregate	Gasoline	4.815448	553.4124	96.34748	3.178298	0	0.254165	0.001157	0	0.000623	0.005	0.02646	0.001259	0	0.000677	0.02	0.06174	1915.642	0	46.38676	0.084318	0	0.000462	0.130889	0	0.008571	0.409676	0	0.002416	0.109047	0.558691	0.026465	0.047808	0.597798	0	0.002645	0.109047	0.558691	0.026465	0.047808	27.8207	0	5.57125	0.018957	0	0.000459
Santa Clara	2023	HHDT	Aggregate	Aggregate	Diesel	8401.79	1034051	89180.29	2.696198	57.80539	2.360147	0.023887	0.026373	0	0.008879	0.026103	0.024967	0.027565	0	0.035514	0.060907	1411.729	11326.45	0	0.001106	0.214953	0	0.221904	1.78036	0	0.023817	4.627869	0	0	0	0	0	0.027114	5.268477	0	0	0	0	0	0.233741	67.52667	0	0.013337	0.107007	0
Santa Clara	2023	HHDT	Aggregate	Aggregate	Natural Ga	360.3246	14693.25	1405.266	1.588314	20.76108	0	0.004529	0.028055	0	0.009	0.02646	0.004734	0.029323	0	0.036	0.06174	3174.275	4018.428	0	3.456549	1.237751	0	0.647097	0.819183	0	0.148044	0.042416	0	0	0	0	0	3.64007	1.291393	0	0	0	0	0	10.76049	21.60789	0	0	0	0
Santa Clara	2023	LDA	Aggregate	Aggregate	Gasoline	751359.6	26739811	3542534	0.034059	0	0.184615	0.001247	0	0.001682	0.002	0.01575	0.001356	0	0.001829	0.008	0.03675	252.091	0	53.87356	0.002048	0	0.050071	0.004113	0	0.025656	0.007696	0	0.221504	0.094205	0.212597	0.166193	0.187545	0.011228	0	0.242518	0.094205	0.212597	0.166193	0.187545	0.586148	0	2.259775	0.002495	0	0.000533
Santa Clara	2023	LDA	Aggregate	Aggregate	Diesel	7591.987	280497.7	36090.42	0.058679	0	0	0.005598	0	0	0.002	0.01575	0.005851	0	0	0.008	0.03675	195.1926	0	0	0.000552	0	0	0.030682	0	0	0.011887	0	0	0	0	0	0	0.013532	0	0	0	0	0	0.188023	0	0	0.001845	0	0
Santa Clara	2023	LDA	Aggregate	Aggregate	Electricity	28074.67	1034348	136585.9	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0	0
Santa Clara	2023	LDT1	Aggregate	Aggregate	Gasoline	75517.84	2475367	350251	0.078745	0	0.232751	0.001604	0	0.002087	0.002	0.01575	0.001745	0	0.00227	0.008	0.03675	292.8794	0	62.80265	0.004214	0	0.063907	0.006493	0	0.02759	0.018087	0	0.309393	0.159698	0.584022	0.309209	0.384203	0.026384	0	0.338746	0.159698	0.584022	0.309209	0.384203	0.955745	0	2.366858	0.002898	0	0.000621
Santa Clara	2023	LDT1	Aggregate	Aggregate	Diesel	34.1777	620.5176	112.4335	1.098891	0	0	0.146297	0	0	0.002	0.01575	0.152912	0	0	0.008	0.03675	401.6268	0	0	0.008837	0	0	0.06313	0	0	0.190256	0	0	0	0	0	0	0.216594	0	0	0	0	0	1.080107	0	0	0.003797	0	0
Santa Clara	2023	LDT1	Aggregate	Aggregate	Electricity	788.4144	31182.48	3917.01	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0	0
Santa Clara	2023	LDT2	Aggregate	Aggregate	Gasoline	254167.5	8294772	1184412	0.06837	0	0.275999	0.001263	0	0.001639	0.002	0.01575	0.001374	0	0.001783	0.008	0.03675	316.8848	0	69.17216	0.003305	0	0.067695	0.00592	0	0.031692	0.013288	0	0.313842	0.123254	0.427158	0.276975	0.291298	0.019387	0	0.343617	0.123254	0.427158	0.276975	0.291298	0.800025	0	2.837237	0.003136	0	0.000685
Santa Clara	2023	LDT2	Aggregate	Aggregate	Diesel	1802.688	66004.69	8781.203	0.037098	0	0	0.004581	0	0	0.002	0.01575	0.004788	0	0	0.008	0.03675	268.3329	0	0	0.000636	0	0	0.042178	0	0	0.01369	0	0	0	0	0	0	0.015585	0	0	0	0	0	0.124122	0	0	0.002537	0	0
Santa Clara	2023	LDT2	Aggregate	Aggregate	Electricity	3304.555	98384.64	16510.28	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0	0
Santa Clara	2023	LHDT1	Aggregate	Aggregate	Gasoline	16555.13	562142	246646.7	0.210457	0.037398	0.511224	0.002137	0	0.000377	0.002	0.03276	0.002324	0	0.00041	0.008	0.07644	994.5276	120.0678	18.82225	0.009676	0.118805	0.02387	0.012895	0.003089	0.040194	0.046707	0.428491	0.120584	0.120359	0.829144	0.024473	0.047994	0.068155	0.625253	0.132025	0.120359	0.829144	0.024473	0.047994	0.867722	3.754766	1.724	0.009842	0.001188	0.000186
Santa Clara	2023	LHDT1	Aggregate	Aggregate	Diesel	11594.64	435998.6	145846	1.400562	1.919948	0	0.019496	0.026734	0	0.003	0.03276	0.020378	0.027943	0	0.012	0.07644	535.8142	131.265	0	0.007088	0.005098	0	0.084223	0.020633	0	0.152594	0.10976	0	0	0	0	0	0.173718	0.124954	0	0	0	0	0.641529	0.909745	0	0.005065	0.001241	0
Santa Clara	2023	LHDT2	Aggregate	Aggregate	Gasoline	2285.018	77947.41	34043.37	0.21093	0.036728	0.496392	0.002042	0	0.000334	0.002	0.03822	0.00222	0	0.000363	0.008	0.08918	1132.921	137.76	21.32176	0.007566	0.117557	0.022949	0.013529	0.00301	0.038884	0.03359	0.420989	0.114958	0.114086	0.752468	0.022171	0.043386	0.049014	0.614306	0.125864	0.114086	0.752468	0.022171	0.043386	0.620201	3.758932	1.718516	0.011211	0.001363	0.000211
Santa Clara	2023	LHDT2	Aggregate	Aggregate	Diesel	4660.728	171541.4	58626.09	1.17888	1.93121	0	0.020832	0.02707	0	0.003	0.03822	0.021774	0.028294	0	0.012	0.08918	603.2432	210.8377	0	0.00683	0.005098	0	0.094821	0.033141	0	0.147052	0.10976	0	0	0	0	0	0.167409	0.124954	0	0	0	0	0.621451	0.909745	0	0.005703	0.001993	0
Santa Clara	2023	MCY	Aggregate	Aggregate	Gasoline	33683.49	242470.7	67366.97	1.148719	0	0.270672	0.00184	0	0.002859	0.001	0.00504	0.001969	0	0.003039	0.004	0.01176	210.1672	0	61.03922	0.326994	0	0.255241	0.066143	0	0.01536	2.208057	0	1.941958	0.689105	1.969445	0.985054	1.809555	7.736079	0	2.11358	0.689105	1.969445	0.985054	1.809555	18.86893	0	9.034026	0.00208	0	0.000604
Santa Clara	2023	MDV	Aggregate	Aggregate	Gasoline	154431.4	4896063	714241.1	0.085683	0	0.336488	0.001332	0	0.001823	0.002	0.01575	0.001448	0	0.001982	0.008	0.03675	383.1839	0	84.08131	0.004049	0	0.08064	0.007039	0	0.034344	0.016817	0	0.396565	0.140569	0.457303	0.323766	0.336538	0.024505	0	0.434185	0.140569	0.457303	0.323766	0.336538	0.891357	0	3.240031	0.003792	0	0.000832
Santa Clara	2023	MDV	Aggregate	Aggregate	Diesel	4004.429	142223.9	19410.39	0.034292	0	0	0.003829	0	0	0.002	0.01575	0.004002	0	0	0.008	0.03675	350.448	0	0	0.000445	0	0	0.055086	0	0	0.009578	0	0	0	0	0	0	0.010904	0	0	0	0	0	0.180483	0	0	0.003313	0	0
Santa Clara	2023	MDV	Aggregate	Aggregate	Electricity	1532.638	48234.63	7794.674	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0	0
Santa Clara	2023	MH	Aggregate	Aggregate	Gasoline	2857.04	26157.03	285.8182	0.361451	0	0.336127	0.001555	0	0.000345	0.003	0.05586	0.001691	0	0.000375	0.012	0.13034	1731.827	0	25.56622	0.013045	0	0.031746	0.02323	0	0.035777	0.05596	0	0.132332	0.081683	1.97006	0.033844	0.096831	0.081657	0	0.144887	0.081683	1.97006	0.033844	0.096831	1.390474	0	2.91812	0.017138	0	0.000253
Santa Clara	2023	MH	Aggregate	Aggregate	Diesel	1053.778	9907.819	105.3778	4.0099	0	0	0.079211	0	0	0.004	0.05586	0.082793	0	0	0.016	0.13034	1007.175	0	0	0.004873	0	0	0.158314	0	0	0.104917	0	0	0	0	0	0	0.119441	0	0	0	0	0	0.367033	0	0	0.009521	0	0
Santa Clara	2023	MHDT	Aggregate	Aggregate	Gasoline	1507.68	78317.15	30165.67	0.385258	0.088623	0.367592	0.001293	0	0.000446	0.003	0.05586	0.001406	0	0.000485	0.012	0.13034	1697.438	526.34	38.16999	0.011942	0.266499	0.038604	0.019927	0.007724	0.029367	0.057622	1.014767	0.206928	0.080059	0.455824	0.017154	0.033931	0.084081	1.480746	0.22656	0.080059	0.455824	0.017154	0.033931	1.316681	15.14023	4.623501	0.016798	0.005209	0.000378
Santa Clara	2023	MHDT	Aggregate	Aggregate	Diesel	9262.822	558718.8	92583.75	1.59247	5.703996	2.12952	0.007398	0.005414	0	0.003	0.05586	0.007733	0.005658	0	0.012	0.13034	1010.629	886.4048	0	0.000529	0.003602	0	0.158857	0.13933	0	0.011387	0.077551	0	0	0	0	0	0.012963	0.088286	0	0	0	0	0.113094	2.687765	0	0.009548	0.008374	0
Santa Clara	2023	OBUS	Aggregate	Aggregate	Gasoline	503.4572	23697.77	10073.17	0.401971	0.065148	0.321785	0.000992	0	0.000219	0.003	0.05586	0.001079	0	0.000239	0.012	0.13034	1743.614	374.6133	26.08015	0.011771	0.201157	0.029667	0.020963	0.005691	0.026276	0.05538	0.74759	0.152323	0.027045	0.299878	0.01619	0.03654	0.080811	1.090882	0.166775	0.027045	0.299878	0.01619	0.03654	1.211154	5.782545	3.193149	0.017254	0.003707	0.000258
Santa Clara	2023	OBUS	Aggregate	Aggregate	Diesel	753.4001	53354.33	6899.877	1.902854	8.28017	2.210652	0.009253	0.002588	0	0.003	0.05586	0.009671	0.002705	0	0.012	0.13034	1163.247	1820.683	0	0.000567	0.024706	0	0.182846	0.286186	0	0.012205	0.531913	0	0	0	0	0	0.013895	0.605542	0	0	0	0	0.141032	9.053135	0	0.01099	0.017201	0
Santa Clara	2023	SBUS	Aggregate	Aggregate	Gasoline	263.5229	11968.77	1054.092	0.420713	0.924728	0.578334	0.001201	0	0.000506	0.002	0.3192	0.001307	0	0.00055	0.008	0.7448	859.0893	2565.057	48.16666	0.011122	2.441451	0.057864	0.023879	0.088232	0.054355	0.054742	10.61517	0.330464	0.063152	0.426847	0.010977	0.026004	0.07988	15.48964	0.361817	0.063152	0.426847	0.010977	0.026004	1.167899	82.08092	8.465591	0.008501	0.025383	0.000477
Santa Clara	2023	SBUS	Aggregate	Aggregate	Diesel	1013.614	31894.7	11696.96	6.544978	44.13946	0.832887	0.040645	0.046993	0	0.003	0.3192	0.042483	0.049118	0	0.012	0.7448	1136.76	3703.284	0	0.004568	0.012858	0	0.178683	0.582105	0	0.098352	0.27682	0	0	0	0	0	0.111967	0.315138	0	0	0	0	0.275014	6.038953	0	0.01074	0.034987	0
Santa Clara	2023	UBUS	Aggregate	Aggregate	Gasoline	8.423223	1060.131	33.69289	0.150806	0	0.638272	0.002209	0	0.000888	0.003	0.05586	0.002402	0	0.000966	0.012	0.13034	1956.542	0	88.49758	0.007038	0	0.09018	0.015696	0	0.066738	0.022728	0	0.374288	0.008476	0.037646	0.001991	0.00493	0.033164	0	0.409798	0.008476	0.037646	0.001991	0.00493	0.258128	0	8.852622	0.019362	0	0.000876
Santa Clara	2023	UBUS	Aggregate	Aggregate	Diesel	430.5287	46874.38	1722.115	0.802545	0	0	0.005646	0	0	0.008399	0.029403	0.005901	0	0	0.033598	0.068607	1480.062	0	0	0.077245	0	0	0.232645	0	0	0.001104	0	0	0	0	0	0	0.078834	0	0	0	0	0	0.131094	0	0	0.013992	0	0
Santa Clara	2023	UBUS	Aggregate	Aggregate	Natural Ga	96.97562	11960.41	387.9025	0.491564	0	0	0.003197	0	0	0.008538	0.028723	0.003341	0	0	0.034153	0.06702	2024.074	0	0	6.451045	0	0	0.412621	0	0	0.092173	0	0	0	0	0	0	6.583765	0	0	0	0	0	50.12464	0	0	0	0	0

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

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

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

Enter NA in the date field if adjustments do not apply

CalEEMod EMFAC2017 Emission Factors Input

Season	EmissionType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
A	CH4_IDLEX	0	0	0	0	0.004988	0.003038	0.003579	0.024725094	0.007064	0	0	0.053967	0
A	CH4_RUNEX	0.00172	0.003601	0.002932	0.0034	0.007858	0.006654	0.001694	0.049109235	0.003624	1.349012	0.325313	0.006018	0.009557
A	CH4_STREX	0.044075	0.05761	0.06177	0.070824	0.013865	0.007729	0.009132	4.43811E-07	0.017163	0.001538	0.253919	0.004972	0.02247
A	CO_IDLEX	0	0	0	0	0.18374	0.137239	0.390727	6.332534788	0.580075	0	0	2.273981	0
A	CO_RUNEX	0.525274	0.854913	0.738224	0.784848	0.708735	0.587734	0.232554	0.40135206	0.42749	10.11873	18.59611	0.493783	0.933761
A	CO_STREX	2.091078	2.265361	2.701442	2.959095	1.045963	0.600453	1.069371	0.005942222	1.839982	0.139137	9.061179	0.715904	2.032378
A	CO2_NBIO_IDLEX	0	0	0	0	8.858719	13.87898	72.07972	1048.877326	92.65691	0	0	346.7845	0
A	CO2_NBIO_RUNEX	239.4505	286.6725	307.9995	372.4198	779.3387	754.9172	1080.76	1413.895929	1326.082	1597.162	210.0772	1049.23	1501.42
A	CO2_NBIO_STREX	50.82491	61.54625	66.71216	79.52882	11.54721	7.594669	9.152658	0.047202677	15.17619	1.392642	60.71341	4.118282	18.13538
A	NOX_IDLEX	0	0	0	0	0.05646	0.093939	0.413905	5.391729563	0.37569	0	0	3.438336	0
A	NOX_RUNEX	0.029391	0.067754	0.059969	0.071504	0.645533	0.773009	1.448062	2.686297103	1.466446	0.729407	1.146289	4.645105	1.307268
A	NOX_STREX	0.165155	0.213522	0.249233	0.292815	0.30476	0.171871	1.698951	2.321261226	1.093896	0.010827	0.270709	0.856319	0.243677
A	PM10_IDLEX	0	0	0	0	0.000842	0.001437	0.000369	0.002582324	0.000122	0	0	0.003612	0
A	PM10_PMBW	0.03675	0.03675	0.03675	0.03675	0.07644	0.08918	0.13034	0.060952091	0.13034	0.069383	0.01176	0.7448	0.13034
A	PM10_PMTW	0.008	0.008	0.008	0.008	0.009779	0.010769	0.012	0.035531716	0.012	0.033326	0.004	0.010877	0.013117
A	PM10_RUNEX	0.001296	0.001646	0.001347	0.001438	0.009623	0.015204	0.007023	0.024936873	0.007393	0.005328	0.001997	0.029851	0.022656
A	PM10_STREX	0.00168	0.002108	0.001701	0.00181	0.000247	0.000127	0.000115	6.20482E-07	0.000145	1.52E-05	0.00293	4.83E-05	0.000261
A	PM25_IDLEX	0	0	0	0	0.000805	0.001375	0.000353	0.002470614	0.000117	0	0	0.003456	0
A	PM25_PMBW	0.01575	0.01575	0.01575	0.01575	0.03276	0.03822	0.05586	0.026122325	0.05586	0.029736	0.00504	0.3192	0.05586
A	PM25_PMTW	0.002	0.002	0.002	0.002	0.002445	0.002692	0.003	0.008882929	0.003	0.008332	0.001	0.002719	0.003279
A	PM25_RUNEX	0.001194	0.001514	0.00124	0.001326	0.009159	0.014521	0.006713	0.02385809	0.00706	0.005096	0.001865	0.028546	0.021632
A	PM25_STREX	0.001544	0.001938	0.001564	0.001664	0.000228	0.000117	0.000106	5.7051E-07	0.000133	1.4E-05	0.002752	4.44E-05	0.00024
A	ROG_DIURN	0.035268	0.074886	0.059509	0.0674	0.001912	0.000985	0.000383	2.04804E-06	0.00109	2.11E-05	1.802995	0.000567	0.638647
A	ROG_HTSK	0.084451	0.14553	0.11595	0.128626	0.071617	0.03871	0.018244	9.33924E-05	0.016091	0.000161	0.676373	0.005509	0.054262
A	ROG_IDLEX	0	0	0	0	0.020629	0.015457	0.018226	0.427772974	0.046173	0	0	0.252008	0
A	ROG_RESTL	0.031475	0.061226	0.057117	0.065393	0.000985	0.000514	0.000198	1.14427E-06	0.000485	8.98E-06	0.97629	0.000247	0.227116
A	ROG_RUNEX	0.006416	0.015308	0.011766	0.014114	0.088883	0.108465	0.015787	0.02569783	0.02373	0.019675	2.190481	0.082853	0.063008
A	ROG_RUNLS	0.19586	0.538092	0.408725	0.425225	0.497047	0.248914	0.102215	0.000473173	0.179468	0.000814	1.887358	0.036799	1.296192
A	ROG_STREX	0.192338	0.274731	0.283917	0.344096	0.069832	0.038485	0.048205	2.32277E-06	0.087883	0.006407	1.930344	0.028372	0.092183
A	SO2_IDLEX	0	0	0	0	8.59E-05	0.000133	0.000684	0.009760709	0.00088	0	0	0.003301	0
A	SO2_RUNEX	9.32E-05	0.002619	0.010304	0.003606	0.007608	0.007289	0.010304	0.012940728	0.012763	0.011293	0.002079	0.01002	0.014735
A	SO2_STREX	0	0	9.06E-05	0.000771	0.000114	7.52E-05	9.06E-05	4.67109E-07	0.00015	1.38E-05	0.000601	4.08E-05	0.000179
A	TOG_DIURN	0.035268	0.074886	0.059509	0.0674	0.001912	0.000985	0.000383	2.04804E-06	0.00109	2.11E-05	1.802995	0.000567	0.638647
A	TOG_HTSK	0.084451	0.14553	0.11595	0.128626	0.071617	0.03871	0.018244	9.33924E-05	0.016091	0.000161	0.676373	0.005509	0.054262
A	TOG_IDLEX	0	0	0	0	0.029037	0.020764	0.02476	0.491871395	0.059643	0	0	0.360804	0
A	TOG_RESTL	0.031475	0.061226	0.057117	0.065393	0.000985	0.000514	0.000198	1.14427E-06	0.000485	8.98E-06	0.97629	0.000247	0.227116
A	TOG_RUNEX	0.009328	0.022322	0.017133	0.020501	0.108536	0.126319	0.019853	0.077498474	0.03185	1.377227	2.721006	0.098738	0.082805
A	TOG_RUNLS	0.19586	0.538092	0.408725	0.425225	0.497047	0.248914	0.102215	0.000473173	0.179468	0.000814	1.887358	0.036799	1.296192
A	TOG_STREX	0.210586	0.300795	0.310854	0.376741	0.076457	0.042137	0.052778	2.54314E-06	0.096221	0.007015	2.101179	0.031064	0.100929

CalEEMod EMFAC2017 Fleet Mix Input

FleetMixLandUseSubType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
	0.591953	0.053004	0.176619	0.106733	0.020956	0.005303	0.013483	0.022364	0.001589	0.001248	0.005076	0.00092	0.000752

Source: EMFAC2017 (v1.0.2) Emission Rates
Region Type: County
Region: Santa Clara
Calendar Year: 2021, 2022, 2023, 2024
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX, RESTLOSS and DIURN

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Population	VMT	Trips	NOx_RUNE	NOx_IDLEX	NOx_STRE	PM2.5_RU	PM2.5_IDL	PM2.5_STF	PM2.5_PM	PM2.5_PM	PM10_RUN	PM10_IDLI	PM10_STR	PM10_PM	PM10_PMI	CO2_RUNE	CO2_IDLEX	CO2_STRE	CH4_RUNE	CH4_IDLEX	CH4_STRE	N2O_RUNE	N2O_IDLE	N2O_STRE	ROG_RUNI	ROG_IDLE	ROG_STRE	ROG_HOTS	ROG_RUNI	ROG_REST	ROG_DIUR	TOG_RUNI	TOG_IDLE	TOG_STRE	TOG_HOTS	TOG_RUNI	TOG_REST	TOG_DIUR	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNE	SOx_IDLEX	SOx_STREX
Santa Clara	2024	HHDT	Aggregate	Aggregate	Gasoline	4.841478	594.9439	96.86829	3.020299	0	0.189099	0.00112	0	0.000551	0.005	0.02646	0.001219	0	0.0006	0.02	0.06174	1864.547	0	45.62595	0.076898	0	0.000429	0.12764	0	0.006341	0.362275	0	0.002245	0.090273	0.457367	0.02213	0.039608	0.528631	0	0.002458	0.090273	0.457367	0.02213	0.039608	27.06461	0	5.743732	0.018451	0	0.000452
Santa Clara	2024	HHDT	Aggregate	Aggregate	Diesel	8656.54	1058418	92089.71	2.703911	57.44438	2.359952	0.02415	0.025633	0	0.008883	0.026117	0.025242	0.026792	0	0.035534	0.06094	1388.989	11174.98	0	0.001112	0.214832	0	0.21833	1.756551	0	0.023933	4.625274	0	0	0	0	0	0.027246	5.265522	0	0	0	0	0	0	0.237639	67.56762	0	0.013122	0.105576	0
Santa Clara	2024	HHDT	Aggregate	Aggregate	Natural Ga	370.7651	15119.11	1445.984	1.4401	20.42228	0	0.004303	0.025442	0	0	0.009	0.02646	0.004498	0.026593	0	0.036	0.06174	3139.748	3971.23	0	3.408101	1.228196	0	0.640058	0.809561	0	0.135992	0.039404	0	0	0	0	0	3.577682	1.278365	0	0	0	0	0	0	10.81294	21.6569	0	0	0	0
Santa Clara	2024	LDA	Aggregate	Aggregate	Gasoline	768835.9	26997720	3625782	0.030395	0	0.173438	0.0012	0	0.001624	0.002	0.01575	0.001305	0	0.001766	0.008	0.03675	244.9997	0	52.35424	0.001806	0	0.046341	0.003843	0	0.024653	0.006637	0	0.202005	0.088504	0.205724	0.155728	0.174002	0.009684	0	0.22117	0.088504	0.205724	0.155728	0.174002	0.54881	0	2.188955	0.002424	0	0.000518
Santa Clara	2024	LDA	Aggregate	Aggregate	Diesel	8011.408	291515.9	38101.09	0.048102	0	0	0.004683	0	0	0.002	0.01575	0.004895	0	0	0.008	0.03675	190.0661	0	0	0.000484	0	0	0.029876	0	0	0.010417	0	0	0	0	0	0	0.011859	0	0	0	0	0	0	0.179098	0	0	0.001797	0	0
Santa Clara	2024	LDA	Aggregate	Aggregate	Electricity	30564.28	1142137	148311.4	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0	0
Santa Clara	2024	LDT1	Aggregate	Aggregate	Gasoline	77491.49	2505905	359687.4	0.068518	0	0.216191	0.0015	0	0.001965	0.002	0.01575	0.001632	0	0.002137	0.008	0.03675	285.2357	0	61.12483	0.003656	0	0.0584	0.005889	0	0.026446	0.015495	0	0.278192	0.147313	0.544925	0.287739	0.351787	0.022607	0	0.304585	0.147313	0.544925	0.287739	0.351787	0.864479	0	2.286362	0.002823	0	0.000605
Santa Clara	2024	LDT1	Aggregate	Aggregate	Diesel	31.54053	577.7803	104.3445	1.003934	0	0	0.132094	0	0	0.002	0.01575	0.138066	0	0	0.008	0.03675	393.8059	0	0	0.007979	0	0	0.061901	0	0	0.171786	0	0	0	0	0	0	0.195567	0	0	0	0	0	0	0.993473	0	0	0.003723	0	0
Santa Clara	2024	LDT1	Aggregate	Aggregate	Electricity	971.3075	39285.07	4827.402	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0	0
Santa Clara	2024	LDT2	Aggregate	Aggregate	Gasoline	257922.1	8298132	1201453	0.060942	0	0.254985	0.001226	0	0.001602	0.002	0.01575	0.001333	0	0.001742	0.008	0.03675	306.3042	0	66.94798	0.002992	0	0.063272	0.005453	0	0.030095	0.011904	0	0.290499	0.118569	0.418242	0.272186	0.28339	0.017369	0	0.31806	0.118569	0.418242	0.272186	0.28339	0.750324	0	2.754987	0.003031	0	0.000663
Santa Clara	2024	LDT2	Aggregate	Aggregate	Diesel	1933.864	68985.44	9385.607	0.034803	0	0	0.004306	0	0	0.002	0.01575	0.004501	0	0	0.008	0.03675	261.017	0	0	0.000618	0	0	0.041028	0	0	0.013297	0	0	0	0	0	0	0.015138	0	0	0	0	0	0	0.124646	0	0	0.002468	0	0
Santa Clara	2024	LDT2	Aggregate	Aggregate	Electricity	3976.567	115838.7	19819.4	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0	0
Santa Clara	2024	LHDT1	Aggregate	Aggregate	Gasoline	16595.29	558796.3	247245.2	0.188441	0.036329	0.492017	0.002119	0	0.000367	0.002	0.03276	0.002304	0	0.0004	0.008	0.07644	981.413	118.8928	18.64229	0.008635	0.116255	0.022385	0.011684	0.00305	0.039132	0.041266	0.416309	0.11274	0.115621	0.802453	0.023685	0.04598	0.060215	0.607477	0.123436	0.115621	0.802453	0.023685	0.04598	0.775411	3.757388	1.688646	0.009712	0.001177	0.000184
Santa Clara	2024	LHDT1	Aggregate	Aggregate	Diesel	12077.34	447738.5	151917.7	1.216004	1.816109	0	0.017946	0.026621	0	0.003	0.03276	0.018757	0.027824	0	0.012	0.07644	527.1415	129.4169	0	0.006889	0.005098	0	0.082859	0.020343	0	0.148312	0.10976	0	0	0	0	0	0.168843	0.124954	0	0	0	0	0	0	0.625521	0.909745	0	0.004983	0.001223	0
Santa Clara	2024	LHDT2	Aggregate	Aggregate	Gasoline	2318.351	78374.99	34539.98	0.186009	0.035621	0.477152	0.002016	0	0.000324	0.002	0.03822	0.002192	0	0.000352	0.008	0.08918	1117.473	136.319	21.08444	0.006588	0.114918	0.021458	0.012162	0.002973	0.037878	0.028759	0.40841	0.106844	0.107467	0.691039	0.021248	0.040757	0.041965	0.595951	0.11698	0.107467	0.691039	0.021248	0.040757	0.534699	3.762482	1.666987	0.011058	0.001349	0.000209
Santa Clara	2024	LHDT2	Aggregate	Aggregate	Diesel	4877.312	176304.8	61350.45	1.033956	1.829953	0	0.02008	0.027033	0	0.003	0.03822	0.020988	0.028255	0	0.012	0.08918	593.7458	208.0708	0	0.006684	0.005098	0	0.093329	0.032706	0	0.143898	0.10976	0	0	0	0	0	0.163818	0.124954	0	0	0	0	0	0	0.61131	0.909745	0	0.005613	0.001967	0
Santa Clara	2024	MCY	Aggregate	Aggregate	Gasoline	34431.37	243797	68862.74	1.146289	0	0.270709	0.001865	0	0.002752	0.001	0.00504	0.001997	0	0.00293	0.004	0.01176	210.0772	0	60.71341	0.325313	0	0.253919	0.066025	0	0.015366	2.190481	0	1.930344	0.676373	1.887358	0.97629	1.802995	2.721006	0	2.101179	0.676373	1.887358	0.97629	1.802995	18.59611	0	9.061179	0.002079	0	0.000601
Santa Clara	2024	MDV	Aggregate	Aggregate	Gasoline	156824.5	4915330	725874.3	0.073555	0	0.30496	0.001269	0	0.001735	0.002	0.01575	0.00138	0	0.001887	0.008	0.03675	370.2473	0	81.24522	0.003533	0	0.07385	0.006301	0	0.032254	0.014431	0	0.358405	0.133918	0.442951	0.315236	0.324744	0.021047	0	0.392407	0.133918	0.442951	0.315236	0.324744	0.809607	0	3.072017	0.003664	0	0.000804
Santa Clara	2024	MDV	Aggregate	Aggregate	Diesel	4279.344	148384.4	20665.8	0.030793	0	0	0.003552	0	0	0.002	0.01575	0.003712	0	0	0.008	0.03675	340.7089	0	0	0.00042	0	0	0.053555	0	0	0.009041	0	0	0	0	0	0	0.010293	0	0	0	0	0	0	0.1773	0	0	0.003221	0	0
Santa Clara	2024	MDV	Aggregate	Aggregate	Electricity	2041.893	62655.19	10349.93	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0	0
Santa Clara	2024	MH	Aggregate	Aggregate	Gasoline	2827.424	26048.95	282.8555	0.319474	0	0.337369	0.001496	0	0.000332	0.003	0.05586	0.001627	0	0.000361	0.012	0.13034	1698.665	0	25.10838	0.011424	0	0.03111	0.021443	0	0.036462	0.047898	0	0.127627	0.075126	1.794574	0.031457	0.088456	0.069892	0	0.139736	0.075126	1.794574	0.031457	0.088456	1.158649	0	2.813821	0.01681	0	0.000248
Santa Clara	2024	MH	Aggregate	Aggregate	Diesel	1087.572	10089.67	108.7572	3.8575	0	0	0.073619	0	0	0.004	0.05586	0.076948	0	0	0.016	0.13034	992.182	0	0	0.004739	0	0	0.155957	0	0	0.102018	0	0	0	0	0	0	0.116141	0	0	0	0	0	0	0.353157	0	0	0.00938	0	0
Santa Clara	2024	MHDT	Aggregate	Aggregate	Gasoline	1564.857	81219.94	31309.66	0.31759	0.088787	0.357983	0.00128	0	0.000432	0.003	0.05586	0.001392	0	0.000469	0.012	0.13034	1664.466	518.4053	37.21256	0.009834	0.269491	0.03713	0.017321	0.007911	0.029454	0.046731	1.017203	0.195989	0.074177	0.415581	0.016077	0.031122	0.06819	1.484301	0.214584	0.074177	0.415581	0.016077	0.031122	1.055715	15.16855	4.34781	0.016471	0.00513	0.000368
Santa Clara	2024	MHDT	Aggregate	Aggregate	Diesel	9624.848	566389.2	95988.07	1.610171	5.459844	2.136352	0.007492	0.004673	0	0.003	0.05586	0.00783	0.004884	0	0.012	0.13034	997.0565	869.0377	0	0.000527	0.003515	0	0.156723	0.136601	0	0.01135	0.075674	0	0	0	0	0	0.012921	0.086149	0	0	0	0	0	0	0.114514	2.701556	0	0.00942	0.00821	0
Santa Clara	2024	OBUS	Aggregate	Aggregate	Gasoline	504.7356	23300.26	10098.75	0.360432	0.065159	0.318556	0.00103	0	0.000226	0.003	0.05586	0.00112	0	0.000245	0.012	0.13034	1712.694	370.3334	25.70448	0.010554	0.201432	0.02907	0.019268	0.00573	0.026194	0.04937	0.747749	0.148852	0.027254	0.303972	0.016446	0.036927	0.07204	1.091114	0.162974	0.027254	0.303972	0.016446	0.036927	1.073358	5.783505	3.116445	0.016948	0.003665	0.000254
Santa Clara	2024	OBUS	Aggregate	Aggregate	Diesel	763.9429	53010.14	7005.878	1.952588	8.368625	2.211523	0.009711	0.002619	0	0.003	0.05586	0.01015	0.002738	0	0.012	0.13034	1156.149	1829.903	0	0.000579	0.025071	0	0.181731	0.287635	0	0.01246	0.539782	0	0	0	0	0	0.014185	0.6145	0	0	0	0	0	0	0.143603	9.166694	0	0.010923	0.017288	0
Santa Clara	2024	SBUS	Aggregate	Aggregate	Gasoline	277.2219	12408.76	1108.888	0.391846	0.925198	0.582393	0.001195	0	0.000512	0.002	0.3192	0.0013	0	0.000557	0.008	0.7448	849.9257	2540.147	47.46214	0.010004	2.441578	0.057304	0.022787	0.088525	0.054796	0.049026	10.62205	0.32698	0.063489	0.424105	0.011364	0.026144	0.071538	15.49967	0.358002	0.063489	0.424105	0.011364	0.026144	1.061031	82.12266	8.250612	0.008411	0.025137	0.00047
Santa Clara	2024	SBUS	Aggregate	Aggregate	Diesel	1011.343	31782.11	11670.76	6.305713	43.19427	0.882346	0.039225	0.043673	0	0.003	0.3192	0.040998	0.045648	0	0.012	0.7448	1127.045	3685.79	0	0.004462	0.012671	0	0.177156	0.579355	0	0.09606	0.272808	0	0	0	0	0	0.109357	0.310572	0	0	0	0	0	0	0.272311	6.223874	0	0.010648	0.034822	0
Santa Clara	2024	UBUS	Aggregate	Aggregate	Gasoline	8.427049	1060.813	33.7082	0.179651	0	0.688867	0.002209	0	0.000888	0.003	0.05586	0.002402	0	0.000966	0.012	0.13034	1956.507	0	88.60685	0.007013	0	0.097882	0.017812	0	0.068509	0.022728	0	0.407643	0.01024	0.051815	0.002284	0.005364	0.033164	0	0.446318	0.01024	0.051815	0.002284	0.005364	0.280937	0	8.852622	0.019361	0	0.000877
Santa Clara	2024	UBUS	Aggregate	Aggregate	Diesel	430.6994	46893.42	1722.798	0.802546	0	0	0.005646	0	0	0.008399	0.029403	0.005901	0	0	0.033598	0.068607	1480.079	0	0	0.077245	0	0	0.232648	0	0	0.001104	0	0	0	0	0	0	0.078834	0	0	0	0	0	0	0.131094	0	0	0.013992	0	0
Santa Clara	2024	UBUS	Aggregate	Aggregate	Natural Ga	97.04458	11968.1	388.1783	0.491562	0	0	0.003197	0	0	0.008538	0.028723	0.003341	0	0	0.034153	0.06702	2024.066	0	0	6.451003	0	0	0.412619	0	0	0.092172	0	0	0	0	0	0	6.583722	0	0	0	0	0	0	50.12428	0	0	0	0	0

Adjustment Factors for EMFAC2017 Gasoline Light Duty Vehicles						
Year	NOx Exhaust	TOG Evaporative	TOG Exhaust	PM Exhaust	CO Exhaust	CO2 Exhaust
NA	1	1	1	1	1	1
2021	1.0002	1.0001	1.0002	1.0009	1.0005	1.0023
2022	1.0004	1.0003	1.0004	1.0018	1.0014	1.0065
2023	1.0007	1.0006	1.0007	1.0032	1.0027	1.0126
2024	1.0012	1.0010	1.0011	1.0051	1.0044	1.0207
2025	1.0018	1.0016	1.0016	1.0074	1.0065	1.0309
2026	1.0023	1.0022	1.0020	1.0091	1.0083	1.0394
2027	1.0028	1.0028	1.0024	1.0105	1.0102	1.0475
2028	1.0034	1.0035	1.0028	1.0117	1.0120	1.0554
2029	1.0040	1.0042	1.0032	1.0129	1.0138	1.0629
2030	1.0047	1.0051	1.0037	1.0142	1.0156	1.0702
2031	1.0054	1.0061	1.0042	1.0155	1.0173	1.0770
2032	1.0061	1.0072	1.0047	1.0169	1.0189	1.0834
2033	1.0068	1.0083	1.0052	1.0182	1.0204	1.0893
2034	1.0075	1.0095	1.0058	1.0196	1.0218	1.0947
2035	1.0081	1.0108	1.0063	1.0210	1.0232	1.0997
2036	1.0088	1.0121	1.0069	1.0223	1.0244	1.1041
2037	1.0094	1.0134	1.0074	1.0236	1.0255	1.1080
2038	1.0099	1.0148	1.0079	1.0248	1.0265	1.1114
2039	1.0104	1.0161	1.0085	1.0259	1.0274	1.1143
2040	1.0109	1.0174	1.0090	1.0270	1.0281	1.1168
2041	1.0113	1.0186	1.0095	1.0279	1.0288	1.1189
2042	1.0116	1.0198	1.0099	1.0286	1.0294	1.1207
2043	1.0119	1.0207	1.0103	1.0293	1.0299	1.1221
2044	1.0122	1.0216	1.0106	1.0299	1.0303	1.1233
2045	1.0124	1.0225	1.0109	1.0303	1.0306	1.1243
2046	1.0125	1.0233	1.0111	1.0308	1.0309	1.1251
2047	1.0127	1.0240	1.0113	1.0311	1.0311	1.1258
2048	1.0128	1.0246	1.0115	1.0314	1.0313	1.1263
2049	1.0128	1.0252	1.0116	1.0316	1.0315	1.1268
2050	1.0129	1.0257	1.0117	1.0318	1.0316	1.1272
Enter Year: **2024**	**1.0012**	**1.001**	**1.0011**	**1.0051**	**1.0044**	**1.0207**

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

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

Enter NA in the date field if adjustments do not apply

CalEEMod EMFAC2017 Emission Factors Input

Season	EmissionType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
A	CH4_IDLEX	0	0	0	0	0.004148	0.002505	0.003832	0.024231453	0.007098	0	0	0.070082	0
A	CH4_RUNEX	0.000959	0.001671	0.001726	0.001772	0.005195	0.005339	0.001034	0.04518098	0.002197	1.859484	0.319087	0.004404	0.005027
A	CH4_STREX	0.028931	0.035248	0.041821	0.043924	0.009023	0.004811	0.008383	4.34672E-07	0.015222	0.002186	0.24786	0.006338	0.019545
A	CO_IDLEX	0	0	0	0	0.17731	0.131894	0.405402	6.28489984	0.644155	0	0	2.927328	0
A	CO_RUNEX	0.411156	0.540474	0.559142	0.551517	0.468742	0.489111	0.152189	0.405949458	0.262856	14.11073	17.60732	0.374881	0.311691
A	CO_STREX	1.716961	1.849789	2.287973	2.324828	0.890393	0.484256	0.872515	0.006685308	1.577018	0.139137	9.199577	0.858725	1.635194
A	CO2_NBIO_IDLEX	0	0	0	0	8.251826	13.00041	65.09769	930.0496847	97.36242	0	0	337.4754	0
A	CO2_NBIO_RUNEX	213.8884	258.4057	267.3331	322.2663	698.5465	679.813	993.4479	1226.348086	1210.85	1668.671	209.7572	970.5049	1350.267
A	CO2_NBIO_STREX	45.12682	55.17203	57.56738	67.91602	10.09364	6.438033	8.550649	0.051649278	13.46187	1.401901	59.22586	5.059627	15.54123
A	NOX_IDLEX	0	0	0	0	0.045908	0.074209	0.341766	5.199426871	0.431935	0	0	2.710433	0
A	NOX_RUNEX	0.019319	0.033468	0.034489	0.035665	0.299902	0.384329	1.428316	2.517362076	1.448391	0.706433	1.137409	3.086533	1.063099
A	NOX_STREX	0.125333	0.151052	0.168209	0.179169	0.225227	0.124883	1.689216	2.314548745	1.129093	0.015157	0.270173	1.184451	0.23668
A	PM10_IDLEX	0	0	0	0	0.000915	0.001502	0.000162	0.002145897	0.000142	0	0	0.002048	0
A	PM10_PMBW	0.03675	0.03675	0.03675	0.03675	0.07644	0.08918	0.13034	0.061109857	0.13034	0.069383	0.01176	0.7448	0.13034
A	PM10_PMTW	0.008	0.008	0.008	0.008	0.009901	0.010844	0.012	0.035621239	0.012	0.033326	0.004	0.010676	0.013189
A	PM10_RUNEX	0.000929	0.00107	0.001025	0.001034	0.007019	0.013839	0.007006	0.023790073	0.007882	0.005116	0.002138	0.021245	0.016043
A	PM10_STREX	0.001275	0.001461	0.00134	0.001344	0.00021	0.000106	0.000112	5.80093E-07	0.000156	1.52E-05	0.002862	6.76E-05	0.000212
A	PM25_IDLEX	0	0	0	0	0.000875	0.001437	0.000155	0.002053066	0.000136	0	0	0.00196	0
A	PM25_PMBW	0.01575	0.01575	0.01575	0.01575	0.03276	0.03822	0.05586	0.026189939	0.05586	0.029736	0.00504	0.3192	0.05586
A	PM25_PMTW	0.002	0.002	0.002	0.002	0.002475	0.002711	0.003	0.00890531	0.003	0.008332	0.001	0.002669	0.003297
A	PM25_RUNEX	0.000855	0.000984	0.000944	0.000954	0.006671	0.013218	0.006696	0.022760894	0.007526	0.004893	0.001994	0.02031	0.015312
A	PM25_STREX	0.001172	0.001344	0.001232	0.001236	0.000193	9.76E-05	0.000103	5.33374E-07	0.000144	1.4E-05	0.002676	6.22E-05	0.000195
A	ROG_DIURN	0.024903	0.046388	0.048996	0.057349	0.001403	0.000642	0.000289	1.32994E-06	0.001062	6.14E-05	1.786807	0.00087	0.347564
A	ROG_HTSK	0.061657	0.093564	0.089096	0.0981	0.054855	0.024352	0.013852	5.78076E-05	0.015622	0.000814	0.631299	0.008304	0.028392
A	ROG_IDLEX	0	0	0	0	0.01734	0.013466	0.01847	0.422100311	0.050126	0	0	0.322319	0
A	ROG_RESTL	0.022934	0.041206	0.048532	0.056738	0.000772	0.000374	0.000168	7.97633E-07	0.000487	3.58E-05	0.946881	0.000414	0.1401
A	ROG_RUNEX	0.003247	0.0065	0.006553	0.006887	0.072661	0.0982	0.011844	0.024014489	0.016744	0.026969	2.128511	0.060159	0.038911
A	ROG_RUNLS	0.170512	0.364405	0.336782	0.340289	0.429696	0.143744	0.071507	0.000284481	0.181965	0.004928	1.487321	0.053902	0.535482
A	ROG_STREX	0.118715	0.154126	0.182707	0.199251	0.043726	0.022756	0.041407	2.2699E-06	0.076636	0.009261	1.877593	0.036024	0.074231
A	SO2_IDLEX	0	0	0	0	7.99E-05	0.000124	0.000618	0.00865265	0.000924	0	0	0.003219	0
A	SO2_RUNEX	9E-05	0.002567	0.00948	0.002976	0.006812	0.006557	0.00948	0.011212041	0.011649	0.010417	0.002076	0.009288	0.013242
A	SO2_STREX	0	0	8.46E-05	0.000628	9.99E-05	6.37E-05	8.46E-05	5.11111E-07	0.000133	1.39E-05	0.000586	5.01E-05	0.000154
A	TOG_DIURN	0.024903	0.046388	0.048996	0.057349	0.001403	0.000642	0.000289	1.32994E-06	0.001062	6.14E-05	1.786807	0.00087	0.347564
A	TOG_HTSK	0.061657	0.093564	0.089096	0.0981	0.054855	0.024352	0.013852	5.78076E-05	0.015622	0.000814	0.631299	0.008304	0.028392
A	TOG_IDLEX	0	0	0	0	0.02413	0.017772	0.025282	0.485180108	0.063906	0	0	0.463821	0
A	TOG_RESTL	0.022934	0.041206	0.048532	0.056738	0.000772	0.000374	0.000168	7.97633E-07	0.000487	3.58E-05	0.946881	0.000414	0.1401
A	TOG_RUNEX	0.004716	0.009483	0.009524	0.009983	0.08579	0.112949	0.014288	0.071682245	0.021563	1.898202	2.666273	0.071678	0.048331
A	TOG_RUNLS	0.170512	0.364405	0.336782	0.340289	0.429696	0.143744	0.071507	0.000284481	0.181965	0.004928	1.487321	0.053902	0.535482
A	TOG_STREX	0.129977	0.168749	0.200041	0.218155	0.047875	0.024915	0.045336	2.48526E-06	0.083906	0.01014	2.04481	0.039442	0.081274

CalEEMod EMFAC2017 Fleet Mix Input

FleetMixLandUseSubType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
	0.595423	0.053963	0.1714	0.106522	0.021043	0.005556	0.013639	0.023425	0.001443	0.001178	0.00478	0.0009	0.000728

Source: EMFAC2017 (v1.0.2) Emission Rates
Region Type: County
Region: Santa Clara
Calendar Year: 2030
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX, RESTLOSS and DIURN

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Population	VMT	Trips	NOx_RUNE	NOx_IDLE	NOx_STRE	PM2.5_RU	PM2.5_IDL	PM2.5_STF	PM2.5_PM	PM2.5_PM	PM10_RUI	PM10_IDLI	PM10_STR	PM10_PM	PM10_PMI	CO2_RUNE	CO2_IDLE	CO2_STRE	CH4_RUNE	CH4_IDLE	CH4_STRE	N2O_RUNI	N2O_IDLE	N2O_STRE	ROG_RUNI	ROG_IDLE	ROG_STRE	ROG_HOTS	ROG_RUNI	ROG_REST	ROG_DIUR	TOG_RUNI	TOG_IDLE	TOG_STRE	TOG_HOTS	TOG_RUNI	TOG_REST	TOG_DIUR	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNE	SOx_IDLEX	SOx_STREX
Santa Clara	2030	HHDT	Aggregate	Aggregate	Gasoline	6.644908	846.0095	132.9513	2.895279	0	0.044486	0.001084	0	0.000414	0.005	0.02646	0.001179	0	0.00045	0.02	0.06174	1677.599	0	40.07141	0.06849	0	0.000337	0.127319	0	0.001575	0.302922	0	0.001761	0.044849	0.220711	0.012382	0.020645	0.442024	0	0.001928	0.044849	0.220711	0.012382	0.020645	28.21474	0	5.186707	0.016601	0	0.000397
Santa Clara	2030	HHDT	Aggregate	Aggregate	Diesel	9431.66	1177485	1014553.9	2.539781	56.05241	2.353151	0.023044	0.021785	0	0.008907	0.026186	0.024086	0.02277	0	0.035627	0.061101	1202.821	10016.29	0	0.001063	0.214358	0	0.189067	1.574421	0	0.022896	4.615071	0	0	0	0	0	0.026066	5.253907	0	0	0	0	0	0	0.238872	67.80499	0	0.011364	0.094629	0
Santa Clara	2030	HHDT	Aggregate	Aggregate	Natural Ga	400.4237	16329.01	1561.653	0.881174	19.09434	0	0.003462	0.015749	0	0.009	0.02646	0.003619	0.016461	0	0.036	0.06174	2899.524	3653.632	0	3.225286	1.19295	0	0.591087	0.744817	0	0.090199	0.028054	0	0	0	0	0	3.341906	1.230036	0	0	0	0	0	0	11.01311	21.88788	0	0	0	0
Santa Clara	2030	LDA	Aggregate	Aggregate	Gasoline	869969.1	28403709	4092414	0.020358	0	0.132956	0.000879	0	0.001249	0.002	0.01575	0.000956	0	0.001359	0.008	0.03675	211.6944	0	44.94162	0.001023	0	0.030835	0.003085	0	0.020493	0.003388	0	0.12606	0.065117	0.180811	0.11416	0.123291	0.004944	0	0.13802	0.065117	0.180811	0.11416	0.123291	0.43107	0	1.801842	0.002095	0	0.000445
Santa Clara	2030	LDA	Aggregate	Aggregate	Diesel	10023.63	337674.2	47693.27	0.01676	0	0	0.001829	0	0	0.002	0.01575	0.001912	0	0	0.008	0.03675	166.1368	0	0	0.000273	0	0	0.026114	0	0	0.005885	0	0	0	0	0	0	0.006699	0	0	0	0	0	0	0.146966	0	0	0.001571	0	0
Santa Clara	2030	LDA	Aggregate	Aggregate	Electricity	46172.96	1625146	221619.4	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0	0
Santa Clara	2030	LDT1	Aggregate	Aggregate	Gasoline	88972.38	2670256	412660.2	0.034308	0	0.154254	0.000998	0	0.001379	0.002	0.01575	0.001085	0	0.001499	0.008	0.03675	248.8135	0	52.89319	0.001722	0	0.036164	0.003879	0	0.021779	0.00667	0	0.15755	0.095382	0.371981	0.194977	0.219194	0.009733	0	0.172497	0.095382	0.371981	0.194977	0.219194	0.548445	0	1.868724	0.002462	0	0.000523
Santa Clara	2030	LDT1	Aggregate	Aggregate	Diesel	12.41764	352.1646	54.72798	0.189506	0	0	0.017188	0	0	0.002	0.01575	0.017965	0	0	0.008	0.03675	322.0531	0	0	0.001569	0	0	0.050622	0	0	0.033785	0	0	0	0	0	0	0.038462	0	0	0	0	0	0	0.286183	0	0	0.003045	0	0
Santa Clara	2030	LDT1	Aggregate	Aggregate	Electricity	2180.044	81488.93	10672.84	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0	0
Santa Clara	2030	LDT2	Aggregate	Aggregate	Gasoline	281546.9	8446247	1307139	0.035247	0	0.174198	0.000925	0	0.001282	0.002	0.01575	0.001006	0	0.001394	0.008	0.03675	226.344	0	55.96845	0.00178	0	0.043514	0.003847	0	0.023481	0.006634	0	0.189401	0.09208	0.348635	0.233116	0.234964	0.00968	0	0.20737	0.09208	0.348635	0.233116	0.234964	0.568541	0	2.344012	0.002537	0	0.000554
Santa Clara	2030	LDT2	Aggregate	Aggregate	Diesel	2576.298	81354.46	12261.45	0.02908	0	0	0.003937	0	0	0.002	0.01575	0.004115	0	0	0.008	0.03675	226.4921	0	0	0.000595	0	0	0.035601	0	0	0.01282	0	0	0	0	0	0	0.014595	0	0	0	0	0	0	0.129762	0	0	0.002141	0	0
Santa Clara	2030	LDT2	Aggregate	Aggregate	Electricity	8320.478	213767.2	40645.17	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0	0
Santa Clara	2030	LHDT1	Aggregate	Aggregate	Gasoline	17444.25	563109.1	259893.3	0.098098	0.030587	0.387515	0.002081	0	0.000333	0.002	0.03276	0.002264	0	0.000362	0.008	0.07644	897.5407	110.5325	17.36665	0.004317	0.101968	0.015524	0.006844	0.002802	0.033538	0.018245	0.350811	0.075233	0.094381	0.739315	0.019801	0.035959	0.026623	0.511903	0.082371	0.094381	0.739315	0.019801	0.035959	0.368714	3.768698	1.531971	0.008882	0.001094	0.000172
Santa Clara	2030	LHDT1	Aggregate	Aggregate	Diesel	14887.61	510107.2	187267.4	0.522674	1.343027	0	0.011738	0.026289	0	0.003	0.03276	0.012269	0.027477	0	0.012	0.07644	478.8761	118.3357	0	0.006165	0.005098	0	0.075273	0.018601	0	0.13273	0.10976	0	0	0	0	0	0.151104	0.124954	0	0	0	0	0	0	0.579164	0.909745	0	0.004527	0.001119	0
Santa Clara	2030	LHDT2	Aggregate	Aggregate	Gasoline	2535.293	81915.35	37772.09	0.091162	0.030032	0.379653	0.001975	0	0.000297	0.002	0.03822	0.002148	0	0.000323	0.008	0.08918	1021.816	126.3902	19.57212	0.00327	0.10112	0.014626	0.00699	0.00275	0.032936	0.012455	0.344716	0.06918	0.074032	0.436992	0.016932	0.02908	0.018175	0.503009	0.075743	0.074032	0.436992	0.016932	0.02908	0.249204	3.775612	1.472175	0.010112	0.001251	0.000194
Santa Clara	2030	LHDT2	Aggregate	Aggregate	Diesel	6126.051	201454.9	77058.01	0.503536	1.378592	0	0.017789	0.026933	0	0.003	0.03822	0.018593	0.028151	0	0.012	0.08918	540.7481	191.3797	0	0.006181	0.005098	0	0.084998	0.030082	0	0.133066	0.10976	0	0	0	0	0	0.151486	0.124954	0	0	0	0	0	0	0.586662	0.909745	0	0.005112	0.001809	0
Santa Clara	2030	MCY	Aggregate	Aggregate	Gasoline	38839.87	253703.2	77679.74	1.137409	0	0.270173	0.001994	0	0.002676	0.001	0.00504	0.002138	0	0.002862	0.004	0.01176	209.7572	0	59.22586	0.319087	0	0.24786	0.065566	0	0.015364	2.128511	0	1.877593	0.631299	1.487321	0.946881	1.786807	2.666273	0	2.04481	0.631299	1.487321	0.946881	1.786807	17.60732	0	9.199577	0.002076	0	0.000586
Santa Clara	2030	MDV	Aggregate	Aggregate	Gasoline	173606	5113918	803848	0.03715	0	0.190209	0.00093	0	0.001318	0.002	0.01575	0.001012	0	0.001433	0.008	0.03675	309.7804	0	67.68816	0.001872	0	0.04685	0.004005	0	0.024192	0.007071	0	0.21174	0.103941	0.361114	0.278651	0.281249	0.010317	0	0.231829	0.103941	0.361114	0.278651	0.281249	0.571385	0	2.441594	0.003066	0	0.00067
Santa Clara	2030	MDV	Aggregate	Aggregate	Diesel	5652.323	175214.3	26820.46	0.016338	0	0	0.001999	0	0	0.002	0.01575	0.00209	0	0	0.008	0.03675	295.1303	0	0	0.000296	0	0	0.04639	0	0	0.006382	0	0	0	0	0	0	0.007265	0	0	0	0	0	0	0.160558	0	0	0.00279	0	0
Santa Clara	2030	MDV	Aggregate	Aggregate	Electricity	5412.776	143464.5	26723.4	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0.004888	0	0.00456	0.017501	0	0	0	0	0	0
Santa Clara	2030	MH	Aggregate	Aggregate	Gasoline	2781.183	26082.35	278.2296	0.161957	0	0.344848	0.001294	0	0.000284	0.003	0.05586	0.001408	0	0.000309	0.012	0.13034	1534.746	0	22.64387	0.005412	0	0.028477	0.014768	0	0.039513	0.01789	0	0.108156	0.041368	0.780207	0.020421	0.050661	0.026105	0	0.118417	0.041368	0.780207	0.020421	0.050661	0.321425	0	2.382509	0.015188	0	0.000224
Santa Clara	2030	MH	Aggregate	Aggregate	Diesel	1271.562	11026.54	127.1562	3.194675	0	0	0.048471	0	0	0.004	0.05586	0.050662	0	0	0.016	0.13034	913.8987	0	0	0.004117	0	0	0.143652	0	0	0.088635	0	0	0	0	0	0	0.100905	0	0	0	0	0	0	0.288665	0	0	0.00864	0	0
Santa Clara	2030	MHDT	Aggregate	Aggregate	Gasoline	1942.274	96462.8	38861.02	0.137179	0.089333	0.328382	0.001276	0	0.000397	0.003	0.05586	0.001388	0	0.000432	0.012	0.13034	1512.526	477.0555	33.02741	0.004329	0.277482	0.032379	0.010371	0.008413	0.029895	0.018098	1.025296	0.159937	0.053505	0.276198	0.013009	0.02236	0.026409	1.49611	0.175111	0.053505	0.276198	0.013009	0.02236	0.365535	15.26266	3.370143	0.014968	0.004721	0.000327
Santa Clara	2030	MHDT	Aggregate	Aggregate	Diesel	11245.42	599136.6	111242.1	1.636194	4.546441	2.164606	0.007568	0.002068	0	0.003	0.05586	0.00791	0.002162	0	0.012	0.13034	909.8747	786.5238	0	0.000503	0.003226	0	0.14302	0.123631	0	0.010837	0.069445	0	0	0	0	0	0.012337	0.079058	0	0	0	0	0	0	0.11784	2.775159	0	0.008596	0.007431	0
Santa Clara	2030	OBUS	Aggregate	Aggregate	Gasoline	521.2442	22324.56	10429.05	0.201397	0.065222	0.308429	0.001191	0	0.000252	0.003	0.05586	0.001295	0	0.000274	0.012	0.13034	1542.791	344.1269	23.61734	0.005871	0.202191	0.026706	0.012891	0.005853	0.026143	0.025703	0.748687	0.134449	0.027407	0.319238	0.017082	0.037276	0.037506	1.092483	0.147204	0.027407	0.319238	0.017082	0.037276	0.529537	5.789149	2.766701	0.015267	0.003405	0.000234
Santa Clara	2030	OBUS	Aggregate	Aggregate	Diesel	845.8557	51263.29	7867.551	1.991442	9.302951	2.216948	0.010285	0.002947	0	0.003	0.05586	0.01075	0.003081	0	0.012	0.13034	1066.293	1893.973	0	0.000596	0.028932	0	0.167606	0.297706	0	0.012842	0.6229	0	0	0	0	0	0.01462	0.709124	0	0	0	0	0	0	0.14672	10.36618	0	0.010074	0.017893	0
Santa Clara	2030	SBUS	Aggregate	Aggregate	Gasoline	362.3014	15198.78	1449.205	0.285961	0.92653	0.616868	0.001215	0	0.000547	0.002	0.3192	0.001322	0	0.000595	0.008	0.7448	803.9675	2414.339	44.56576	0.00626	2.435971	0.055823	0.018735	0.089714	0.057177	0.030067	10.64152	0.317303	0.073145	0.474779	0.014584	0.030637	0.043873	15.52808	0.347407	0.073145	0.474779	0.014584	0.030637	0.649967	82.24088	7.563743	0.007956	0.023892	0.000441
Santa Clara	2030	SBUS	Aggregate	Aggregate	Diesel	980.5629	30722.11	11315.56	4.472027	34.94152	1.257143	0.029756	0.025511	0	0.003	0.3192	0.031102	0.026664	0	0.012	0.7448	1052.894	3501.127	0	0.003486	0.012263	0	0.1655	0.550328	0	0.075046	0.264022	0	0	0	0	0	0.085434	0.300569	0	0	0	0	0	0	0.238791	7.720739	0	0.009947	0.033077	0
Santa Clara	2030	UBUS	Aggregate	Aggregate	Gasoline	8.45001	1063.703	33.80004	0.336697	0	0.964336	0.002209	0	0.000888	0.003	0.05586	0.002402	0	0.000966	0.012	0.13034	1956.157	0	89.19596	0.006892	0	0.139066	0.027885	0	0.079916	0.022728	0	0.589249	0.05182	0.313542	0.009109	0.015639	0.033164	0	0.645153	0.05182	0.313542	0.009109	0.015639	0.405122	0	8.852622	0.019358	0	0.000883
Santa Clara	2030	UBUS	Aggregate	Aggregate	Diesel	376.8943	42036.62	1507.577	0.804174	0	0	0.005656	0	0	0.008428	0.029265	0.005912	0	0	0.033371	0.068284	1523.264	0	0	0.077448	0	0	0.239436	0	0	0.001107	0	0	0	0	0	0	0.079041	0	0	0	0	0	0	0.131472	0	0	0.0144	0	0
Santa Clara	2030	UBUS	Aggregate	Aggregate	Natural Ga	152.2876	16985.28	609.1502	0.487691	0	0	0.003174	0	0	0.008428	0.029265	0.003317	0	0	0.033371	0.068284	2010.534	0	0	6.385838	0	0	0.40986	0	0	0.091241	0	0	0	0	0	0	6.517216	0	0	0	0	0	0	49.56612	0	0	0	0	0

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

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

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

Enter NA in the date field if adjustments do not apply

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

The Mark, San Jose, CA

DPM Construction Emissions and Modeling Emission Rates

Construction Year	Activity	DPM (ton/year)	Source Type	No. Sources	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Emissions per Point Source (g/s)
2021	Construction	0.0421	Point	49	84.3	0.02309	2.91E-03	5.94E-05
2022	Construction	0.1489	Point	49	297.8	0.08158	1.03E-02	2.10E-04
2023	Construction	0.0380	Point	49	76.0	0.02081	2.62E-03	5.35E-05
Total		***0.2290***		***147***	***458***	***0.1255***		

Construction Hours

hr/day =	10	(7am-5pm)
days/yr =	365	
hours/year =	3650	

DPM Construction Emissions and Modeling Emission Rates - With Mitigation

Construction Year	Activity	DPM (ton/year)	Source Type	No. Sources	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Emissions per Point Source (g/s)
2021	Construction	0.0039	Point	49	7.9	0.00216	2.72E-04	5.55E-06
2022	Construction	0.0076	Point	49	15.2	0.00416	5.24E-04	1.07E-05
2023	Construction	0.0021	Point	49	4.2	0.00116	1.46E-04	2.98E-06
Total		***0.0136***		***147***	***27***	***0.0075***		

Construction Hours

hr/day =	10	(7am-5pm)
days/yr =	365	
hours/year =	3650	

The Mark, San Jose, CA

PM2.5 Fugitive Construction Emissions and Modeling Emission Rates

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 $g/s/m^2$
2021	Construction	FUG	0.0010	2.0	0.00054	6.80E-05	1,829	3.72E-08
2022	Construction	FUG	0.0013	2.5	0.00069	8.72E-05	1,829	4.76E-08
2023	Construction	FUG	0.0005	1.1	0.00030	3.80E-05	1,829	2.08E-08
Total			***0.0028***	***6***	***0.0015***	***0.0002***		

Construction Hours

hr/day =	10	(7am-5pm)
days/yr =	365	
hours/year =	3650	

PM2.5 Fugitive Construction Emissions and Modeling Emission Rates - 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 $g/s/m^2$
2021	Construction	FUG	0.0008	1.5	0.00041	5.21E-05	1,829	2.85E-08
2022	Construction	FUG	0.0013	2.5	0.00069	8.72E-05	1,829	4.76E-08
2023	Construction	FUG	0.0005	1.1	0.00030	3.80E-05	1,829	2.08E-08
Total			***0.0026***	***5.1***	***0.0014***	***0.0002***		

Construction Hours

hr/day =	10	(7am-5pm)
days/yr =	365	
hours/year =	3650	

Project: **The Mark, San Jose, CA**

	DPM					
	Unmitigated DPM	DPM EMFAC2017	Unmitigated Emissions	Mitigated DPM	DPM EMFAC2017	Mitigated Emissions
2021	0.041	0.001	0.042	0.003	0.001	0.004
2022	0.147	0.002	0.149	0.006	0.002	0.008
2023	0.037	0.001	0.038	0.001	0.001	0.002

	Fugitive PM2.5					
	Unmitigated Fug PM2.5	Fug PM2.5 EMFAC2017	Unmitigated Emissions	Mitigated Fug PM2.5	Fug PM2.5 EMFAC2017	Mitigated Emissions
2021	0.00029	0.001	0.001	0.000	0.001	0.001
2022	0.00000	0.001	0.001	0.000	0.001	0.001
2023	0.00000	0.001	0.001	0.000	0.001	0.001

The Mark, San Jose, CA
Construction Health Impacts Summary

Maximum Impacts at Construction MEI Location - Unmitigated

Emissions Year	Maximum Concentrations: Exhaust PM10/DPM ($\mu g/m^3$)	Maximum Concentrations: Fugitive PM2.5 ($\mu g/m^3$)	Cancer Risk (per million): Child	Cancer Risk (per million): Adult	Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu g/m^3$)
2021	0.2289	0.0087	34.72	0.66	0.046	0.24
2022	0.8089	0.0112	112.92	2.32	0.162	0.82
2023	0.2064	0.0049	3.84	0.59	0.041	0.21
2024	0.0000	0.0000	0.00	0.00	0.000	0.00
Total	-	-	**151.49**	**3.57**	-	-
Maximum	0.8089	0.0112	**-**	**-**	**0.162**	**0.82**

Maximum Impacts at Construction 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): Child	Cancer Risk (per million): Adult	Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu g/m^3$)
2021	0.0214	0.0067	3.25	0.02	0.004	0.03
2022	0.0412	0.0115	5.75	0.04	0.008	0.05
2023	0.0115	0.0049	0.21	0.01	0.002	0.02
2024	0.0000	0.0000	0.00	0.00	0.000	0.00
Total	-	-	**9.21**	**0.07**	-	-
Maximum	0.0412	0.0115	**-**	**-**	**0.008**	**0.05**

The Mark, San Jose, CA
Maximum DPM Cancer Risk Calculations From Construction - Unmitigated Emissions
Impacts at Off-Site Receptors - 15 feet (4.5 meters)

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 =	0.85	0.85	0.72	0.73

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information				Adult - Exposure Information				Maximum		
			DPM Conc (ug/m3)		Age	Infant/Child	Modeled		Age	Adult			
Exposure	Exposure Duration				Sensitivity	Cancer Risk	DPM Conc (ug/m3)		Sensitivity	Cancer Risk	Hazard	Fugitive	Total
Year	(years)	Age	Year	Annual	Factor	(per million)	Year	Annual	Factor	(per million)	Index	PM2.5	PM2.5
0	0.25	-0.25 - 0*	2021	0.2289	10	2.76	2021	0.2289	-	-	**0.162**	**0.011**	**0.820**
1	1	0 - 1	2021	0.2289	10	31.96	2021	0.2289	1	0.66	0.0458	0.0087	0.2377
2	1	1 - 2	2022	0.8089	10	112.92	2022	0.8089	1	2.32	0.1618	0.0112	0.8200
3	1	2 - 3	2023	0.2064	3	3.84	2023	0.2064	1	0.59	0.0413	0.0049	0.2112
4	1	3 - 4			3	0.00			1	0.00			
5	1	4 - 5			3	0.00			1	0.00			
6	1	5 - 6			3	0.00			1	0.00			
7	1	6 - 7			3	0.00			1	0.00			
8	1	7 - 8			3	0.00			1	0.00			
9	1	8 - 9			3	0.00			1	0.00			
10	1	9 - 10			3	0.00			1	0.00			
11	1	10 - 11			3	0.00			1	0.00			
12	1	11 - 12			3	0.00			1	0.00			
13	1	12 - 13			3	0.00			1	0.00			
14	1	13 - 14			3	0.00			1	0.00			
15	1	14 - 15			3	0.00			1	0.00			
16	1	15 - 16			3	0.00			1	0.00			
17	1	16-17			1	0.00			1	0.00			
18	1	17-18			1	0.00			1	0.00			
19	1	18-19			1	0.00			1	0.00			
20	1	19-20			1	0.00			1	0.00			
21	1	20-21			1	0.00			1	0.00			
22	1	21-22			1	0.00			1	0.00			
23	1	22-23			1	0.00			1	0.00			
24	1	23-24			1	0.00			1	0.00			
25	1	24-25			1	0.00			1	0.00			
26	1	25-26			1	0.00			1	0.00			
27	1	26-27			1	0.00			1	0.00			
28	1	27-28			1	0.00			1	0.00			
29	1	28-29			1	0.00			1	0.00			
30	1	29-30			1	0.00			1	0.00			
Total Increased Cancer Risk						**151.5**				**3.57**			

* Third trimester of pregnancy

The Mark, San Jose, CA
Maximum DPM Cancer Risk Calculations From Construction - Mitigated Emissions
Impacts at Off-Site Receptors - 15 feet (4.5 meters)

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 =	0.85	0.85	0.72	0.73

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information				Adult - Exposure Information				Maximum		
							Modeled						
Exposure	Exposure Duration		DPM Conc (ug/m3)		Age Sensitivity	Infant/Child Cancer Risk	DPM Conc (ug/m3)		Age Sensitivity	Adult Cancer Risk	Hazard	Fugitive	Total
Year	(years)	Age	Year	Annual	Factor	(per million)	Year	Annual	Factor	(per million)	Index	PM2.5	PM2.5
0	0.25	-0.25 - 0*	2021	0.0214	10	0.26	2021	0.0214	-	-	**0.008**	**0.012**	**0.052**
1	1	0 - 1	2021	0.0214	10	2.99	2021	0.0214	1	0.06	0.004	0.0067	0.0281
2	1	1 - 2	2022	0.0412	10	5.75	2022	0.0412	1	0.12	0.008	0.0115	0.0524
3	1	2 - 3	2023	0.0115	3	0.21	2023	0.0115	1	0.03	0.002	0.0049	0.0164
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						**9.21**				**0.21**			

* Third trimester of pregnancy

The Mark, San Jose CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations
Norte Dame High School - Child Exposure, 5 Feet Height

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 ($\mu g/m^3$)
SAF = Student Adjustment Factor (unitless)
= (24 hrs/10 hrs) x (7 days/5 days) = 3.36
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	Adult
Age -->	**0 - <2**	**2 - <16**	**16 - 30**
Parameter			
ASF =	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00
8-Hr BR* =	1200	520	230
A =	1	1	1
EF =	350	180	250
AT =	70	70	70
SAF =	1.00	3.36	1.00

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Child - Exposure Information: DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age* Sensitivity Factor	Child Cancer Risk (per million)	Maximum Hazard Index	Maximum Fugitive PM2.5	Maximum Total PM2.5
						0.004	**0.000**	**0.020**
1	1	2021	0.0056	3	0.23	0.0011	0.0001	0.0056
2	1	2022	0.0196	3	0.80	0.0039	0.0001	0.0197
3	1	2023	0.0050	3	0.20	0.0010	0.0001	0.0051
				TOTAL	**1.23**			

* High School Students assumed to be between the ages of 14 years old to 18 years old

The Mark, San Jose, CA

Standby Emergency Generator Impacts

DPM Emission Rates		
	DPM Emissions per Generator	
	Max Daily	Annual
Source Type	(lb/day)	(lb/year)
1x 1,000 kW Generator	0.0443	16.18
CalEEMod DPM Emissions	8.09E-03	

Modeling Information		
Model	AERMOD	
Source	Diesel Generator Engine	
Source Type	Point	
Meteorological Data	2013-2017 BAAQMD San Jose Airport Meteorological Data	
Point Source Stack Parameters		
Generator Engine Size (hp)	1341	
Base Elevation (ft)	0.0	
Stack Height (ft)*	252.75	Located on roof
Stack Diameter (ft)*	0.60	
Exhaust Gas Flowrate (ft^3/min)**	2528	
Stack Exit Velocity (ft/sec)*	149	
Exhaust Temperature (˚F)*	872	
Emissions Rate (lb/hr)	0.001847	

*BAAQMD Default Generator Parameters

**AERMOD Default

The Mark, San Jose, CA

Standby Fire Pump Impacts

DPM Emission Rates		
	DPM Emissions per Generator	
	Max Daily	Annual
Source Type	(lb/day)	(lb/year)
1x 150 HP Fire Pump	0.0073	2.66
CalEEMod DPM Emissions	1.33E-03	

Modeling Information		
Model	AERMOD	
Source	Diesel Generator Engine	
Source Type	Point	
Meteorological Data	2013-2017 BAAQMD San Jose Airport Meteorological Data	
Point Source Stack Parameters		
Generator Engine Size (hp)	150	
Base Elevation (ft)	0.0	
Stack Height (ft)*	12.00	Located in basement but modeling ground-level release
Stack Diameter (ft)*	0.60	
Exhaust Gas Flowrate (ft^3/min)**	2528	
Stack Exit Velocity (ft/sec)*	149	
Exhaust Temperature (˚F)*	872	
Emissions Rate (lb/hr)	0.000304	

*BAAQMD Default Generator Parameters

**AERMOD Default

The Mark, San Jose, CA - Cancer Risks from Project Operation
Project Emergency Generator
Impacts at Off-Site Receptors - 15 Feet 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 =	0.85	0.85	0.72	0.73

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information				Adult - Exposure Information				
							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)	Year	Annual	Age Sensitivity Factor	Adult Cancer Risk (per million)
0	0.25	-0.25 - 0*	2021	0.0000	10	0.00	2021	0.0000	-	-
1	1	0 - 1	2021	0.0000	10	0.00	2021	0.0000	1	0.00
2	1	1 - 2	2022	0.0000	10	0.00	2022	0.0000	1	0.00
3	1	2 - 3	2023	0.0000	3	0.00	2023	0.0000	1	0.00
4	1	3 - 4	2024	0.0008	3	0.02	2024	0.0008	1	0.00
5	1	4 - 5	2025	0.0008	3	0.02	2025	0.0008	1	0.00
6	1	5 - 6	2026	0.0008	3	0.02	2026	0.0008	1	0.00
7	1	6 - 7	2027	0.0008	3	0.02	2027	0.0008	1	0.00
8	1	7 - 8	2028	0.0008	3	0.02	2028	0.0008	1	0.00
9	1	8 - 9	2029	0.0008	3	0.02	2029	0.0008	1	0.00
10	1	9 - 10	2030	0.0008	3	0.02	2030	0.0008	1	0.00
11	1	10 - 11	2031	0.0008	3	0.02	2031	0.0008	1	0.00
12	1	11 - 12	2032	0.0008	3	0.02	2032	0.0008	1	0.00
13	1	12 - 13	2033	0.0008	3	0.02	2033	0.0008	1	0.00
14	1	13 - 14	2034	0.0008	3	0.02	2034	0.0008	1	0.00
15	1	14 - 15	2035	0.0008	3	0.02	2035	0.0008	1	0.00
16	1	15 - 16	2036	0.0008	3	0.02	2036	0.0008	1	0.00
17	1	16-17	2037	0.0008	1	0.00	2037	0.0008	1	0.00
18	1	17-18	2038	0.0008	1	0.00	2038	0.0008	1	0.00
19	1	18-19	2039	0.0008	1	0.00	2039	0.0008	1	0.00
20	1	19-20	2040	0.0008	1	0.00	2040	0.0008	1	0.00
21	1	20-21	2041	0.0008	1	0.00	2041	0.0008	1	0.00
22	1	21-22	2042	0.0008	1	0.00	2042	0.0008	1	0.00
23	1	22-23	2043	0.0008	1	0.00	2043	0.0008	1	0.00
24	1	23-24	2044	0.0008	1	0.00	2044	0.0008	1	0.00
25	1	24-25	2045	0.0008	1	0.00	2045	0.0008	1	0.00
26	1	25-26	2046	0.0008	1	0.00	2046	0.0008	1	0.00
27	1	26-27	2047	0.0008	1	0.00	2047	0.0008	1	0.00
28	1	27-28	2048	0.0008	1	0.00	2048	0.0008	1	0.00
29	1	28-29	2049	0.0008	1	0.00	2049	0.0008	1	0.00
30	1	29-30	2050	0.0008	1	0.00	2050	0.0008	1	0.00
Total Increased Cancer Risk						**0.24**				**0.07**

* Third trimester of pregnancy

Maximum	
Hazard Index	**Total PM2.5**
0.0002	0.0008

The Mark, San Jose, CA - Cancer Risks from Project Operation
Project Emergency Generator
Impacts at Norte Dame High School - 5 Feet Receptor Height

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 ($\mu g/m^3$)
SAF = Student Adjustment Factor (unitless)
= (24 hrs/10 hrs) x (7 days/5 days) = 3.36
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	Adult
Age -->	**0 - <2**	**2 - <16**	**16 - 30**
Parameter			
ASF =	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00
8-Hr BR* =	1200	520	230
A =	1	1	1
EF =	350	180	250
AT =	70	70	70
SAF =	1.00	3.36	1.00

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Child - Exposure Information: DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age* Sensitivity Factor	Child Cancer Risk (per million)	Maximum Hazard Index	Maximum Total PM2.5
						0.000	**0.000**
1	1	2021	0.0000	3	0.00		
2	1	2022	0.0000	3	0.00		
3	1	2023	0.0000	3	0.00		
4	1	2024	0.0001	3	0.003	0.0000	0.0001
				TOTAL	**0.0028**		

* High School Students assumed to be between the ages of 14 years old to 18 years old

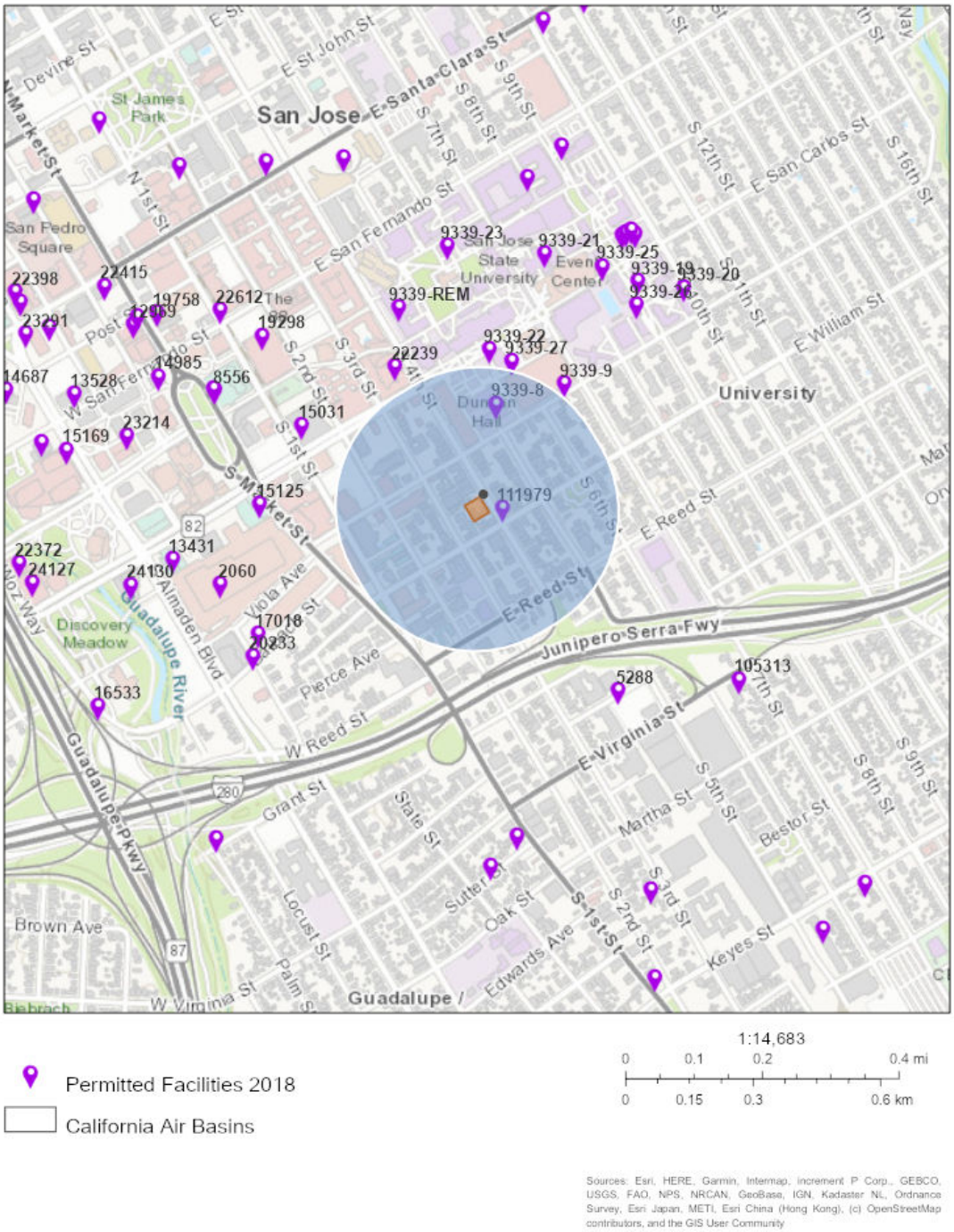
Attachment 5: Cumulative Community Risk from Existing TAC Sources

Stationary Source Risk & Hazards Screening Report

Area of Interest (AOI) Information

Area : 3,708,348.78 ft²

May 20 2020 11:55:47 Pacific Daylight Time



20-069 The Mark 459-475 South 4th Street

Summary

Name	Count	Area(ft²)	Length(ft)
Permitted Facilities 2018	3	N/A	N/A

Permitted Facilities 2018

#	FACID	Name	Address	City	St
1	111979	Super Gas & Mart	498 S 4th St	San Jose	CA
2	9339-17	San Jose State University	One Washington Square	San Jose	CA
3	9339-8	San Jose State University	One Washington Square	San Jose	CA

#	Zip	County	Cancer	Hazard	PM_25	Type	Count
1	95112	Santa Clara	2.370	0.010	0.000	Gas Dispensing Facility	1
2	95192	Santa Clara	11.620	0.020	0.010	Generators	1
3	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.

FID	OBJECTID	FACID	Name	Address	City	St	Zip	County	Cancer	Hazard	PM_25	Type	Latitude	Longitude	x	y
8375	8,375	111979	Super Gas & Mart	498 S 4th St	San Jose	CA	95112	Santa Clara	2.37	0.01	0	Gas Dispensing Facility	37.33035	-121.88176	599066.5948	4132105.336
10160	10,160	9339-17	San Jose State University	One Washington Square	San Jose	CA	95192	Santa Clara	11.62	0.02	0.01	Generators	37.33259	-121.88195	599046.1067	4132354.089
10174	10,174	9339-8	San Jose State University	One Washington Square	San Jose	CA	95192	Santa Clara	0.02	0	0	Generators	37.33259	-121.88195	599046.1067	4132354.089

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

Gas Station

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

Diesel Internal Combustion (IC) Engine Distance Multiplier Tool: This distance multiplier tool refines the screening values for cancer risk and PM2.5 concentrations found in the District's Stationary Source Screening Analysis Tool for permitted facilities which contain only diesel IC engines, to represent adjusted risk and hazard impacts that can be expected with farther distances from the source of emissions.

Diesel Backup Generator

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

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

Generic Case

Distance (meters)	Distance (feet)	Multiplier	Enter Risk or Hazard	Adjusted Risk or Hazard	Enter PM2.5 Concentration	Adjusted PM2.5 Concentration
0	0.0	1.000		0		0
5	16.4	1.000		0		0
10	32.8	0.883		0		0
15	49.2	0.855		0		0
20	65.6	0.827		0		0
25	82.0	0.801		0		0
30	98.4	0.775		0		0
35	114.8	0.750		0		0
40	131.2	0.726		0		0
45	147.6	0.702		0		0
50	164.0	0.679		0		0
55	180.4	0.658		0		0
60	196.9	0.636		0		0
65	213.3	0.616		0		0
70	229.7	0.596		0		0
75	246.1	0.577		0		0
80	262.5	0.558		0		0
85	278.9	0.540		0		0
90	295.3	0.523		0		0
95	311.7	0.506		0		0
100	328.1	0.489		0		0
105	344.5	0.474		0		0
110	360.9	0.458		0		0
115	377.3	0.444		0		0
120	393.7	0.429		0		0
125	410.1	0.415		0		0
130	426.5	0.402		0		0
135	442.9	0.389		0		0
140	459.3	0.376		0		0
145	475.7	0.364		0		0
150	492.1	0.353		0		0
155	508.5	0.341		0		0
160	524.9	0.330		0		0
165	541.3	0.319		0		0
170	557.7	0.309		0		0
175	574.1	0.299		0		0
180	590.6	0.290		0		0
185	607.0	0.280		0		0
190	623.4	0.271		0		0
195	639.8	0.262		0		0
200	656.2	0.254		0		0
205	672.6	0.246		0		0
210	689.0	0.238		0		0
215	705.4	0.230		0		0
220	721.8	0.223		0		0
225	738.2	0.216		0		0
230	754.6	0.209		0		0
235	771.0	0.202		0		0
240	787.4	0.195		0		0
245	803.8	0.189		0		0
250	820.2	0.183		0		0
255	836.6	0.177		0		0
260	853.0	0.171		0		0
265	869.4	0.166		0		0
270	885.8	0.160		0		0
275	902.2	0.155		0		0
280	918.6	0.150		0		0
285	935.0	0.145		0		0
290	951.4	0.141		0		0
295	967.8	0.136		0		0
300	984.3	0.132		0		0

Screening Risk Adjusted for Distance					
Source Information			***Screening Risks***		
FACID	**Name**	**Type**	**Cancer Risk**	**Hazard Index**	**PM2.5**
111979	Super Gas & Mart	Gas Dispensing Facility	2.37	0.01	0.00
9339-17	San Jose State University	Generators	11.62	0.02	0.01
9339-8	San Jose State University	Generators	0.02	0.00	0.00
Offsite Existing MEI	***Distance***		***Adjusted***		
	Distance from MEI (feet)	**Distance Adjustment**	**Cancer Risk**	**Hazard Index**	**PM2.5**
	90	0.728	1.73	0.01	0.00
	650	0.080	0.93	0.00	0.00
	650	0.080	0.00	0.00	0.00
Onsite Project Sensitive Receptors	***Distance***		***Adjusted***		
	Distance from MEI (feet)	**Distance Adjustment**	**Cancer Risk**	**Hazard Index**	**PM2.5**
	90	0.728	1.73	0.01	0.00
	530	0.1	1.16	0.00	0.00
	530	0.1	0.00	0.00	0.00

File Name:	The Mark_Santa Clara (SF) - 2024 - Annual.EF
CT-EMFAC2017 Version:	1.0.2.27401
Run Date:	7/29/2020 10:12
Area:	Santa Clara (SF)
Analysis Year:	2024
Season:	Annual

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Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category	Gas VMT Fraction Within Category
Truck 1	0.015	0.495	0.505
Truck 2	0.02	0.937	0.048
Non-Truck	0.965	0.014	0.955

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Road Type:	Local Urban	
Silt Loading Factor:	CARB	0.32 g/m2
Precipitation Correction:	CARB	P = 64 days N = 365 days

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

Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
PM2.5	0.008837	0.005727	0.003882	0.002774	0.002102	0.001693	0.001451	0.001324	0.001283	0.001313	0.001408	0.001572	0.001813	0.001913	0.001913
TOG	0.182802	0.119558	0.080373	0.056919	0.043051	0.034349	0.028781	0.025311	0.023359	0.022626	0.023011	0.024605	0.027655	0.029876	0.029959
Diesel PM	0.000842	0.000689	0.000532	0.000425	0.000365	0.000339	0.000339	0.000361	0.000404	0.000467	0.00055	0.000649	0.000763	0.000763	0.000763

Fleet Average Fuel Consumption (gallons/veh-mile)

Fuel Type	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
Gasoline	0.07357	0.059492	0.048681	0.040498	0.03462	0.030729	0.02846	0.027535	0.027646	0.028438	0.029629	0.030744	0.031681	0.031681	0.031681
Diesel	0.007723	0.006441	0.005011	0.004294	0.003754	0.003316	0.003012	0.00279	0.002658	0.00264	0.002716	0.002869	0.003113	0.003113	0.003113

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

Pollutant Name	Emission Factor
TOG	1.303551

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

Pollutant Name	Emission Factor
PM2.5	0.002108

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

Pollutant Name	Emission Factor
PM2.5	0.016805

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

Pollutant Name	Emission Factor
PM2.5	0.12062

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

South 4th Street – Dispersion Modeling Inputs

The Mark, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - South 4th Street
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2024

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
DPM_4L1	South 4th Street Lane 1	SB	1	590.6	0.37	9.7	31.7	3.4	30	5,450
DPM_4L2	South 4th Street Lane 2	SB	1	591.2	0.37	9.7	31.7	3.4	30	5,450
									Total	10,900

Emission Factors

Speed Category	1	2	3	4
Travel Speed (mph)	30			
Emissions per Vehicle (g/VMT)	0.00034			

Emisson Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and DPM Emissions - DPM_4L1

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	3.90%	213	7.35E-06	9	6.42%	350	1.21E-05	17	5.62%	306	1.06E-05
2	2.58%	141	4.86E-06	10	7.34%	400	1.38E-05	18	3.27%	178	6.16E-06
3	2.87%	156	5.41E-06	11	6.42%	350	1.21E-05	19	2.35%	128	4.43E-06
4	3.32%	181	6.25E-06	12	6.88%	375	1.30E-05	20	0.86%	47	1.62E-06
5	2.18%	119	4.11E-06	13	6.25%	341	1.18E-05	21	3.09%	168	5.82E-06
6	3.38%	184	6.37E-06	14	6.19%	337	1.17E-05	22	4.13%	225	7.78E-06
7	6.02%	328	1.13E-05	15	5.10%	278	9.61E-06	23	2.52%	137	4.75E-06
8	4.64%	253	8.74E-06	16	3.78%	206	7.12E-06	24	0.92%	50	1.73E-06
								Total		5,452	

2024 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_4L2

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.90%	213	7.35E-06	9	6.42%	350	1.21E-05	17	5.62%	306	1.06E-05
2	2.58%	141	4.86E-06	10	7.34%	400	1.38E-05	18	3.27%	178	6.16E-06
3	2.87%	156	5.41E-06	11	6.42%	350	1.21E-05	19	2.35%	128	4.43E-06
4	3.32%	181	6.26E-06	12	6.88%	375	1.30E-05	20	0.86%	47	1.62E-06
5	2.18%	119	4.11E-06	13	6.25%	341	1.18E-05	21	3.09%	168	5.83E-06
6	3.38%	184	6.37E-06	14	6.19%	337	1.17E-05	22	4.13%	225	7.79E-06
7	6.02%	328	1.13E-05	15	5.10%	278	9.62E-06	23	2.52%	137	4.75E-06
8	4.64%	253	8.75E-06	16	3.78%	206	7.13E-06	24	0.92%	50	1.73E-06
								Total		5,452	

The Mark, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - South 4th Street
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2024

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
PM2.5_4L1	South 4th Street Lane 1	SB	1	590.6	0.37	9.7	32	1.3	30	5,450
PM2.5_4L2	South 4th Street Lane 2	SB	1	591.2	0.37	9.7	32	1.3	30	5,450
									Total	10,900

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	30			
Emissions per Vehicle (g/VMT)	0.001693			

Emisson Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and PM2.5 Emissions - PM2.5_4L1

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	63	1.08E-05	9	7.11%	387	6.69E-05	17	7.39%	403	6.95E-05
2	0.42%	23	3.95E-06	10	4.39%	239	4.13E-05	18	8.18%	446	7.69E-05
3	0.41%	22	3.86E-06	11	4.66%	254	4.38E-05	19	5.70%	311	5.36E-05
4	0.26%	14	2.45E-06	12	5.89%	321	5.54E-05	20	4.27%	233	4.02E-05
5	0.50%	27	4.70E-06	13	6.15%	335	5.78E-05	21	3.26%	178	3.07E-05
6	0.90%	49	8.47E-06	14	6.04%	329	5.68E-05	22	3.30%	180	3.10E-05
7	3.79%	207	3.56E-05	15	7.01%	382	6.59E-05	23	2.46%	134	2.31E-05
8	7.76%	423	7.30E-05	16	7.14%	389	6.72E-05	24	1.87%	102	1.76E-05
								Total		5,451	

2024 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM2.5_4L2

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	63	1.08E-05	9	7.11%	387	6.69E-05	17	7.39%	403	6.96E-05
2	0.42%	23	3.95E-06	10	4.39%	239	4.13E-05	18	8.18%	446	7.70E-05
3	0.41%	22	3.86E-06	11	4.66%	254	4.39E-05	19	5.70%	311	5.37E-05
4	0.26%	14	2.45E-06	12	5.89%	321	5.55E-05	20	4.27%	233	4.02E-05
5	0.50%	27	4.71E-06	13	6.15%	335	5.79E-05	21	3.26%	178	3.07E-05
6	0.90%	49	8.47E-06	14	6.04%	329	5.69E-05	22	3.30%	180	3.11E-05
7	3.79%	207	3.57E-05	15	7.01%	382	6.60E-05	23	2.46%	134	2.32E-05
8	7.76%	423	7.31E-05	16	7.14%	389	6.72E-05	24	1.87%	102	1.76E-05
								Total		5,451	

The Mark, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - South 4th Street
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = **2024**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
TEXH_4L1	South 4th Street Lane 1	SB	1	590.6	0.37	9.7	32	1.3	30	5,450
TEXH_4L2	South 4th Street Lane 2	SB	1	591.2	0.37	9.7	32	1.3	30	5,450
									Total	10,900

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	30			
Emissions per Vehicle (g/VMT)	0.03435			

Emisson Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_4L1

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	63	2.19E-04	9	7.11%	387	1.36E-03	17	7.39%	403	1.41E-03
2	0.42%	23	8.01E-05	10	4.39%	239	8.38E-04	18	8.18%	446	1.56E-03
3	0.41%	22	7.82E-05	11	4.66%	254	8.89E-04	19	5.70%	311	1.09E-03
4	0.26%	14	4.96E-05	12	5.89%	321	1.12E-03	20	4.27%	233	8.15E-04
5	0.50%	27	9.54E-05	13	6.15%	335	1.17E-03	21	3.26%	178	6.22E-04
6	0.90%	49	1.72E-04	14	6.04%	329	1.15E-03	22	3.30%	180	6.30E-04
7	3.79%	207	7.23E-04	15	7.01%	382	1.34E-03	23	2.46%	134	4.69E-04
8	7.76%	423	1.48E-03	16	7.14%	389	1.36E-03	24	1.87%	102	3.57E-04
								Total		5,451	

2024 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH_4L2

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	63	2.20E-04	9	7.11%	387	1.36E-03	17	7.39%	403	1.41E-03
2	0.42%	23	8.02E-05	10	4.39%	239	8.39E-04	18	8.18%	446	1.56E-03
3	0.41%	22	7.83E-05	11	4.66%	254	8.90E-04	19	5.70%	311	1.09E-03
4	0.26%	14	4.97E-05	12	5.89%	321	1.13E-03	20	4.27%	233	8.16E-04
5	0.50%	27	9.55E-05	13	6.15%	335	1.17E-03	21	3.26%	178	6.23E-04
6	0.90%	49	1.72E-04	14	6.04%	329	1.15E-03	22	3.30%	180	6.30E-04
7	3.79%	207	7.24E-04	15	7.01%	382	1.34E-03	23	2.46%	134	4.70E-04
8	7.76%	423	1.48E-03	16	7.14%	389	1.36E-03	24	1.87%	102	3.57E-04
								Total		5,451	

The Mark, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - South 4th Street
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2024

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
TEVAP_4L1	South 4th Street Lane 1	SB	1	590.6	0.37	9.7	32	1.3	30	5,450
TEVAP_4L2	South 4th Street Lane 2	SB	1	591.2	0.37	9.7	32	1.3	30	5,450
									Total	10,900

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	30			
Emissions per Vehicle per Hour (g/hour)	1.30355			
Emissions per Vehicle per Mile (g/VMT)	0.04345			

Emisson Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_4L1

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	63	2.78E-04	9	7.11%	387	1.72E-03	17	7.39%	403	1.78E-03
2	0.42%	23	1.01E-04	10	4.39%	239	1.06E-03	18	8.18%	446	1.97E-03
3	0.41%	22	9.90E-05	11	4.66%	254	1.12E-03	19	5.70%	311	1.38E-03
4	0.26%	14	6.28E-05	12	5.89%	321	1.42E-03	20	4.27%	233	1.03E-03
5	0.50%	27	1.21E-04	13	6.15%	335	1.48E-03	21	3.26%	178	7.87E-04
6	0.90%	49	2.17E-04	14	6.04%	329	1.46E-03	22	3.30%	180	7.97E-04
7	3.79%	207	9.15E-04	15	7.01%	382	1.69E-03	23	2.46%	134	5.94E-04
8	7.76%	423	1.87E-03	16	7.14%	389	1.72E-03	24	1.87%	102	4.51E-04
								Total		5,451	

2024 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP_4L2

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	63	2.78E-04	9	7.11%	387	1.72E-03	17	7.39%	403	1.79E-03
2	0.42%	23	1.01E-04	10	4.39%	239	1.06E-03	18	8.18%	446	1.98E-03
3	0.41%	22	9.91E-05	11	4.66%	254	1.13E-03	19	5.70%	311	1.38E-03
4	0.26%	14	6.28E-05	12	5.89%	321	1.42E-03	20	4.27%	233	1.03E-03
5	0.50%	27	1.21E-04	13	6.15%	335	1.49E-03	21	3.26%	178	7.88E-04
6	0.90%	49	2.17E-04	14	6.04%	329	1.46E-03	22	3.30%	180	7.97E-04
7	3.79%	207	9.16E-04	15	7.01%	382	1.69E-03	23	2.46%	134	5.94E-04
8	7.76%	423	1.88E-03	16	7.14%	389	1.73E-03	24	1.87%	102	4.52E-04
								Total		5,451	

The Mark, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - South 4th Street
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = **2024**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
FUG_4L1	South 4th Street Lane 1	SB	1	590.6	0.37	9.7	32	1.3	30	5,450
FUG_4L2	South 4th Street Lane 2	SB	1	591.2	0.37	9.7	32	1.3	30	5,450
									Total	10,900

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	30			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00211			
Brake Wear - Emissions per Vehicle (g/VMT)	0.01681			
Road Dust - Emissions per Vehicle (g/VMT)	0.12062			
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.13953			

4L1

Emisson Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_4L1

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	63	8.91E-04	9	7.11%	387	5.51E-03	17	7.39%	403	5.73E-03
2	0.42%	23	3.26E-04	10	4.39%	239	3.40E-03	18	8.18%	446	6.34E-03
3	0.41%	22	3.18E-04	11	4.66%	254	3.61E-03	19	5.70%	311	4.42E-03
4	0.26%	14	2.02E-04	12	5.89%	321	4.57E-03	20	4.27%	233	3.31E-03
5	0.50%	27	3.88E-04	13	6.15%	335	4.77E-03	21	3.26%	178	2.53E-03
6	0.90%	49	6.98E-04	14	6.04%	329	4.68E-03	22	3.30%	180	2.56E-03
7	3.79%	207	2.94E-03	15	7.01%	382	5.43E-03	23	2.46%	134	1.91E-03
8	7.76%	423	6.02E-03	16	7.14%	389	5.53E-03	24	1.87%	102	1.45E-03
								Total		5,451	

2024 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG_4L2

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	63	8.92E-04	9	7.11%	387	5.52E-03	17	7.39%	403	5.73E-03
2	0.42%	23	3.26E-04	10	4.39%	239	3.41E-03	18	8.18%	446	6.35E-03
3	0.41%	22	3.18E-04	11	4.66%	254	3.62E-03	19	5.70%	311	4.42E-03
4	0.26%	14	2.02E-04	12	5.89%	321	4.57E-03	20	4.27%	233	3.31E-03
5	0.50%	27	3.88E-04	13	6.15%	335	4.77E-03	21	3.26%	178	2.53E-03
6	0.90%	49	6.98E-04	14	6.04%	329	4.69E-03	22	3.30%	180	2.56E-03
7	3.79%	207	2.94E-03	15	7.01%	382	5.44E-03	23	2.46%	134	1.91E-03
8	7.76%	423	6.02E-03	16	7.14%	389	5.54E-03	24	1.87%	102	1.45E-03
								Total		5,451	

South 3rd Street – Dispersion Modeling Inputs

The Mark, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - South 3rd Street
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2024

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
DPM_3L1	South 3rd Street Lane 1	NB	1	640.6	0.40	9.7	31.7	3.4	30	5,878
DPM_3L2	South 3rd Street Lane 2	NB	1	641.4	0.40	9.7	31.7	3.4	30	5,878
									Total	11,755

Emission Factors

Speed Category	1	2	3	4
Travel Speed (mph)	30			
Emissions per Vehicle (g/VMT)	0.00034			

Emisson Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and DPM Emissions - DPM_3L1

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	3.90%	229	8.59E-06	9	6.42%	377	1.41E-05	17	5.62%	330	1.24E-05
2	2.58%	152	5.68E-06	10	7.34%	431	1.62E-05	18	3.27%	192	7.20E-06
3	2.87%	169	6.32E-06	11	6.42%	377	1.41E-05	19	2.35%	138	5.18E-06
4	3.32%	195	7.31E-06	12	6.88%	404	1.52E-05	20	0.86%	51	1.89E-06
5	2.18%	128	4.80E-06	13	6.25%	367	1.38E-05	21	3.09%	182	6.81E-06
6	3.38%	199	7.45E-06	14	6.19%	364	1.36E-05	22	4.13%	243	9.10E-06
7	6.02%	354	1.33E-05	15	5.10%	300	1.12E-05	23	2.52%	148	5.55E-06
8	4.64%	273	1.02E-05	16	3.78%	222	8.33E-06	24	0.92%	54	2.03E-06
								Total		5,879	

2024 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_3L2

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.90%	229	8.60E-06	9	6.42%	377	1.42E-05	17	5.62%	330	1.24E-05
2	2.58%	152	5.69E-06	10	7.34%	431	1.62E-05	18	3.27%	192	7.21E-06
3	2.87%	169	6.33E-06	11	6.42%	377	1.42E-05	19	2.35%	138	5.18E-06
4	3.32%	195	7.32E-06	12	6.88%	404	1.52E-05	20	0.86%	51	1.90E-06
5	2.18%	128	4.81E-06	13	6.25%	367	1.38E-05	21	3.09%	182	6.82E-06
6	3.38%	199	7.46E-06	14	6.19%	364	1.37E-05	22	4.13%	243	9.11E-06
7	6.02%	354	1.33E-05	15	5.10%	300	1.12E-05	23	2.52%	148	5.56E-06
8	4.64%	273	1.02E-05	16	3.78%	222	8.34E-06	24	0.92%	54	2.03E-06
								Total		5,879	

The Mark, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - South 3rd Street
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2024

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
PM2.5_3L1	South 3rd Street Lane 1	NB	1	640.6	0.40	9.7	32	1.3	30	5,878
PM2.5_3L2	South 3rd Street Lane 2	NB	1	641.4	0.40	9.7	32	1.3	30	5,878
									Total	11,755

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	30			
Emissions per Vehicle (g/VMT)	0.001693			

Emisson Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and PM2.5 Emissions - PM2.5_3L1

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	68	1.27E-05	9	7.11%	418	7.82E-05	17	7.39%	434	8.13E-05
2	0.42%	25	4.62E-06	10	4.39%	258	4.83E-05	18	8.18%	481	9.00E-05
3	0.41%	24	4.51E-06	11	4.66%	274	5.13E-05	19	5.70%	335	6.27E-05
4	0.26%	15	2.86E-06	12	5.89%	346	6.48E-05	20	4.27%	251	4.70E-05
5	0.50%	29	5.50E-06	13	6.15%	361	6.77E-05	21	3.26%	192	3.59E-05
6	0.90%	53	9.90E-06	14	6.04%	355	6.65E-05	22	3.30%	194	3.63E-05
7	3.79%	223	4.17E-05	15	7.01%	412	7.71E-05	23	2.46%	145	2.71E-05
8	7.76%	456	8.54E-05	16	7.14%	420	7.86E-05	24	1.87%	110	2.06E-05
								Total		5,878	

2024 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM2.5_3L2

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	68	1.27E-05	9	7.11%	418	7.83E-05	17	7.39%	434	8.14E-05
2	0.42%	25	4.63E-06	10	4.39%	258	4.84E-05	18	8.18%	481	9.01E-05
3	0.41%	24	4.52E-06	11	4.66%	274	5.13E-05	19	5.70%	335	6.28E-05
4	0.26%	15	2.86E-06	12	5.89%	346	6.49E-05	20	4.27%	251	4.70E-05
5	0.50%	29	5.51E-06	13	6.15%	361	6.77E-05	21	3.26%	192	3.59E-05
6	0.90%	53	9.91E-06	14	6.04%	355	6.65E-05	22	3.30%	194	3.64E-05
7	3.79%	223	4.18E-05	15	7.01%	412	7.72E-05	23	2.46%	145	2.71E-05
8	7.76%	456	8.55E-05	16	7.14%	420	7.87E-05	24	1.87%	110	2.06E-05
								Total		5,878	

The Mark, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - South 3rd Street
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2024

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
TEXH_3L1	South 3rd Street Lane 1	NB	1	640.6	0.40	9.7	32	1.3	30	5,878
TEXH_3L2	South 3rd Street Lane 2	NB	1	641.4	0.40	9.7	32	1.3	30	5,878
									Total	11,755

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	30			
Emissions per Vehicle (g/VMT)	0.03435			

Emisson Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_3L1

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	68	2.57E-04	9	7.11%	418	1.59E-03	17	7.39%	434	1.65E-03
2	0.42%	25	9.38E-05	10	4.39%	258	9.80E-04	18	8.18%	481	1.83E-03
3	0.41%	24	9.15E-05	11	4.66%	274	1.04E-03	19	5.70%	335	1.27E-03
4	0.26%	15	5.80E-05	12	5.89%	346	1.31E-03	20	4.27%	251	9.53E-04
5	0.50%	29	1.12E-04	13	6.15%	361	1.37E-03	21	3.26%	192	7.28E-04
6	0.90%	53	2.01E-04	14	6.04%	355	1.35E-03	22	3.30%	194	7.37E-04
7	3.79%	223	8.46E-04	15	7.01%	412	1.56E-03	23	2.46%	145	5.49E-04
8	7.76%	456	1.73E-03	16	7.14%	420	1.59E-03	24	1.87%	110	4.17E-04
								Total		5,878	

2024 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH_3L2

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	68	2.57E-04	9	7.11%	418	1.59E-03	17	7.39%	434	1.65E-03
2	0.42%	25	9.39E-05	10	4.39%	258	9.81E-04	18	8.18%	481	1.83E-03
3	0.41%	24	9.16E-05	11	4.66%	274	1.04E-03	19	5.70%	335	1.27E-03
4	0.26%	15	5.81E-05	12	5.89%	346	1.32E-03	20	4.27%	251	9.54E-04
5	0.50%	29	1.12E-04	13	6.15%	361	1.37E-03	21	3.26%	192	7.29E-04
6	0.90%	53	2.01E-04	14	6.04%	355	1.35E-03	22	3.30%	194	7.38E-04
7	3.79%	223	8.47E-04	15	7.01%	412	1.57E-03	23	2.46%	145	5.50E-04
8	7.76%	456	1.73E-03	16	7.14%	420	1.60E-03	24	1.87%	110	4.18E-04
								Total		5,878	

The Mark, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - South 3rd Street
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2024

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
TEVAP_3L1	South 3rd Street Lane 1	NB	1	640.6	0.40	9.7	32	1.3	30	5,878
TEVAP_3L2	South 3rd Street Lane 2	NB	1	641.4	0.40	9.7	32	1.3	30	5,878
									Total	11,755

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	30			
Emissions per Vehicle per Hour (g/hour)	1.30355			
Emissions per Vehicle per Mile (g/VMT)	0.04345			

Emisson Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_3L1

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	68	3.25E-04	9	7.11%	418	2.01E-03	17	7.39%	434	2.09E-03
2	0.42%	25	1.19E-04	10	4.39%	258	1.24E-03	18	8.18%	481	2.31E-03
3	0.41%	24	1.16E-04	11	4.66%	274	1.32E-03	19	5.70%	335	1.61E-03
4	0.26%	15	7.34E-05	12	5.89%	346	1.66E-03	20	4.27%	251	1.21E-03
5	0.50%	29	1.41E-04	13	6.15%	361	1.74E-03	21	3.26%	192	9.21E-04
6	0.90%	53	2.54E-04	14	6.04%	355	1.71E-03	22	3.30%	194	9.32E-04
7	3.79%	223	1.07E-03	15	7.01%	412	1.98E-03	23	2.46%	145	6.95E-04
8	7.76%	456	2.19E-03	16	7.14%	420	2.02E-03	24	1.87%	110	5.28E-04
								Total		5,878	

2024 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP_3L2

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	68	3.25E-04	9	7.11%	418	2.01E-03	17	7.39%	434	2.09E-03
2	0.42%	25	1.19E-04	10	4.39%	258	1.24E-03	18	8.18%	481	2.31E-03
3	0.41%	24	1.16E-04	11	4.66%	274	1.32E-03	19	5.70%	335	1.61E-03
4	0.26%	15	7.35E-05	12	5.89%	346	1.67E-03	20	4.27%	251	1.21E-03
5	0.50%	29	1.41E-04	13	6.15%	361	1.74E-03	21	3.26%	192	9.22E-04
6	0.90%	53	2.54E-04	14	6.04%	355	1.71E-03	22	3.30%	194	9.33E-04
7	3.79%	223	1.07E-03	15	7.01%	412	1.98E-03	23	2.46%	145	6.96E-04
8	7.76%	456	2.19E-03	16	7.14%	420	2.02E-03	24	1.87%	110	5.29E-04
								Total		5,878	

The Mark, San Jose - Offsite Residential Roadway Modeling
Cumulative Operation - South 3rd Street
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = **2024**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
FUG_3L1	South 3rd Street Lane 1	NB	1	640.6	0.40	9.7	32	1.3	30	5,878
FUG_3L2	South 3rd Street Lane 2	NB	1	641.4	0.40	9.7	32	1.3	30	5,878
									Total	11,755

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	30			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00211			
Brake Wear - Emissions per Vehicle (g/VMT)	0.01681			
Road Dust - Emissions per Vehicle (g/VMT)	0.12062			
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.13953			

Emisson Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_3L1

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	68	1.04E-03	9	7.11%	418	6.45E-03	17	7.39%	434	6.70E-03
2	0.42%	25	3.81E-04	10	4.39%	258	3.98E-03	18	8.18%	481	7.42E-03
3	0.41%	24	3.72E-04	11	4.66%	274	4.23E-03	19	5.70%	335	5.17E-03
4	0.26%	15	2.36E-04	12	5.89%	346	5.34E-03	20	4.27%	251	3.87E-03
5	0.50%	29	4.53E-04	13	6.15%	361	5.58E-03	21	3.26%	192	2.96E-03
6	0.90%	53	8.16E-04	14	6.04%	355	5.48E-03	22	3.30%	194	2.99E-03
7	3.79%	223	3.44E-03	15	7.01%	412	6.36E-03	23	2.46%	145	2.23E-03
8	7.76%	456	7.04E-03	16	7.14%	420	6.47E-03	24	1.87%	110	1.70E-03
								Total		5,878	

2024 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG_3L2

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.15%	68	1.04E-03	9	7.11%	418	6.46E-03	17	7.39%	434	6.71E-03
2	0.42%	25	3.81E-04	10	4.39%	258	3.99E-03	18	8.18%	481	7.43E-03
3	0.41%	24	3.72E-04	11	4.66%	274	4.23E-03	19	5.70%	335	5.18E-03
4	0.26%	15	2.36E-04	12	5.89%	346	5.35E-03	20	4.27%	251	3.88E-03
5	0.50%	29	4.54E-04	13	6.15%	361	5.58E-03	21	3.26%	192	2.96E-03
6	0.90%	53	8.17E-04	14	6.04%	355	5.48E-03	22	3.30%	194	3.00E-03
7	3.79%	223	3.44E-03	15	7.01%	412	6.36E-03	23	2.46%	145	2.23E-03
8	7.76%	456	7.05E-03	16	7.14%	420	6.48E-03	24	1.87%	110	1.70E-03
								Total		5,878	

Cancer Risk Calculations from Roadways

The Mark, San Jose, CA
Maximum DPM Cancer Risk Calculations From - Traffic Emissions on South 3rd & South 4th Street
Impacts at Project MEI

Cancer Risk Calculation Method

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

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

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	TOTAL
0	0.25	-0.25 - 0*	2024	10	0.0016	0.1433	0.1818	0.019	0.009	0.0007	0.03
1	1	0 - 1	2024	10	0.0016	0.1433	0.1818	0.226	0.114	0.0085	0.35
2	1	1 - 2	2025	10	0.0016	0.1433	0.1818	0.226	0.114	0.0085	0.35
3	1	2 - 3	2026	3	0.0016	0.1433	0.1818	0.030	0.015	0.0011	0.05
4	1	3 - 4	2027	3	0.0016	0.1433	0.1818	0.030	0.015	0.0011	0.05
5	1	4 - 5	2028	3	0.0016	0.1433	0.1818	0.030	0.015	0.0011	0.05
6	1	5 - 6	2029	3	0.0016	0.1433	0.1818	0.030	0.015	0.0011	0.05
7	1	6 - 7	2030	3	0.0016	0.1433	0.1818	0.030	0.015	0.0011	0.05
8	1	7 - 8	2031	3	0.0016	0.1433	0.1818	0.030	0.015	0.0011	0.05
9	1	8 - 9	2032	3	0.0016	0.1433	0.1818	0.030	0.015	0.0011	0.05
10	1	9 - 10	2033	3	0.0016	0.1433	0.1818	0.030	0.015	0.0011	0.05
11	1	10 - 11	2034	3	0.0016	0.1433	0.1818	0.030	0.015	0.0011	0.05
12	1	11 - 12	2035	3	0.0016	0.1433	0.1818	0.030	0.015	0.0011	0.05
13	1	12 - 13	2036	3	0.0016	0.1433	0.1818	0.030	0.015	0.0011	0.05
14	1	13 - 14	2037	3	0.0016	0.1433	0.1818	0.030	0.015	0.0011	0.05
15	1	14 - 15	2038	3	0.0016	0.1433	0.1818	0.030	0.015	0.0011	0.05
16	1	15 - 16	2039	3	0.0016	0.1433	0.1818	0.030	0.015	0.0011	0.05
17	1	16-17	2040	1	0.0016	0.1433	0.1818	0.005	0.002	0.0002	0.007
18	1	17-18	2041	1	0.0016	0.1433	0.1818	0.005	0.002	0.0002	0.007
19	1	18-19	2042	1	0.0016	0.1433	0.1818	0.005	0.002	0.0002	0.007
20	1	19-20	2043	1	0.0016	0.1433	0.1818	0.005	0.002	0.0002	0.007
21	1	20-21	2044	1	0.0016	0.1433	0.1818	0.005	0.002	0.0002	0.007
22	1	21-22	2045	1	0.0016	0.1433	0.1818	0.005	0.002	0.0002	0.007
23	1	22-23	2046	1	0.0016	0.1433	0.1818	0.005	0.002	0.0002	0.007
24	1	23-24	2047	1	0.0016	0.1433	0.1818	0.005	0.002	0.0002	0.007
25	1	24-25	2048	1	0.0016	0.1433	0.1818	0.005	0.002	0.0002	0.007
26	1	25-26	2049	1	0.0016	0.1433	0.1818	0.005	0.002	0.0002	0.007
27	1	26-27	2050	1	0.0016	0.1433	0.1818	0.005	0.002	0.0002	0.007
28	1	27-28	2051	1	0.0016	0.1433	0.1818	0.005	0.002	0.0002	0.007
29	1	28-29	2052	1	0.0016	0.1433	0.1818	0.005	0.002	0.0002	0.007
30	1	29-30	2053	1	0.0016	0.1433	0.1818	0.005	0.002	0.0002	0.007
Total Increased Cancer Risk								0.96	0.484	0.036	**1.48**

Maximum	
Hazard Index	Total PM2.5
0.00	0.589

* Third trimester of pregnancy

The Mark, San Jose, CA
Maximum DPM Cancer Risk Calculations From - Traffic Emissions on South 3rd & South 4th Street
Impacts at The Mark Onsite Sensitive Receptors

Cancer Risk Calculation Method

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

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

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	TOTAL
0	0.25	-0.25 - 0*	2024	10	0.0009	0.0660	0.0837	0.010	0.004	0.0003	0.01
1	1	0 - 1	2024	10	0.0009	0.0660	0.0837	0.120	0.053	0.0039	0.18
2	1	1 - 2	2025	10	0.0009	0.0660	0.0837	0.120	0.053	0.0039	0.18
3	1	2 - 3	2026	3	0.0009	0.0660	0.0837	0.016	0.007	0.0005	0.02
4	1	3 - 4	2027	3	0.0009	0.0660	0.0837	0.016	0.007	0.0005	0.02
5	1	4 - 5	2028	3	0.0009	0.0660	0.0837	0.016	0.007	0.0005	0.02
6	1	5 - 6	2029	3	0.0009	0.0660	0.0837	0.016	0.007	0.0005	0.02
7	1	6 - 7	2030	3	0.0009	0.0660	0.0837	0.016	0.007	0.0005	0.02
8	1	7 - 8	2031	3	0.0009	0.0660	0.0837	0.016	0.007	0.0005	0.02
9	1	8 - 9	2032	3	0.0009	0.0660	0.0837	0.016	0.007	0.0005	0.02
10	1	9 - 10	2033	3	0.0009	0.0660	0.0837	0.016	0.007	0.0005	0.02
11	1	10 - 11	2034	3	0.0009	0.0660	0.0837	0.016	0.007	0.0005	0.02
12	1	11 - 12	2035	3	0.0009	0.0660	0.0837	0.016	0.007	0.0005	0.02
13	1	12 - 13	2036	3	0.0009	0.0660	0.0837	0.016	0.007	0.0005	0.02
14	1	13 - 14	2037	3	0.0009	0.0660	0.0837	0.016	0.007	0.0005	0.02
15	1	14 - 15	2038	3	0.0009	0.0660	0.0837	0.016	0.007	0.0005	0.02
16	1	15 - 16	2039	3	0.0009	0.0660	0.0837	0.016	0.007	0.0005	0.02
17	1	16-17	2040	1	0.0009	0.0660	0.0837	0.002	0.001	0.0001	0.004
18	1	17-18	2041	1	0.0009	0.0660	0.0837	0.002	0.001	0.0001	0.004
19	1	18-19	2042	1	0.0009	0.0660	0.0837	0.002	0.001	0.0001	0.004
20	1	19-20	2043	1	0.0009	0.0660	0.0837	0.002	0.001	0.0001	0.004
21	1	20-21	2044	1	0.0009	0.0660	0.0837	0.002	0.001	0.0001	0.004
22	1	21-22	2045	1	0.0009	0.0660	0.0837	0.002	0.001	0.0001	0.004
23	1	22-23	2046	1	0.0009	0.0660	0.0837	0.002	0.001	0.0001	0.004
24	1	23-24	2047	1	0.0009	0.0660	0.0837	0.002	0.001	0.0001	0.004
25	1	24-25	2048	1	0.0009	0.0660	0.0837	0.002	0.001	0.0001	0.004
26	1	25-26	2049	1	0.0009	0.0660	0.0837	0.002	0.001	0.0001	0.004
27	1	26-27	2050	1	0.0009	0.0660	0.0837	0.002	0.001	0.0001	0.004
28	1	27-28	2051	1	0.0009	0.0660	0.0837	0.002	0.001	0.0001	0.004
29	1	28-29	2052	1	0.0009	0.0660	0.0837	0.002	0.001	0.0001	0.004
30	1	29-30	2053	1	0.0009	0.0660	0.0837	0.002	0.001	0.0001	0.004
Total Increased Cancer Risk								0.51	0.223	0.017	**0.75**

Maximum	
Hazard Index	**Total PM2.5**
0.0002	0.271

* Third trimester of pregnancy

South 4th Street Apartments, San Jose, CA

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)
2020	Construction	0.0005	Point	79	1.1	0.00033	4.14E-05	**5.24E-07**
2021	Construction	0.0061	Point	79	12.2	0.00373	4.69E-04	**5.94E-06**
2022	Construction	0.0062	Point	79	12.4	0.00377	4.76E-04	**6.02E-06**
2023	Construction	0.0008	Point	79	1.6	0.00049	6.21E-05	**7.87E-07**
2024	Construction	0.0001	Point	79	0.2	0.00006	7.67E-06	**9.71E-08**

Construction Hours

hr/day =	9	(7am - 4pm)
days/yr =	365	
hours/year =	3285	

South 4th Street Apartments, San Jose, CA

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

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	(lb/yr)	(lb/hr)	(g/s)	Modeled Area (m2)	PM2.5 Emission Rate g/s/m2
2020	Construction	FUG	0.0032	6.5	0.00197	2.49E-04	2,010	**1.24E-07**
2021	Construction	FUG	0.0056	11.1	0.00339	4.27E-04	2,010	**2.12E-07**
2022	Construction	FUG	0.0058	11.5	0.00350	4.41E-04	2,010	**2.20E-07**
2023	Construction	FUG	0.0010	1.9	0.00059	7.44E-05	2,010	**3.70E-08**
2024	Construction	FUG	0.0001	0.2	0.00005	6.14E-06	2,010	**3.05E-09**
Total			***0.0156***	***31.2***	***0.0095***	***0.0012***		

Construction Hours

hr/day =	9	(7am - 4pm)
days/yr =	365	
hours/year =	3285	

The Mark, San Jose, CA

Maximum DPM Cancer Risk Calculations From Construction at 493 & 431 South 4th Street Development - Mitigated Emissions

Impacts at Off-Site Receptors - 15 feet (4.5 meters)

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 =	0.85	0.85	0.72	0.73

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information				Adult - Exposure Information						
							Modeled				Maximum		
Exposure	Exposure Duration		DPM Conc (ug/m3)		Age Sensitivity	Infant/Child Cancer Risk	DPM Conc (ug/m3)		Age Sensitivity	Adult Cancer Risk	Hazard	Fugitive	Total
Year	(years)	Age	Year	Annual	Factor	(per million)	Year	Annual	Factor	(per million)	Index	PM2.5	PM2.5
0	0.25	-0.25 - 0*	2021	0.0015	10	0.02	2021	0.0015	-	-	**0.003**	**0.027**	**0.043**
1	1	0 - 1	2021	0.0015	10	0.21	2021	0.0015	1	0.00	0.000	0.0151	0.0167
2	1	1 - 2	2022	0.0172	10	2.41	2022	0.0172	1	0.05	0.003	0.0259	0.0431
3	1	2 - 3	2023	0.0115	3	0.21	2023	0.0115	1	0.03	0.002	0.0269	0.0383
4	1	3 - 4	2024	0.0175	3	0.33	2024	0.0175	1	0.05	0.003	0.0004	0.0178
5	1	4 - 5	2025	0.0003	3	0.01	2025	0.0003	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						**3.18**				**0.14**			

* Third trimester of pregnancy