CAMDEN AVENUE RESIDENTIAL DEVELOPMENT CONSTRUCTION COMMUNITY RISK ASSESSMENT

San José, California

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Introduction

The purpose of this report is to address the potential community risk impacts associated with the construction of a proposed residential development located along Camden Avenue in San José, California. The air quality impacts from this project would be associated with construction of the new single-family homes. Air pollutant emissions associated with construction of the project were predicted using appropriate computer models. In addition, the potential health risk impacts from 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] BAAQMD recommends using a 1,000-foot screening radius around the project site for purposes of identifying community health risk from existing sources of TACs.

Project Description

The project site is currently undeveloped. The project proposes to construct seven single-family homes that are connected to communal driveways. In total, the seven homes would comprise 17,210 square feet (sf) with an additional 2,982-sf allocated to the driveways. Construction is expected to begin in March 2022 and be completed by December 2022.

Setting

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

Air Pollutants of Concern

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

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

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

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.

Sensitive Receptors

There are groups of people more affected by air pollution than others. CARB has identified the following persons who are most likely to be affected by air pollution: children under 16, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, and elementary schools. For cancer risk assessments, children are the most sensitive receptors, since they are more susceptible to cancer causing TACs. Residential locations are assumed to include infants and small children. The closest sensitive receptors to the project site are in the single-family residences to the north of the project site. There are other sensitive receptors at further distances, including receptors at the nearby Beacon School, Watch Me Grow Daycare, and Learning Care Child Care Preschool. This project would introduce new sensitive receptors (i.e., residents) to the area.

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.

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[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.

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

Bay Area Air Quality Management District (BAAQMD)

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

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

BAAQMD's Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposures to outdoor TACs in the Bay Area.[4] The program examines TAC emissions from point sources, area sources, and on-road and off-road mobile sources with an emphasis on diesel exhaust, which is a major contributor to airborne health risk in California. The CARE program is an on-going program that encourages community involvement and input. The technical analysis portion of the CARE program is being implemented in three phases that includes an assessment of the sources of TAC emissions, modeling and measurement programs to estimate concentrations of TAC, and an assessment of exposures and health risks. Throughout the program, information derived from the technical analyses will be used to focus emission reduction measures in areas with high TAC exposures and high density of sensitive populations. Risk reduction activities associated with the CARE program are focused on the most at-risk communities in the Bay Area. Overburdened communities are areas located (i) within a census tract identified by the California Communities Environmental Health Screening Tool (CalEnviroScreen), Version 4.0 implemented by OEHHA, as having an overall CalEnviroScreen score at or above the 70th percentile, or (ii) within 1,000 feet of any such census tract.[5] The

[4] See BAAQMD: https://www.baaqmd.gov/community-health/community-health-protection-program/community-air-risk-evaluation-care-program , accessed 2/18/2021.
[5] See BAAQMD: https://www.baaqmd.gov/~/media/dotgov/files/rules/reg-2-permits/2021-amendments/documents/20210722_01_appendixd_mapsofoverburdenedcommunities-pdf.pdf?la=en , accessed 10/1/2021.

BAAQMD has identified six communities as impacted: Concord, Richmond/San Pablo, Western Alameda County, San José, Redwood City/East Palo Alto, and Eastern San Francisco. The project site is not within a CARE area and not within a BAAQMD overburdened area as identified by CalEnviroScreen.

The BAAQMD California Environmental Quality Act (*CEQA) Air Quality Guidelines*[6] 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.

San José Envision 2040 General Plan

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

Applicable Goals – Air Pollutant Emission Reduction

Goal MS-10 Minimize emissions from new development.

Applicable Policies – Air Pollutant Emission Reduction

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

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

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

Applicable Goals – Toxic Air Contaminants

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

Applicable Policies – Toxic Air Contaminants

MS-11.2 For projects that emit toxic air contaminants, require project proponents to prepare health risk assessments in accordance with BAAQMD-recommended procedures as part of environmental review and employ effective mitigation to reduce possible

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

health risks to a less than significant level. Alternatively, require new projects (such as, but not limited to, industrial, manufacturing, and processing facilities) that are sources of TACs to be located an adequate distance from residential areas and other sensitive receptors.

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

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

Actions – Toxic Air Contaminants

MS-11.7 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.

Applicable Goals – Construction Air Emissions

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

Applicable Policies – Construction Air Emissions

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

Applicable Actions – Construction Air Emissions

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

Significance Thresholds

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

Table 1. BAAQMD CEQA Significance Thresholds

Health Risks and Hazards	Single Sources Within 1,000-foot Zone of Influence	Combined Sources (Cumulative from all sources within 1000-foot zone of influence)
Excess Cancer Risk	10 per one million	100 per one million
Hazard Index	1.0	10.0
Incremental annual $PM_{2.5}$	0.3 µg/m^3	0.8 µg/m^3

Construction Impacts and Mitigation Measures

Project impacts related to increased community risk can occur either by generating emissions of TACs and air pollutants and by introducing a new sensitive receptor in proximity to an existing source of TACs. Temporary project construction activity would generate emissions of DPM from equipment and trucks and also generate dust on a temporary basis that could affect nearby sensitive receptors.

A community health risk assessment was prepared to address project construction impacts on the surrounding off-site sensitive receptors. Additionally, the project could introduce new residents that are sensitive receptors, who would be exposed to existing sources of TACs and localized air pollutants in the vicinity of the project. Therefore, the impact of the existing sources of TAC upon the existing sensitive receptors and new incoming sensitive receptors was assessed.

Community risk impacts are addressed by predicting increased lifetime cancer risk, the increase in annual $PM_{2.5}$ concentrations, and computing the Hazard Index (HI) for non-cancer health risks. Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known TAC. These exhaust emissions pose health risks for sensitive receptors such as surrounding residents. The primary community risk impact issues associated with construction emissions are cancer risk and exposure to $PM_{2.5}$. 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 $PM_{2.5}$.[7] This assessment included dispersion modeling to predict the offsite and onsite concentrations resulting from project construction, so that lifetime cancer risks and non-cancer health effects could be evaluated. The methodology for computing community risks impacts is contained in *Attachment 1*.

Construction Period Emissions

The California Emissions Estimator Model (CalEEMod) Version 2020.4.0 was used to estimate emissions from on-site construction activity, construction vehicle trips, and evaporative emissions. The project land use types and size, and anticipated construction schedule were input to CalEEMod. The CARB EMission FACtors 2021 (EMFAC2021) model was used to predict emissions from construction traffic, which includes worker travel, vendor trucks, and haul trucks.[8] The CalEEMod model output along with construction inputs are included in *Attachment 2* and EMFAC2021 vehicle emissions modeling outputs are included in *Attachment 3*.

[7] DPM is identified by California as a toxic air contaminant due to the potential to cause cancer.
[8] See CARB's EMFAC2021 Emissions Inventory at https://arb.ca.gov/emfac/emissions-inventory.

CalEEMod Modeling

Land Use Inputs

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

Table 2. Summary of Project Land Use Inputs

Project Land Uses	Size	Units	Square Feet (sf)	Acreage
Single Family Housing	7	Dwelling Unit	17,210	1
Other Asphalt Surfaces	2.98	1,000sqft	2,982	

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 for both phases, including equipment list and schedule, were based on information based on CalEEMod defaults for a project of this type and size that was reviewed and approved by the project applicant.

The construction equipment worksheets 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 were based on CalEEMod defaults and approved by the applicant. The construction schedule assumed that the earliest possible start date would be March 2022 and would be built out over a period of approximately 10 months, or 217 construction workdays. The earliest year of full operation was assumed to be 2023.

Construction Truck Traffic Emissions

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

The latest version of the CalEEMod model is based on the older version of the CARB EMFAC2017 motor vehicle emission factor model. This model has been superseded by the EMFAC2021 model; however, CalEEMod has not been updated to include EMFAC2021. Therefore, the construction traffic information was combined with EMFAC2021 motor vehicle emissions factors. EMFAC2021 provides aggregate emission rates in grams per mile for each

vehicle type. The vehicle mix for this study was based on CalEEMod default assumptions, where worker trips are assumed to be comprised of light-duty autos (EMFAC category LDA) and light duty trucks (EMFAC category LDT1and LDT2). Vendor trips are comprised of delivery and large trucks (EMFAC category MHDT and HHDT) and haul trips, including 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 (soil import/export). Since CalEEMod does not address cement trucks, these were treated as vendor travel distances. Each trip was assumed to include an idle time of 5 minutes. Emissions associated with vehicle starts were also included. On road emissions in Santa Clara County for the years 2022 were used in these calculations. Table 3 provides the traffic inputs that were combined with the EMFAC2021 emission database to compute vehicle emissions.

Table 3. Construction Traffic Data Used for EMFAC2021 Model Runs

CalEEMod Run/Land Uses and Construction Phase	Trips by Trip Type			Notes
	Total Worker[1]	Total Vendor[1]	Total Haul[2]	
Vehicle mix[1]	50% LDA 25% LDT1 25% LDT2	50% MHDT 50% HHDT	100% HHDT	
Trip Length (miles)	10.8	7.3	20.0	CalEEMod default distance with 5-min truck idle time.
Site Preparation	16	-	-	CalEEMod default worker trips.
Grading	40	-	-	CalEEMod default worker trips.
Trenching	50	-	-	CalEEMod default worker trips.
Building Construction	800	200	-	CalEEMod default worker and vendor trips.
Architectural Coating	10	-	-	CalEEMod default worker trips.
Paving	130	-	17	2,982-sf asphalt. CalEEMod default worker trips.

Notes: [1] Based on 2022 EMFAC2021 light-duty vehicle fleet mix for Santa Clara County.
[2] Includes demolition and grading trips estimated by CalEEMod based on amount of material to be removed. Cement and asphalt trips estimated based on data provided by the applicant.

Summary of Computed Construction Period Emissions

Average daily emissions were annualized for each year of construction by dividing the annual construction emissions 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.

Table 4. Construction Period Emissions

Year	ROG	NOx	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
Construction Emissions Per Year (Tons)				
2022	0.30	1.37	0.06	0.06
Average Daily Construction Emissions Per Year (pounds/day)				
2022 (217 construction workdays)	2.76	12.63	0.60	0.57
BAAQMD Thresholds (pounds per day)	*54* lbs./day	*54* lbs./day	*82* lbs./day	*54* lbs./day
Exceed Threshold?	No	No	No	No

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

Mitigation Measure AQ-1: **Include measures to control dust and exhaust during construction.**

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

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

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

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

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

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

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

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

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

Effectiveness of Mitigation Measure AQ-1

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

Community Health Risk from Project Construction

Construction Emissions

The CalEEMod model and EMFAC2021 emissions 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 as 0.06 tons (128 pounds). The on-road emissions are a result of haul truck travel during grading activities, worker travel, and vendor deliveries during construction. A trip length of one mile was used to represent vehicle travel while at or near the construction site. It was assumed that these emissions from on-road vehicles traveling at or near the site would occur at the construction site. Fugitive $PM_{2.5}$ dust emissions were calculated by CalEEMod as 0.01 tons (20 pounds) for the overall construction period.

Dispersion Modeling

The U.S. EPA AERMOD dispersion model was used to predict concentrations of DPM and $PM_{2.5}$ concentrations at sensitive receptors in the vicinity of the project 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.[9] Emission sources for the construction site were grouped into two categories: exhaust emissions of DPM and fugitive $PM_{2.5}$ dust emissions.

Construction Sources

To represent the construction equipment exhaust emissions, an area source emission release height of 20 feet (6 meters) was used for the area sources.[10] The release height incorporates both the physical release height from the construction equipment (i.e., the height of the exhaust pipe) and

[9] Bay Area Air Quality Management District (BAAQMD), 2012, *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0.* May.
[10] California Air Resource Board, 2007. *Proposed Regulation for In-Use Off-Road Diesel Vehicles, Appendix D: Health Risk Methodology.* April. Web: https://ww3.arb.ca.gov/regact/2007/ordiesl07/ordiesl07.htm

plume rise after it leaves the exhaust pipe. Plume rise is due to both the high temperature of the exhaust and the high velocity of the exhaust gas. It should be noted that when modeling an area source, plume rise is not calculated by the AERMOD dispersion model as it would do for a point source (exhaust stack). Therefore, the release height from an area source used to represent emissions from sources with plume rise, such as construction equipment, should be based on the height the exhaust plume is expected to achieve, not just the height of the top of the exhaust pipe.

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

AERMOD Inputs and Meteorological Data

The modeling used a five-year data set (2013 - 2017) of hourly meteorological data from the San Jose Airport prepared for use with the AERMOD model by BAAQMD. Construction emissions were modeled as occurring daily between 8:00 a.m. to 5:00 p.m., when the majority of construction activity is expected to occur. Annual DPM and $PM_{2.5}$ concentrations from construction activities during the 2022 period were calculated using the model. DPM and $PM_{2.5}$ concentrations were calculated at nearby sensitive receptors. Receptor heights of 5 feet (1.5 meters) and 15 feet (4.5 meters) were used to represent the breathing height on the first and second floor of nearby single-family residences.[11] A receptor height of 3 feet (1 meter) was used at the Beacon School, Watch Me Grow Daycare, and Learning Care Child Care Preschool.

Summary of Construction Community Risk Impacts

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

[11] 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

The maximum modeled annual $PM_{2.5}$ concentration was calculated based on combined exhaust and fugitive concentrations. The maximum computed HI value was based on the ratio of the maximum DPM concentration modeled and the chronic inhalation 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). Results of this assessment indicated that the construction residential MEI was located on the second floor (15 feet above ground) at the adjacent single-family home north of the construction project site. Table 5 summarizes the maximum cancer risks, $PM_{2.5}$ concentrations, and health hazard indexes for project related construction activities affecting the construction MEI. *Attachment 4* to this report includes the emission calculations used for the construction area source modeling and the cancer risk calculations.

Additionally, modeling was conducted to predict the cancer risks, non-cancer health hazards, and maximum $PM_{2.5}$ concentrations associated with construction activities at the nearby schools and daycare. The maximum increased cancer risks were adjusted using infant and child exposure parameters. The uncontrolled cancer risk, $PM_{2.5}$ concentration, and HI at the nearby schools and daycare do not exceed their respective BAAQMD single-source significance thresholds, as shown in Table 5.

Table 5. Construction Risk Impacts at the Off-site MEI

Source		Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Project Impact				
Project Construction	Unmitigated	**23.75 (infant)**	0.15	0.03
	Mitigated*	6.19 (infant)	0.04	0.01
BAAQMD Single-Source Threshold		***10***	***0.3***	***1.0***
Exceed Threshold?	Unmitigated	***Yes***	*No*	*No*
	Mitigated*	*No*	*No*	*No*
Most Affected Nearby School – Learning Care Child Care Preschool				
Project Construction	Unmitigated	3.24	0.01	<0.01
BAAQMD Single-Source Threshold		***10***	***0.3***	***1.0***
Exceed Threshold?	Unmitigated	*No*	*No*	*No*

* Construction equipment with Tier 4 interim engines and Best Management Practices as Mitigation.

Figure 1. Locations of Project Construction Site, Off-Site Sensitive Receptors, and Maximum TAC Impact

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 rail lines, highways, busy surface streets, and stationary sources identified by BAAQMD.

Camden Avenue is the only roadway within the influence area that would have traffic exceeding 10,000 vehicles per day. A review of BAAQMD's stationary source geographic information systems (GIS) map tool identified one stationary source with the potential to affect the project site and MEI. Figure 2 shows the project area included within the influence area and the location of the MEI. Community risk impacts from these sources upon the MEI reported in Table 6. Details of the modeling and community risk calculations are included in *Attachment 5*.

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

Local Roadways – Camden Avenue

A refined analysis of potential health impacts from vehicle traffic on Camden Avenue was conducted. The refined analysis involved predicting emissions for the traffic volume and mix of vehicle types on the roadway near the project site and using an atmospheric dispersion model to predict exposure to TACs. The associated cancer risks were 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 Camden Avenue using the Caltrans version of the CARB EMFAC2017 emissions model, known as CT-EMFAC2017. CT-EMFAC2017 provides emission factors for mobile source criteria pollutants and TACs, including DPM. Emission processes modeled include running exhaust for DPM, $PM_{2.5}$ and total organic compounds (TOG), running evaporative losses for TOG, and tire and brake wear and fugitive road dust for $PM_{2.5}$. $PM_{2.5}$ 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 the emissions estimate. DPM emissions are projected to decrease in the future as reflected in the CT-EMFAC2017 emissions data. Inputs to the model include region (Santa Clara County), type of road (major/collector), truck percentage for non-state highways in Santa Clara County (3.51 percent),[12] traffic mix assigned by CT-EMFAC2017 for the county, year of analysis (2022 – construction start year), and season (annual).

To estimate TAC and $PM_{2.5}$ emissions over the 30-year exposure period used for calculating the increased cancer risks for sensitive receptors at the MEI, the CT-EMFAC2017 model was used to develop vehicle emission factors for the year 2022 (project construction year). Emissions associated with vehicle travel depend on the year of analysis because emission control technology requirements are phased-in over time. Therefore, the earlier the year analyzed in the model, the higher the emission rates utilized by CT-EMFAC2017. Year 2022 emissions were conservatively assumed as being representative of future conditions over the time period that cancer risks are evaluated since, as discussed above, overall vehicle emissions, and in particular diesel truck emissions, will decrease in the future.

The average daily traffic (ADT) for Camden Avenue was calculated based on traffic data obtained from the City of San Jose.[13] The estimated ADT on Camden Avenue was 32,171 vehicles. Average hourly traffic distributions for Santa Clara County roadways were developed using the EMFAC model,[14] which were then applied to the ADT volumes to obtain estimated hourly traffic volumes and emissions for the roadway. An average travel speed of 40 miles per hour (mph) on Camden Avenue was used for all hours of the day based on posted speed limit signs on the roadway.

Dispersion Modeling

Dispersion modeling of TAC and $PM_{2.5}$ emissions was conducted using the EPA AERMOD air quality dispersion model, which is recommended by the BAAQMD for this type of analysis.[15] TAC and $PM_{2.5}$ emissions from traffic on Camden Avenue within 1,000 feet of the project site were evaluated. Vehicle traffic on the roadways was modeled using a volume source along a line (line volume source); with line segments used for travel on the roadway. The same meteorological data and off-site sensitive receptors used in the previous dispersion modeling were used in the roadway modeling. Other inputs to the model included road geometry, hourly traffic emissions, and receptor locations. Annual TAC and $PM_{2.5}$ concentrations for 2022 from traffic on the roadway was calculated using the model. Concentrations were calculated at the project MEIs with receptor

[12] 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

[13] City of San Jose Transportation Department, *Average Daily Traffic Volume 2005-2015.* Link: https://data.sanjoseca.gov/dataset/average-daily-traffic-volume-2005-2015/resource/9693dc4f-527f-4126-98e3-beb79d8be2d7

[14] 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.

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

heights of 15 feet (4.5 meters) to represent the breathing heights on the second floor of residents in the single-family units.

Figure 2 shows the roadway segments modeled and residential receptor locations used in the modeling. Table 6 lists the risks and hazards from the roadway. The emission rates and roadway calculations used in the analysis are shown in *Attachment 5*.

BAAQMD Permitted Stationary Sources

Permitted stationary sources of air pollution near the project site were identified using BAAQMD's *Permitted Stationary Sources 2018* GIS website.[16] This mapping tool identifies the location of nearby stationary sources and their estimated risk and hazard impacts. One source, a gas dispensing facility, within the project's 1,000-foot influence area was identified using this tool. A stationary source information request was not required as the BAAQMD GIS website provided screening risks and hazards for these sources.

The screening level risks and hazards provided by BAAQMD for the stationary sources were adjusted for distance using BAAQMD's *Distance Adjustment Multiplier Tool for Gasoline Dispending Facilities*. Community risk impacts from the stationary source upon the MEI are reported in Table 6.

Summary of Cumulative Health Risk Impact at Construction MEI

Table 6 reports both the project and cumulative community risk impacts at the sensitive receptors most affected by construction (i.e., the MEI). The project would have an exceedance with respect to community risk caused by project construction activities, since the maximum unmitigated cancer risk exceeds the BAAQMD single-source threshold. With the implementation of *Mitigation Measure AQ-1 and AQ-2*, the project's cancer risks would be lowered to a level below the single-source thresholds. The HI and annual $PM_{2.5}$ concentrations, unmitigated and mitigated, do not exceed their single or cumulative-source threshold.

[16] BAAQMD, Web: https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=2387ae674013413f987b1071715daa65

Table 6. Impacts from Combined Sources at Project MEI

Source		Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Project Impacts				
Project Construction	Unmitigated	**23.75 (infant)**	0.15	0.03
	Mitigated*	6.19 (infant)	0.04	0.01
BAAQMD Single-Source Threshold		***10***	***0.3***	***1.0***
Exceed Threshold?	Unmitigated	***Yes***	*No*	*No*
	Mitigated*	*No*	*No*	*No*
Cumulative Sources				
Camden Avenue, ADT 32,171		5.23	0.28	<0.01
ARCO Facility #02155 – Camden Gas & Mmart (Facility ID #110679, Gas Dispensing Facility), MEI at 185 feet		4.30	-	0.02
Cumulative Total	Unmitigated	33.28	0.43	<0.06
	Mitigated	15.72	0.32	<0.04
BAAQMD Cumulative Source Threshold		***100***	***0.8***	***10.0***
Exceed Threshold?	Unmitigated	*No*	*No*	*No*
	Mitigated	*No*	*No*	*No*

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

Implement a feasible plan to reduce diesel particulate matter emissions by 60 percent such that increased cancer risk and annual $PM_{2.5}$ concentrations from construction would be reduced below TAC significance levels as follows:

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

    a. If use of Tier 4 equipment is not available, alternatively use equipment that meets U.S. EPA emission standards for Tier 3 engines and include particulate matter emissions control equivalent to CARB Level 3 verifiable diesel emission control devices that altogether achieve a 60 percent reduction in particulate matter exhaust in comparison to uncontrolled equipment; alternatively (or in combination).

    b. Use of electrical or non-diesel fueled equipment.

2. Alternatively, the applicant may develop another construction operations plan demonstrating that the construction equipment used on-site would achieve a reduction in construction diesel particulate matter emissions by 60 percent or greater. Elements of the plan could include a combination of some of the following measures:
    - Implementation of No. 1 above to use Tier 4 or alternatively fueled equipment,
    - Installation of electric power lines during early construction phases to avoid use of diesel generators and compressors,
    - Use of electrically-powered equipment,

- Forklifts and aerial lifts used for exterior and interior building construction shall be electric or propane/natural gas powered,
- Change in construction build-out plans to lengthen phases, and
- Implementation of different building techniques that result in less diesel equipment usage.

Such a construction operations plan would be subject to review by an air quality expert and approved by the City prior to construction.

Effectiveness of Mitigation Measure AQ-2

CalEEMod was used to compute emissions associated with this mitigation measure assuming that all equipment met U.S. EPA Tier 4 interim engines standards and BAAQMD best management practices for construction were included. With these implemented, the project's cancer risk levels (assuming infant exposure) would be reduced by 74 percent to 6.19 per million. Assuming a lesser level of mitigation that achieves a 60-percent reduction, increased cancer risks would be reduced to below 10 chances per million. As a result, the project's construction and operational risks would be reduced below the BAAQMD single-source thresholds.

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

A health risk assessment was completed to determine the impact that existing TAC sources would have on the new proposed sensitive receptors (residents) that the project would introduce. The same TAC sources identified above were used in this health risk assessment.[17]

Local Roadways – Camden Avenue

The roadway analysis for the project residents was conducted in the same manner as described above for the off-site MEI. However, year 2023 (operational year) were conservatively assumed as being representative of future conditions, instead of 2022 (construction year). An analysis based on 2023 resulted in an increased ADT on Camden Avenue of 32,472. On-site receptors were placed on the proposed lot for each of the seven single-family units. Roadway impacts were modeled at receptor heights of 5 feet (1.5 meters) representing sensitive receptors on the first floor of the single-family units. The portions of Camden Avenue included in the modeling are shown in Figure 3 along with the project site and receptor locations where impacts were modeled.

Maximum increased cancer risks were calculated for the residents at the project site using the maximum modeled TAC concentrations. A 30-year exposure period was used in calculating cancer risks assuming the residents would include third trimester pregnancy and infants/children and were

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

assumed to be in the new homes for 24 hours per day for 350 days per year. The highest impacts from Camden Avenue occurred at a receptor in the northern portion of the project site. Cancer risks associated with Camden Avenue are greatest closest to the roadway and decrease with distance from the road. The roadway community risk impacts at the project site are shown in Table 7. Details of the emission calculations, dispersion modeling, and cancer risk calculations are contained in *Attachment 5.*

Figure 3. Project Site and On-Site Residential Receptors, Camden Ave Model, and Location of Maximum TAC Impacts

Stationary Sources

The stationary source screening analysis for the new project sensitive receptors was conducted in the same manner as described above for the construction MEI. Table 7 shows the health risk screening assessment results from the stationary sources.

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 7. The risks from the singular TAC sources are compared against the BAAQMD single-

source threshold. The risks from all the sources are then combined and compared against the BAAQMD cumulative-source threshold. As shown, none of the sources exceed the single-source or cumulative-source thresholds.

Table 7. Impacts from Combined Sources to Project Site Receptors

Source	Maximum Cancer Risk (per million)	Maximum Annual $PM_{2.5}$ ($\mu g/m^3$)	Maximum Hazard Index
Camden Avenue, ADT 32,472	5.79	0.29	<0.01
ARCO Facility #02155 – Camden Gas & Mart (Facility ID #110679, Gas Dispensing Facility), MEI at 120 feet	8.51	-	0.04
BAAQMD Single-Source Threshold	***10***	***0.3***	***1.0***
Exceed Threshold?	*No*	*No*	*No*
Cumulative Total	14.30	0.29	<0.05
BAAQMD Cumulative Source Threshold	***100***	***0.8***	***10.0***
Exceed Threshold?	*No*	*No*	*No*

Supporting Documentation

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

Attachment 2 includes the CalEEMod output for project construction emissions. Also included are any modeling assumptions.

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

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

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

Attachment 1: Health Risk Calculation Methodology

A health risk assessment (HRA) for exposure to Toxic Air Contaminates (TACs) requires the application of a risk characterization model to the results from the air dispersion model to estimate potential health risk at each sensitive receptor location. The State of California Office of Environmental Health Hazard Assessment (OEHHA) and California Air Resources Board (CARB) develop recommended methods for conducting health risk assessments. The most recent OEHHA risk assessment guidelines were published in February of 2015.[18] 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.[19] 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.[20] Exposure parameters from the OEHHA guidelines and the recent BAAQMD HRA Guidelines were used in this evaluation.

Cancer Risk

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

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

[18] 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.
[19] CARB, 2015. *Risk Management Guidance for Stationary Sources of Air Toxics*. July 23.
[20] BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*. December 2016.

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

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

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

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

Where:

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

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

Where:

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

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

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

Non-Cancer Hazards

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

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

Annual $PM_{2.5}$ Concentrations

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

Attachment 2: CalEEMod Modeling Inputs and Outputs

Air Quality/Noise Construction Information Data Request

Project Name: Camden Ave Residential Development

See Equipment Type TAB for type, horsepower and load factor

Complete ALL Portions in Yellow

Project Size 7 Dwelling Units 0.87 total project acres disturbed

17210 s.f. residential

s.f. retail

s.f. office/commercial

s.f. other, specify:

s.f. parking garage spaces

2982 s.f. roads/parking spaces

Construction Hours 8 am to 5 pm

Pile Driving? Y/N?

Project include on-site GENERATOR OR FIRE PUMP during project OPERATION? Y/N? ____

IF YES (if BOTH separate values) -->

Kilowatts/Horsepower: _____

Fuel Type: _____

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	HP Annual Hours	Comments
	Demolition	**Start Date:**		**Total phase:**	**0**			**Overall Import/Export Volumes**
		End Date:						
	Concrete/Industrial Saws	81	0.73			#DIV/0!	0	**Demolition Volume**
	Excavators	158	0.38			#DIV/0!	0	Square footage of buildings to be demolished
	Rubber-Tired Dozers	247	0.4			#DIV/0!	0	(*or* total tons to be hauled)
	Tractors/Loaders/Backhoes	97	0.37			#DIV/0!	0	? square feet *or*
	Other Equipment?							? Hauling volume (tons)
								Any pavement demolished and hauled? ? tons
	Site Preparation	**Start Date:**	3/1/2022	**Total phase:**	**2**			
		End Date:	3/2/2022					
1	Graders	187	0.41	8	2	8	1227	
1	Rubber Tired Dozers	247	0.4	7	2	7	1383	
1	Tractors/Loaders/Backhoes	97	0.37	8	2	8	574	
	Other Equipment?							
	Grading / Excavation	**Start Date:**	3/3/2022	**Total phase:**	**4**			
		End Date:	3/8/2022					**Soil Hauling Volume**
	Excavators	158	0.38			0	0	Export volume = ? cubic yards?
1	Graders	187	0.41	8	4	8	2453	Import volume = ? cubic yards?
1	Rubber Tired Dozers	247	0.4	8	4	8	3162	
	Concrete/Industrial Saws	81	0.73			0	0	
2	Tractors/Loaders/Backhoes	97	0.37	7	4	7	2010	
	Other Equipment?							
	Trenching/Foundation	**Start Date:**	3/9/2022	**Total phase:**	**10**			
		End Date:	3/22/2022					
1	Tractor/Loader/Backhoe	97	0.37	8	10	8	2871	
1	Excavators	158	0.38	8	10	8	4803	
	Other Equipment?							
	Building - Exterior	**Start Date:**	3/9/2022	**Total phase:**	**200**			**Cement Trucks? ?_ Total Round-Trips**
		End Date:	12/13/2022					
1	Cranes	231	0.29	6	200	6	80388	Electric? (Y/N) ___ Otherwise assumed diesel
1	Forklifts	89	0.2	6	200	6	21360	Liquid Propane (LPG)? (Y/N) ___ Otherwise Assumed diesel
1	Generator Sets	84	0.74	8	200	8	99456	Or temporary line power? (Y/N) ___
1	Tractors/Loaders/Backhoes	97	0.37	6	200	6	43068	
3	Welders	46	0.45	8	200	8	99360	
	Other Equipment?							
	Building - Interior/Architectural Coating	**Start Date:**	12/14/2022	**Total phase:**	**10**			
		End Date:	12/27/2022					
1	Air Compressors	78	0.48	6	10	6	2246	
1	Aerial Lift	62	0.31	6	10	6	1153	
	Other Equipment?							
	Paving	**Start Date:**	12/14/2022	**Total phase:**	**10**			
		Start Date:	12/27/2022					
1	Cement and Mortar Mixers	9	0.56	6	10	6	302	
1	Pavers	130	0.42	6	10	6	3276	**Asphalt? ___ cubic yards or ____ round trips?**
1	Paving Equipment	132	0.36	8	10	8	3802	
1	Rollers	80	0.38	7	10	7	2128	
1	Tractors/Loaders/Backhoes	97	0.37	8	10	8	2871	
	Other Equipment?							
	Additional Phases	**Start Date:**		**Total phase:**				
		Start Date:						
						#DIV/0!	0	
						#DIV/0!	0	
						#DIV/0!	0	
						#DIV/0!	0	
						#DIV/0!	0	

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						
2022	0.30	1.36	0.06	0.06	198.97	
EMFAC						
2022	0.00	0.01	0.00	0.00	9.43	
Total Construction Emissions by Year						
2022	0.30	1.37	0.06	0.06	208.41	
	Total Construction Emissions					
Tons	0.30	1.37	0.06	0.06	208.41	
Pounds/Workdays	*Average Daily Emissions*				Workdays	
2022	2.76	12.63	0.60	0.57		**217**
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**		
	Total Construction Emissions					
Pounds	2.76	12.63	0.60	0.57	0.00	
Average	2.76	12.63	0.60	0.57	0.00	217.00
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**		

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

Camden Ave Residential Development

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	2.98	1000sqft	0.00	2,982.00	0
Single Family Housing	7.00	Dwelling Unit	1.00	17,210.00	20

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2023
Utility Company	San Jose Clean Energy				
CO2 Intensity (lb/MWhr)	807.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site is listed at 0.87 acres

Construction Phase - Undeveloped site = no demolition

Off-road Equipment - Construction info based on CalEEMod defaults

Off-road Equipment - Construction info based on CalEEMod defaults

Off-road Equipment - Construction info based on CalEEMod defaults

Off-road Equipment - Construction info based on CalEEMod defaults

Off-road Equipment - Construction info based on CalEEMod defaults

Off-road Equipment - Construction info based on CalEEMod defaults

Trips and VMT - All trips entered into EMFAC2021

Grading -

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

Construction Off-road Equipment Mitigation - All equipment t4i, BMP

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim

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tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	1.00	2.00
tblConstructionPhase	NumDays	2.00	4.00
tblConstructionPhase	NumDays	100.00	200.00
tblConstructionPhase	NumDays	5.00	10.00
tblConstructionPhase	NumDays	5.00	10.00
tblLandUse	LandUseSquareFeet	2,980.00	2,982.00
tblLandUse	LandUseSquareFeet	12,600.00	17,210.00
tblLandUse	LotAcreage	0.07	0.00
tblLandUse	LotAcreage	2.27	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	4.00	6.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	VendorTripNumber	1.00	0.00
tblTripsAndVMT	WorkerTripNumber	8.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	0.00
tblTripsAndVMT	WorkerTripNumber	4.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	1.00	0.00

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

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					
2022	0.2975	1.3592	1.3828	2.3900e-003	0.0204	0.0641	0.0845	9.8500e-003	0.0617	0.0715	0.0000	198.0581	198.0581	0.0366	0.0000	198.9728
Maximum	**0.2975**	**1.3592**	**1.3828**	**2.3900e-003**	**0.0204**	**0.0641**	**0.0845**	**9.8500e-003**	**0.0617**	**0.0715**	**0.0000**	**198.0581**	**198.0581**	**0.0366**	**0.0000**	**198.9728**

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					
2022	0.1651	1.0726	1.4765	2.3900e-003	9.1900e-003	0.0166	0.0258	4.4300e-003	0.0166	0.0210	0.0000	198.0578	198.0578	0.0366	0.0000	198.9725
Maximum	**0.1651**	**1.0726**	**1.4765**	**2.3900e-003**	**9.1900e-003**	**0.0166**	**0.0258**	**4.4300e-003**	**0.0166**	**0.0210**	**0.0000**	**198.0578**	**198.0578**	**0.0366**	**0.0000**	**198.9725**

	ROG	NOx	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

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

Percent Reduction	**44.50**	**21.08**	**-6.77**	**0.00**	**55.02**	**74.07**	**69.46**	**55.03**	**73.07**	**70.59**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**3-1-2022**	**5-31-2022**	0.4947	0.3489
2	**6-1-2022**	**8-31-2022**	0.4650	0.3415
3	**9-1-2022**	**9-30-2022**	0.1516	0.1114
		Highest	0.4947	0.3489

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1224	1.5000e-003	0.1120	1.3000e-004		8.9400e-003	8.9400e-003		8.9400e-003	8.9400e-003	0.8898	0.3034	1.1932	1.7600e-003	5.0000e-005	1.2524
Energy	1.0100e-003	8.5900e-003	3.6600e-003	5.0000e-005		6.9000e-004	6.9000e-004		6.9000e-004	6.9000e-004	0.0000	30.0432	30.0432	1.0100e-003	2.8000e-004	30.1524
Mobile	0.0266	0.0294	0.2518	5.2000e-004	0.0557	3.7000e-004	0.0561	0.0149	3.5000e-004	0.0152	0.0000	47.8258	47.8258	3.1400e-003	2.2900e-003	48.5854
Waste						0.0000	0.0000		0.0000	0.0000	1.7051	0.0000	1.7051	0.1008	0.0000	4.2244
Water						0.0000	0.0000		0.0000	0.0000	0.1447	1.2733	1.4180	0.0149	3.6000e-004	1.8972
Total	**0.1500**	**0.0395**	**0.3674**	**7.0000e-004**	**0.0557**	**0.0100**	**0.0657**	**0.0149**	**9.9800e-003**	**0.0249**	**2.7396**	**79.4457**	**82.1852**	**0.1216**	**2.9800e-003**	**86.1118**

Mitigated Operational

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1224	1.5000e-003	0.1120	1.3000e-004		8.9400e-003	8.9400e-003		8.9400e-003	8.9400e-003	0.8898	0.3034	1.1932	1.7600e-003	5.0000e-005	1.2524
Energy	1.0100e-003	8.5900e-003	3.6600e-003	5.0000e-005		6.9000e-004	6.9000e-004		6.9000e-004	6.9000e-004	0.0000	30.0432	30.0432	1.0100e-003	2.8000e-004	30.1524
Mobile	0.0266	0.0294	0.2518	5.2000e-004	0.0557	3.7000e-004	0.0561	0.0149	3.5000e-004	0.0152	0.0000	47.8258	47.8258	3.1400e-003	2.2900e-003	48.5854
Waste						0.0000	0.0000		0.0000	0.0000	1.7051	0.0000	1.7051	0.1008	0.0000	4.2244
Water						0.0000	0.0000		0.0000	0.0000	0.1447	1.2733	1.4180	0.0149	3.6000e-004	1.8972
Total	**0.1500**	**0.0395**	**0.3674**	**7.0000e-004**	**0.0557**	**0.0100**	**0.0657**	**0.0149**	**9.9800e-003**	**0.0249**	**2.7396**	**79.4457**	**82.1852**	**0.1216**	**2.9800e-003**	**86.1118**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/1/2022	3/2/2022	5	2	
2	Grading	Grading	3/3/2022	3/8/2022	5	4	
3	Trenching	Trenching	3/9/2022	3/22/2022	5	10	
4	Building Construction	Building Construction	3/9/2022	12/13/2022	5	200	
5	Paving	Paving	12/14/2022	12/27/2022	5	10	

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6	Architectural Coating	Architectural Coating	12/14/2022	12/27/2022	5	10	

Acres of Grading (Site Preparation Phase): 1.88

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 34,850; Residential Outdoor: 11,617; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 179

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Trenching	Excavators	1	8.00	158	0.38
Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Aerial Lifts	1	6.00	63	0.31

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Architectural Coating	Air Compressors	1	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
Site Preparation	3	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	2	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	2	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 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					
Fugitive Dust					6.2700e-003	0.0000	6.2700e-003	3.0000e-003	0.0000	3.0000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3100e-003	0.0146	7.0900e-003	2.0000e-005		6.2000e-004	6.2000e-004		5.7000e-004	5.7000e-004	0.0000	1.5115	1.5115	4.9000e-004	0.0000	1.5238
Total	**1.3100e-003**	**0.0146**	**7.0900e-003**	**2.0000e-005**	**6.2700e-003**	**6.2000e-004**	**6.8900e-003**	**3.0000e-003**	**5.7000e-004**	**3.5700e-003**	**0.0000**	**1.5115**	**1.5115**	**4.9000e-004**	**0.0000**	**1.5238**

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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					2.8200e-003	0.0000	2.8200e-003	1.3500e-003	0.0000	1.3500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0000e-004	5.0700e-003	9.8200e-003	2.0000e-005		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	1.5115	1.5115	4.9000e-004	0.0000	1.5238
Total	**3.0000e-004**	**5.0700e-003**	**9.8200e-003**	**2.0000e-005**	**2.8200e-003**	**3.0000e-005**	**2.8500e-003**	**1.3500e-003**	**3.0000e-005**	**1.3800e-003**	**0.0000**	**1.5115**	**1.5115**	**4.9000e-004**	**0.0000**	**1.5238**

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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 Grading - 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					
Fugitive Dust					0.0142	0.0000	0.0142	6.8500e-003	0.0000	6.8500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0800e-003	0.0340	0.0184	4.0000e-005		1.4800e-003	1.4800e-003		1.3700e-003	1.3700e-003	0.0000	3.6205	3.6205	1.1700e-003	0.0000	3.6498
Total	**3.0800e-003**	**0.0340**	**0.0184**	**4.0000e-005**	**0.0142**	**1.4800e-003**	**0.0157**	**6.8500e-003**	**1.3700e-003**	**8.2200e-003**	**0.0000**	**3.6205**	**3.6205**	**1.1700e-003**	**0.0000**	**3.6498**

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

Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.3700e-003	0.0000	6.3700e-003	3.0800e-003	0.0000	3.0800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.4000e-004	0.0127	0.0243	4.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	3.6205	3.6205	1.1700e-003	0.0000	3.6498
Total	**7.4000e-004**	**0.0127**	**0.0243**	**4.0000e-005**	**6.3700e-003**	**7.0000e-005**	**6.4400e-003**	**3.0800e-003**	**7.0000e-005**	**3.1500e-003**	**0.0000**	**3.6205**	**3.6205**	**1.1700e-003**	**0.0000**	**3.6498**

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

Mitigated Construction 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 Trenching - 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	1.8400e-003	0.0173	0.0275	4.0000e-005		8.8000e-004	8.8000e-004		8.1000e-004	8.1000e-004	0.0000	3.6344	3.6344	1.1800e-003	0.0000	3.6638
Total	**1.8400e-003**	**0.0173**	**0.0275**	**4.0000e-005**		**8.8000e-004**	**8.8000e-004**		**8.1000e-004**	**8.1000e-004**	**0.0000**	**3.6344**	**3.6344**	**1.1800e-003**	**0.0000**	**3.6638**

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

Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.7000e-004	0.0182	0.0313	4.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	3.6344	3.6344	1.1800e-003	0.0000	3.6638
Total	**6.7000e-004**	**0.0182**	**0.0313**	**4.0000e-005**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**	**0.0000**	**3.6344**	**3.6344**	**1.1800e-003**	**0.0000**	**3.6638**

Mitigated Construction Off-Site

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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 Building Construction - 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	0.1649	1.2503	1.2726	2.2100e-003		0.0589	0.0589		0.0569	0.0569	0.0000	181.5769	181.5769	0.0316	0.0000	182.3675
Total	**0.1649**	**1.2503**	**1.2726**	**2.2100e-003**		**0.0589**	**0.0589**		**0.0569**	**0.0569**	**0.0000**	**181.5769**	**181.5769**	**0.0316**	**0.0000**	**182.3675**

Unmitigated Construction Off-Site

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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	0.0401	0.9992	1.3479	2.2100e-003		0.0162	0.0162		0.0162	0.0162	0.0000	181.5767	181.5767	0.0316	0.0000	182.3673
Total	**0.0401**	**0.9992**	**1.3479**	**2.2100e-003**		**0.0162**	**0.0162**		**0.0162**	**0.0162**	**0.0000**	**181.5767**	**181.5767**	**0.0316**	**0.0000**	**182.3673**

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

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

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 Paving - 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	3.4400e-003	0.0339	0.0440	7.0000e-005		1.7400e-003	1.7400e-003		1.6000e-003	1.6000e-003	0.0000	5.8848	5.8848	1.8700e-003	0.0000	5.9315
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.4400e-003**	**0.0339**	**0.0440**	**7.0000e-005**		**1.7400e-003**	**1.7400e-003**		**1.6000e-003**	**1.6000e-003**	**0.0000**	**5.8848**	**5.8848**	**1.8700e-003**	**0.0000**	**5.9315**

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

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

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	1.0700e-003	0.0286	0.0493	7.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	5.8848	5.8848	1.8700e-003	0.0000	5.9314
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.0700e-003**	**0.0286**	**0.0493**	**7.0000e-005**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**	**0.0000**	**5.8848**	**5.8848**	**1.8700e-003**	**0.0000**	**5.9314**

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

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

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

3.7 Architectural Coating - 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	0.1218					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1600e-003	9.1400e-003	0.0132	2.0000e-005		4.5000e-004	4.5000e-004		4.4000e-004	4.4000e-004	0.0000	1.8299	1.8299	2.6000e-004	0.0000	1.8364
Total	**0.1229**	**9.1400e-003**	**0.0132**	**2.0000e-005**		**4.5000e-004**	**4.5000e-004**		**4.4000e-004**	**4.4000e-004**	**0.0000**	**1.8299**	**1.8299**	**2.6000e-004**	**0.0000**	**1.8364**

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

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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	0.1218					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.3000e-004	8.8400e-003	0.0139	2.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004	0.0000	1.8299	1.8299	2.6000e-004	0.0000	1.8364
Total	**0.1222**	**8.8400e-003**	**0.0139**	**2.0000e-005**		**1.6000e-004**	**1.6000e-004**		**1.6000e-004**	**1.6000e-004**	**0.0000**	**1.8299**	**1.8299**	**2.6000e-004**	**0.0000**	**1.8364**

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

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

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	0.0266	0.0294	0.2518	5.2000e-004	0.0557	3.7000e-004	0.0561	0.0149	3.5000e-004	0.0152	0.0000	47.8258	47.8258	3.1400e-003	2.2900e-003	48.5854
Unmitigated	0.0266	0.0294	0.2518	5.2000e-004	0.0557	3.7000e-004	0.0561	0.0149	3.5000e-004	0.0152	0.0000	47.8258	47.8258	3.1400e-003	2.2900e-003	48.5854

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT

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Other Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	66.08	66.78	59.85	150,794	150,794
Total	66.08	66.78	59.85	150,794	150,794

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
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.571175	0.055403	0.188166	0.116095	0.020429	0.005041	0.007817	0.006362	0.000912	0.000389	0.024445	0.000927	0.002838
Single Family Housing	0.571175	0.055403	0.188166	0.116095	0.020429	0.005041	0.007817	0.006362	0.000912	0.000389	0.024445	0.000927	0.002838

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	20.0958	20.0958	8.2000e-004	1.0000e-004	20.1459
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	20.0958	20.0958	8.2000e-004	1.0000e-004	20.1459
NaturalGas Mitigated	1.0100e-003	8.5900e-003	3.6600e-003	5.0000e-005		6.9000e-004	6.9000e-004		6.9000e-004	6.9000e-004	0.0000	9.9474	9.9474	1.9000e-004	1.8000e-004	10.0065

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NaturalGas Unmitigated	1.0100e-003	8.5900e-003	3.6600e-003	5.0000e-005		6.9000e-004	6.9000e-004		6.9000e-004	6.9000e-004	0.0000	9.9474	9.9474	1.9000e-004	1.8000e-004	10.0065

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					
Other Asphalt Surfaces	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
Single Family Housing	186407	1.0100e-003	8.5900e-003	3.6600e-003	5.0000e-005		6.9000e-004	6.9000e-004		6.9000e-004	6.9000e-004	0.0000	9.9474	9.9474	1.9000e-004	1.8000e-004	10.0065
Total		**1.0100e-003**	**8.5900e-003**	**3.6600e-003**	**5.0000e-005**		**6.9000e-004**	**6.9000e-004**		**6.9000e-004**	**6.9000e-004**	**0.0000**	**9.9474**	**9.9474**	**1.9000e-004**	**1.8000e-004**	**10.0065**

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					
Other Asphalt Surfaces	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
Single Family Housing	186407	1.0100e-003	8.5900e-003	3.6600e-003	5.0000e-005		6.9000e-004	6.9000e-004		6.9000e-004	6.9000e-004	0.0000	9.9474	9.9474	1.9000e-004	1.8000e-004	10.0065
Total		**1.0100e-003**	**8.5900e-003**	**3.6600e-003**	**5.0000e-005**		**6.9000e-004**	**6.9000e-004**		**6.9000e-004**	**6.9000e-004**	**0.0000**	**9.9474**	**9.9474**	**1.9000e-004**	**1.8000e-004**	**10.0065**

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	54832.5	20.0958	8.2000e-004	1.0000e-004	20.1459
Total		**20.0958**	**8.2000e-004**	**1.0000e-004**	**20.1459**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	54832.5	20.0958	8.2000e-004	1.0000e-004	20.1459
Total		**20.0958**	**8.2000e-004**	**1.0000e-004**	**20.1459**

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6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1224	1.5000e-003	0.1120	1.3000e-004		8.9400e-003	8.9400e-003		8.9400e-003	8.9400e-003	0.8898	0.3034	1.1932	1.7600e-003	5.0000e-005	1.2524
Unmitigated	0.1224	1.5000e-003	0.1120	1.3000e-004		8.9400e-003	8.9400e-003		8.9400e-003	8.9400e-003	0.8898	0.3034	1.1932	1.7600e-003	5.0000e-005	1.2524

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	0.0122					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0674					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0413	9.0000e-004	0.0600	1.2000e-004		8.6500e-003	8.6500e-003		8.6500e-003	8.6500e-003	0.8898	0.2185	1.1083	1.6800e-003	5.0000e-005	1.1654
Landscaping	1.5700e-003	6.0000e-004	0.0520	0.0000		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004	0.0000	0.0850	0.0850	8.0000e-005	0.0000	0.0870

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Total	**0.1224**	**1.5000e-003**	**0.1120**	**1.2000e-004**		**8.9400e-003**	**8.9400e-003**		**8.9400e-003**	**8.9400e-003**	**0.8898**	**0.3034**	**1.1932**	**1.7600e-003**	**5.0000e-005**	**1.2524**

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	0.0122					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0674					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0413	9.0000e-004	0.0600	1.2000e-004		8.6500e-003	8.6500e-003		8.6500e-003	8.6500e-003	0.8898	0.2185	1.1083	1.6800e-003	5.0000e-005	1.1654
Landscaping	1.5700e-003	6.0000e-004	0.0520	0.0000		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004	0.0000	0.0850	0.0850	8.0000e-005	0.0000	0.0870
Total	**0.1224**	**1.5000e-003**	**0.1120**	**1.2000e-004**		**8.9400e-003**	**8.9400e-003**		**8.9400e-003**	**8.9400e-003**	**0.8898**	**0.3034**	**1.1932**	**1.7600e-003**	**5.0000e-005**	**1.2524**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e

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

Category	MT/yr			
Mitigated	1.4180	0.0149	3.6000e-004	1.8972
Unmitigated	1.4180	0.0149	3.6000e-004	1.8972

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.456078 / 0.287528	1.4180	0.0149	3.6000e-004	1.8972
Total		**1.4180**	**0.0149**	**3.6000e-004**	**1.8972**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000

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

Single Family Housing	0.456078 / 0.287528	1.4180	0.0149	3.6000e-004	1.8972
Total		**1.4180**	**0.0149**	**3.6000e-004**	**1.8972**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.7051	0.1008	0.0000	4.2244
Unmitigated	1.7051	0.1008	0.0000	4.2244

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000

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

Single Family Housing	8.4	1.7051	0.1008	0.0000	4.2244
Total		**1.7051**	**0.1008**	**0.0000**	**4.2244**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	8.4	1.7051	0.1008	0.0000	4.2244
Total		**1.7051**	**0.1008**	**0.0000**	**4.2244**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment 3: EMFAC2021 Calculations

Summary of Construction Traffic Emissions (EMFAC2021)

Pollutants YEAR	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	NBio- CO2	CH4	N2O	CO2e
					Tons							*Metric Tons*		
Criteria Pollutants														
2022	0.0019	0.0116	0.0219	0.0001	0.0049	0.0007	0.0056	0.0007	0.0003	0.0010	9.1256	0.0005	0.0010	9.4326
Toxic Air Contaminants (1.0 Mile Trip Length)														
2022	0.0016	0.0030	0.0076	0.0000	0.0004	0.0001	0.0005	0.0001	0.0000	0.0001	1.0485	0.0002	0.0001	1.0960

CalEEMod Construction Inputs

Phase	CalEEMod WORKER TRIPS	CalEEMod VENDOR TRIPS	Total Worker Trips	Total Vendor Trips	CalEEMod HAULING TRIPS	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class	*Worker VMT*	*Vendor VMT*	*Hauling VMT*
Site Preparation	8	0	16	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	172.8	0	0
Grading	10	0	40	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	432	0	0
Trenching/Foundation	5	0	50	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	540	0	0
Paving	13	0	130	0	17	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	1404	0	340
Building Construction	4	1	800	200	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	8640	1460	0
Architectural Coating	1	0	10	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	108	0	0

Number of Days Per Year					
2022	3/1/22	12/27/22	302	217	
			302	**217**	***Total Workdays***

Phase	Start Date	End Date	Days/Week	Workdays
Site Preparation	3/1/2022	3/2/2022	5	2
Grading	3/3/2022	3/8/2022	5	4
Trenching/Foundation	3/9/2022	3/22/2022	5	10
Paving	12/14/2022	12/27/2022	5	10
Building Construction	3/9/2022	12/13/2022	5	200
Architectural Coating	12/14/2022	12/27/2022	5	10

Source: EMFAC2021 (v1.0.1) Emission Rates
Region Type: County
Region: Santa Clara
Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	NOx_RUNEX	NOx_IDLEX	NOx_STREX	PM2.5_RU	PM2.5_IDL	PM2.5_STR	PM2.5_PM	PM2.5_PM	PM10_RUI	PM10_IDL	PM10_STR	PM10_PM	PM10_PM	CO2_RUNE	CO2_IDLEX	CO2_STRE	CH4_RUNE	CH4_IDLEX	CH4_STRE	N2O_RUNEX	N2O_IDLEX	N2O_STRE	ROG_RUNE	ROG_IDLE	ROG_STRE	ROG_HOTS	ROG_RUNL	ROG_DIUR	TOG_RUNE	TOG_IDLEX	TOG_STRE	TOG_HOTS	TOG_RUNL	TOG_DIUR	NH3_RUNEX	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNE	SOx_IDLEX	SOx_STREX
Santa Clara	2022	HHDT	Aggregate	Aggregate	Gasoline	3.827367	105.1913	105.1913	0	76.57795	9.246272	0	1.235102	0.00578	0	0.001696	0.005	0.036521	0.006286	0	0.001845	0.02	0.104346	2407.176	0	49.64979	0.419155	0	0.000162	0.231899	0	0.038678	2.628217	0	0.000881	0.16301	1.46846	10.96573	3.835087	0	0.000965	0.16301	1.46846	10.96573	0.039703	94.77398	0	0.712144	0.023797	0	0.000491
Santa Clara	2022	HHDT	Aggregate	Aggregate	Diesel	8126.63	984491.3	984491.3	0	118998.6	2.444518	67.79787	2.544846	0.027272	0.034513	0	0.008769	0.027987	0.028505	0.036074	0	0.035077	0.079962	1677.544	1267.87	0	0.001458	0.236832	0	0.264298	1.997403	0	0.031398	5.098937	0	0	0	0	0	0.035744	5.804752	0	0	0	0	0.202666	0.125232	70.47019	0	0.015885	0.120052	0
Santa Clara	2022	HHDT	Aggregate	Natural Ga	Natural Ga	660.7756	47681.36	47681.36	0	5809.397	1.356717	13.62116	0	0.001899	0.022358	0	0	0.009	0.047596	0.002065	0.024316	0	0.036	0.135989	1429.3	10316.77	0	2.688526	36.13158	0	0.291372	2.10314	0	0.062535	0.56302	0	0	0	0	2.77132	36.92822	0	0	0	0	0.851705	14.53027	73.87982	0	0	0	0
Santa Clara	2022	LDA	Aggregate	Aggregate	Gasoline	604047.8	22374250	22374250	0	2805661	0.053791	0	0.287921	0.00126	0	0.002062	0.002	0.002656	0.00137	0	0.002242	0.008	0.007588	287.1374	0	73.33113	0.002925	0	0.081262	0.005394	0	0.035089	0.011654	0	0.381731	0.098272	0.249754	1.530333	0.017001	0	0.417946	0.098272	0.249754	1.530333	0.032827	0.847106	0	3.666246	0.002839	0	0.000725
Santa Clara	2022	LDA	Aggregate	Aggregate	Diesel	1988.847	60930.09	60930.09	0	8564.495	0.263546	0	0	0.019976	0	0	0.002	0.00269	0.020879	0	0	0.008	0.007686	236.272	0	0	0.00151	0	0	0.037225	0	0	0.032513	0	0	0	0	0	0	0.037014	0	0	0	0	0	0.0031	0.352928	0	0	0.002239	0	0
Santa Clara	2022	LDA	Aggregate	Aggregate	Electricity	49768.56	2058456	0	2058456	247155.6	0	0	0	0	0	0	0.002	0.001531	0	0	0	0.008	0.004374	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2022	LDA	Aggregate	Aggregate	Plug-in Hyb	14080.33	626833.5	326494.8	300338.7	58222.18	0.003418	0	0.11551	0.000718	0	0.002292	0.002	0.001368	0.000781	0	0.002492	0.008	0.003908	145.2228	0	67.22203	0.000469	0	0.042745	0.000623	0	0.021047	0.001478	0	0.173285	0.039673	0.035067	0.451466	0.002157	0	0.189725	0.039673	0.035067	0.451466	0.019838	0.224082	0	1.339893	0.001436	0	0.000665
Santa Clara	2022	LDT1	Aggregate	Aggregate	Gasoline	54974.08	1779154	1779154	0	245182.1	0.160037	0	0.42895	0.001971	0	0.003006	0.002	0.003236	0.002144	0	0.003269	0.008	0.009246	338.1243	0	90.32061	0.007798	0	0.120165	0.011179	0	0.040992	0.03517	0	0.630523	0.182138	0.532387	2.932213	0.051284	0	0.69034	0.182138	0.532387	2.932213	0.035502	1.699209	0	6.115696	0.003343	0	0.000893
Santa Clara	2022	LDT1	Aggregate	Aggregate	Diesel	28.88602	444.5778	444.5778	0	84.95747	1.664076	0	0	0.241157	0	0	0.002	0.003731	0.252061	0	0	0.008	0.01066	415.6618	0	0	0.013984	0	0	0.065488	0	0	0.301058	0	0	0	0	0	0	0.342735	0	0	0	0	0	0.0031	1.609282	0	0	0.003939	0	0
Santa Clara	2022	LDT1	Aggregate	Aggregate	Electricity	182.9928	6367.047	0	6367.047	860.9347	0	0	0	0	0	0	0.002	0.001541	0	0	0	0.008	0.004403	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2022	LDT1	Aggregate	Aggregate	Plug-in Hyb	24.31577	1158.953	555.2268	603.7259	100.5457	0.003144	0	0.11551	0.00042	0	0.001472	0.002	0.001376	0.000457	0	0.001601	0.008	0.003931	133.572	0	73.48077	0.00043	0	0.042675	0.000571	0	0.020981	0.001359	0	0.173285	0.025111	0.023155	0.300675	0.001984	0	0.189725	0.025111	0.023155	0.300675	0.020121	0.206104	0	1.339893	0.00132	0	0.000726
Santa Clara	2022	LDT2	Aggregate	Aggregate	Gasoline	274728.5	9911730	9911730	0	1286654	0.087216	0	0.387125	0.001308	0	0.002055	0.002	0.003124	0.001422	0	0.002235	0.008	0.008926	357.8859	0	92.09899	0.003418	0	0.092802	0.006919	0	0.040202	0.013801	0	0.439671	0.088088	0.231141	1.442564	0.020134	0	0.481384	0.088088	0.231141	1.442564	0.034673	0.960886	0	4.129331	0.003538	0	0.00091
Santa Clara	2022	LDT2	Aggregate	Aggregate	Diesel	933.788	35569.23	35569.23	0	4479.453	0.049482	0	0	0.005617	0	0	0.002	0.003089	0.005871	0	0	0.008	0.008825	319.8313	0	0	0.000662	0	0	0.05039	0	0	0.01425	0	0	0	0	0	0	0.016223	0	0	0	0	0	0.0031	0.132603	0	0	0.003031	0	0
Santa Clara	2022	LDT2	Aggregate	Aggregate	Electricity	669.3585	23693.95	0	23693.95	3436.204	0	0	0	0	0	0	0.002	0.001524	0	0	0	0.008	0.004354	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2022	LDT2	Aggregate	Aggregate	Plug-in Hyb	1256.28	57825.99	28723.51	29102.47	5194.718	0.003259	0	0.11551	0.000565	0	0.001911	0.002	0.001372	0.000614	0	0.002078	0.008	0.00392	138.4921	0	79.93529	0.000446	0	0.042681	0.000592	0	0.020988	0.00141	0	0.173285	0.026873	0.02547	0.333582	0.002057	0	0.189725	0.026873	0.02547	0.333582	0.020799	0.213696	0	1.339893	0.001369	0	0.00079
Santa Clara	2022	LHDT1	Aggregate	Aggregate	Gasoline	19023.54	692949.2	692949.2	0	283422.4	0.22563	0.03858	0.680855	0.001666	0	0.000355	0.002	0.0273	0.001812	0	0.000386	0.008	0.078	910.666	121.4496	25.8752	0.010696	0.11838	0.036173	0.012587	0.003045	0.052713	0.053941	0.441903	0.183796	0.053097	0.287419	3.005479	0.078711	0.644824	0.199044	0.053097	0.287419	3.005479	0.044851	1.310703	3.750518	3.032062	0.009003	0.001201	0.000256
Santa Clara	2022	LHDT1	Aggregate	Aggregate	Diesel	9466.897	364941.3	364941.3	0	119081.7	2.046185	2.148991	0	0.042212	0.027161	0	0.003	0.0273	0.044121	0.028389	0	0.012	0.078	640.1321	134.8074	0	0.009365	0.005098	0	0.100853	0.021239	0	0.201618	0.10976	0	0	0	0	0.229529	0.124954	0	0	0	0	0.156672	0.574472	0.909745	0	0.006066	0.001277	0
Santa Clara	2022	LHDT2	Aggregate	Aggregate	Gasoline	2479.119	89333.8	89333.8	0	36935.18	0.214022	0.038116	0.662237	0.001522	0	0.000288	0.002	0.03185	0.001655	0	0.000313	0.008	0.091	1017.016	140.0339	25.93331	0.008303	0.117781	0.035049	0.012366	0.003023	0.05141	0.03933	0.436803	0.174741	0.049582	0.263161	2.773988	0.057391	0.637382	0.19132	0.049582	0.263161	2.773988	0.044954	1.055116	3.755463	3.106689	0.010054	0.001384	0.000256
Santa Clara	2022	LHDT2	Aggregate	Aggregate	Diesel	4276.175	167672	167672	0	53788.9	1.602621	2.114348	0	0.036809	0.027077	0	0.003	0.03185	0.038473	0.028302	0	0.012	0.091	773.4619	214.911	0	0.00832	0.005098	0	0.121859	0.033859	0	0.179126	0.10976	0	0	0	0	0.203923	0.124954	0	0	0	0	0.1727	0.476085	0.909745	0	0.007329	0.002036	0
Santa Clara	2022	MCY	Aggregate	Aggregate	Gasoline	27595.09	162924	162924	0	55190.18	0.60517	0	0.149724	0.001772	0	0.003556	0.001	0.0042	0.001891	0	0.003773	0.004	0.012	188.9834	0	50.90901	0.173457	0	0.19335	0.041009	0	0.008761	1.156556	0	1.442993	3.560376	3.734124	3.980024	1.378949	0	1.568432	3.560376	3.734124	3.980024	0.008705	13.58248	0	8.107621	0.001868	0	0.000503
Santa Clara	2022	MDV	Aggregate	Aggregate	Gasoline	150747.3	5216512	5216512	0	697659.3	0.136769	0	0.517519	0.001357	0	0.002255	0.002	0.003193	0.001475	0	0.002452	0.008	0.009123	434.2294	0	112.1929	0.005018	0	0.119363	0.009481	0	0.045397	0.021781	0	0.614579	0.106179	0.293735	1.762049	0.031733	0	0.672881	0.106179	0.293735	1.762049	0.034617	1.174347	0	4.66825	0.004293	0	0.001109
Santa Clara	2022	MDV	Aggregate	Aggregate	Diesel	2337.328	86668.85	86668.85	0	11158.46	0.05815	0	0	0.005454	0	0	0.002	0.003153	0.0057	0	0	0.008	0.009009	417.1884	0	0	0.000553	0	0	0.065728	0	0	0.011906	0	0	0	0	0	0	0.013554	0	0	0	0	0	0.0031	0.20344	0	0	0.003953	0	0
Santa Clara	2022	MDV	Aggregate	Aggregate	Electricity	623.6975	22215.8	0	22215.8	3205.616	0	0	0	0	0	0	0.002	0.001523	0	0	0	0.008	0.004351	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2022	MDV	Aggregate	Aggregate	Plug-in Hyb	789.5612	33722.81	17285.18	16437.63	3264.836	0.003363	0	0.11551	0.000723	0	0.002366	0.002	0.001369	0.000786	0	0.002574	0.008	0.003913	142.9094	0	99.86367	0.000458	0	0.042456	0.000605	0	0.020778	0.001454	0	0.173285	0.030414	0.029758	0.381921	0.002122	0	0.189725	0.030414	0.029758	0.381921	0.021528	0.220512	0	1.339893	0.001413	0	0.000987
Santa Clara	2022	MH	Aggregate	Aggregate	Gasoline	2642.084	23105.28	23105.28	0	264.3141	0.551445	0	0.40416	0.001917	0	0.000461	0.003	0.015756	0.002085	0	0.000502	0.012	0.045017	1949.266	0	32.13484	0.02167	0	0.038467	0.030967	0	0.041056	0.101032	0	0.168576	13.95792	0.32254	4.985527	0.147425	0	0.184569	13.95792	0.32254	4.985527	0.044583	2.705832	0	3.782453	0.01927	0	0.000318
Santa Clara	2022	MH	Aggregate	Aggregate	Diesel	940.8008	9155.21	9155.21	0	94.08008	4.438358	0	0	0.104654	0	0	0.004	0.015675	0.109386	0	0	0.016	0.044785	1080.89	0	0	0.005865	0	0	0.170295	0	0	0.126278	0	0	0	0	0	0	0.143759	0	0	0	0	0	0.143863	0.424501	0	0	0.010242	0	0
Santa Clara	2022	MHDT	Aggregate	Aggregate	Gasoline	1426.535	69284.18	69284.18	0	28542.11	0.686176	0.088062	0.462297	0.001432	0	0.000593	0.003	0.015756	0.001558	0	0.000645	0.012	0.045017	1819.358	542.4673	48.22005	0.022377	0.249961	0.051086	0.030967	0.006806	0.032093	0.113907	1.006391	0.293642	0.041091	0.336192	3.327263	0.166213	1.468523	0.321501	0.041091	0.336192	3.327263	0.044929	2.41434	15.04306	6.517433	0.017986	0.005363	0.000477
Santa Clara	2022	MHDT	Aggregate	Aggregate	Diesel	10189.55	428042.3	428042.3	0	121266.8	1.73167	15.28688	1.483339	0.020297	0.042841	0	0.003	0.015941	0.021215	0.044778	0	0.012	0.045546	1158.231	2324.123	0	0.002426	0.013407	0	0.18248	0.366167	0	0.052238	0.288656	0	0	0	0	0.05947	0.328613	0	0	0	0	0.196531	0.168917	7.277505	0	0.010968	0.022008	0
Santa Clara	2022	MHDT	Aggregate	Natural Ga	Natural Ga	84.48052	3914.205	3914.205	0	796.8889	0.162027	6.474875	0	0.001029	0.016219	0	0	0.003	0.016011	0.001119	0.01764	0	0.012	0.045746	1002.329	5210.514	0	0.725882	17.91735	0	0.204331	1.062197	0	0.010371	0.256004	0	0	0	0	0.740815	18.28597	0	0	0	0	1.06	2.991509	30.51881	0	0	0	0
Santa Clara	2022	OBUS	Aggregate	Aggregate	Gasoline	470.9234	21653.3	21653.3	0	9422.235	0.596343	0.064966	0.407047	0.000863	0	0.000262	0.003	0.01568	0.000939	0	0.000285	0.012	0.044799	1804.41	384.2235	32.13915	0.017165	0.194553	0.036748	0.027969	0.005221	0.030733	0.084851	0.744858	0.194941	0.033671	0.142865	2.559429	0.123815	1.086895	0.213436	0.033671	0.142865	2.559429	0.044907	1.918016	5.766114	4.119591	0.017838	0.003798	0.000318
Santa Clara	2022	OBUS	Aggregate	Aggregate	Diesel	852.1679	61336.68	61336.68	0	8739.295	1.430263	8.186956	1.463102	0.021712	0.009363	0	0.003	0.01808	0.022694	0.009786	0	0.012	0.051656	1287.997	1601.524	0	0.002446	0.020931	0	0.202924	0.252321	0	0.052654	0.450629	0	0	0	0	0.059942	0.513007	0	0	0	0	0.209454	0.176751	7.212161	0	0.012197	0.015165	0
Santa Clara	2022	OBUS	Aggregate	Natural Ga	Natural Ga	6.12419	392.3999	392.3999	0	54.50529	0.261572	1.567279	0	0.000722	0.003187	0	0	0.003	0.016148	0.000785	0.003466	0	0.012	0.046137	1035.05	1183.472	0	0.750937	4.605624	0	0.211002	0.241259	0	0.010729	0.065805	0	0	0	0	0.766387	4.700378	0	0	0	0	1.06	3.149633	5.746939	0	0	0	0
Santa Clara	2022	SBUS	Aggregate	Aggregate	Gasoline	160.4139	7959.43	7959.43	0	641.6556	0.522721	0.925562	0.689048	0.000853	0	0.00055	0.002	0.015721	0.000928	0	0.000599	0.008	0.044917	820.0467	2616.389	59.14656	0.01243	2.458676	0.074784	0.027982	0.086242	0.063619	0.606464	10.62737	0.42659	0.108472	0.246255	1.510943	0.088229	15.50744	0.467063	0.108472	0.246255	1.510943	0.045	1.548936	82.15497	10.71476	0.008107	0.025866	0.000585
Santa Clara	2022	SBUS	Aggregate	Aggregate	Diesel	662.5162	15413.71	15413.71	0	9593.235	4.235498	22.873	0.450634	0.022112	0.02288	0	0.003	0.015721	0.023112	0.023915	0	0.012	0.044917	1152.917	2246.353	0	0.002834	0.008182	0	0.181642	0.353914	0	0.061017	0.17615	0	0	0	0	0.069464	0.200533	0	0	0	0	0.140239	0.185604	4.488491	0	0.010917	0.021272	0
Santa Clara	2022	SBUS	Aggregate	Natural Ga	Natural Ga	22.59677	578.3532	578.3532	0	327.2012	0.608852	5.295722	0	0.003378	0.010765	0	0	0.003	0.015721	0.003674	0.011708	0	0.012	0.044917	1281.922	4050.07	0	3.549889	15.56318	0	0.261328	0.825633	0	0.050721	0.222367	0	0	0	0	3.622922	15.88337	0	0	0	0	1.06	12.18179	19.41173	0	0	0	0
Santa Clara	2022	UBUS	Aggregate	Aggregate	Gasoline	45.81104	4784.037	4784.037	0	183.2442	0.03147	0	0.560776	0.000899	0	8.88E-05	0.002	0.03185	0.000978	0	9.66E-05	0.008	0.091	974.6428	0	38.21309	0.002303	0	0.053785	0.004696	0	0.082445	0.006534	0	0.197701	0.064874	0.125778	0.787098	0.009534	0	0.216458	0.064874	0.125778	0.787098	0.045	0.577943	0	5.5933	0.009635	0	0.000378
Santa Clara	2022	UBUS	Aggregate	Aggregate	Diesel	435.6475	48716.13	48716.13	0	1742.59	0.386257	0	0	0.007023	0	0	0.0083	0.0385	0.00734	0	0	0.0332	0.11	1100.743	0	0	0.003215	0	0	0.173422	0	0	0.069208	0	0	0	0	0	0	0.078788	0	0	0	0	0	0.187775	0.079368	0	0	0.01043	0	0
Santa Clara	2022	UBUS	Aggregate	Aggregate	Electricity	5.046757	199.0027	0	199.0027	20.18703	0	0	0	0	0	0	0.009	0.01925	0	0	0	0.036	0.055	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clara	2022	UBUS	Aggregate	Aggregate	Natural Ga	41.84875	4783.781	4783.781	0	167.395	0.058772	0	0	0.000282	0	0	0.008181	0.0385	0.000295	0	0	0.032723	0.11	1299.039	0	0	4.245393	0	0	0.264818	0	0	0.060658	0	0	0	0	0	0	4.332735	0	0	0	0	0	0.97	49.03622	0	0	0	0	0

Attachment 4: Project Construction Emissions and Health Risk Calculations

Camden Ave, San Jose, CA

DPM Emissions and Modeling Emission Rates - Unmitigated

Construction Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2022	Construction	0.0642	CON_DPM	128.3	0.03906	4.92E-03	4,128	1.19E-06
Total		***0.0642***		***128.3***	***0.0391***	***0.0049***		

Construction Hours

hr/day =	9	(8am - 5pm)
days/yr =	365	
hours/year =	3285	

Camden Ave, San Jose, CA

PM2.5 Fugitive Dust Emissions for Modeling - Unmitigated

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)	PM2.5 Emission Rate $g/s/m^2$
2022	Construction	CON_FUG	0.0099	19.8	0.00604	7.61E-04	4,128	1.84E-07
Total			***0.0099***	***19.8***	***0.0060***	***0.0008***		

Construction Hours

hr/day =	9	(8am - 5pm)
days/yr =	365	
hours/year =	3285	

DPM Construction Emissions and Modeling Emission Rates - With Mitigation

Construction Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2022	Construction	0.0167	CON_DPM	33.3	0.01015	1.28E-03	4,128	3.10E-07
Total		***0.0167***		***33.3***	***0.0101***	***0.0013***		

Construction Hours

hr/day = 9 (8am - 5pm)

days/yr = 365

hours/year = 3285

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

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	PM2.5 Emissions (lb/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (g/s)	Modeled Area (m^2)	PM2.5 Emission Rate $g/s/m^2$
2022	Construction	CON_FUG	0.0045	9.0	0.00274	3.45E-04	4,128	8.36E-08
Total			***0.0045***	***9.0***	***0.0027***	***0.0003***		

Construction Hours

hr/day = 9 (8am - 5pm)

days/yr = 365

hours/year = 3285

Camden Ave, San Jose, CA
Construction Health Impact Summary

Maximum Impacts at MEI Location - Without Mitigation

Emissions Year	Maximum Concentrations		Cancer Risk (per million)		Hazard Index	Maximum Annual PM2.5 Concentration
	Exhaust PM10/DPM ($\mu g/m^3$)	Fugitive PM2.5 ($\mu g/m^3$)	Infant/Child	Adult	(-)	($\mu g/m^3$)
2022	0.1336	0.0213	23.75	0.38	0.03	0.15
Total	-	-	**23.75**	**0.38**		-
Maximum	0.1336	0.0213	**-**	**-**	**0.03**	**0.15**

Maximum Impacts at MEI Location - With Mitigation

Emissions Year	Maximum Concentrations		Cancer Risk (per million)		Hazard Index	Maximum Annual PM2.5 Concentration
	Exhaust PM10/DPM ($\mu g/m^3$)	Fugitive PM2.5 ($\mu g/m^3$)	Infant/Child	Adult	(-)	($\mu g/m^3$)
2022	0.0348	0.0097	6.19	0.10	0.01	0.04
Total	-	-	**6.19**	**0.10**	-	-
Maximum	0.0348	0.0097	**-**	**-**	**0.01**	**0.04**

- Tier 4 Interim Engine, BMP Mitigation as mitigation

Maximum Impacts at Learning Care Child Care Preschool

Construction Year	Unmitigated Emissions				
	Maximum Concentrations		Child Cancer Risk (per million)	Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu g/m^3$)
	Exhaust PM10/DPM ($\mu g/m^3$)	Fugitive PM2.5 ($\mu g/m^3$)			
2022	0.0067	0.0011	3.24	0.0013	0.008
Total	-	-	**3.24**	-	-
Maximum	0.0067	0.0011	**-**	**0.0013**	**0.008**

Camden Ave, San Jose, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 4.5 meter receptor height

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information				Adult - Exposure Information						
				DPM Conc (ug/m3)	Age	Infant/Child		Modeled DPM Conc (ug/m3)	Age	Adult	Maximum		
Exposure Year	**Exposure Duration (years)**	**Age**	**Year**	**Annual**	**Sensitivity Factor**	**Cancer Risk (per million)**	**Year**	**Annual**	**Sensitivity Factor**	**Cancer Risk (per million)**	**Hazard Index**	**Fugitive PM2.5**	**Total PM2.5**
0	0.25	-0.25 - 0*	2022	0.1336	10	1.82	2022	0.1336	-	-			
1	1	0 - 1	2022	0.1336	10	21.94	2022	0.1336	1	0.38	0.027	0.021	0.15
2	1	1 - 2		0.0000	10	0.00		0.0000	1	0.00			
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00			
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00			
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00			
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00			
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00			
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00			
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00			
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00			
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00			
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00			
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00			
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00			
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00			
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00			
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00			
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00			
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00			
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00			
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00			
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00			
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00			
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00			
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00			
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00			
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00			
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00			
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00			
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00			
Total Increased Cancer Risk						**23.75**				**0.38**			

* Third trimester of pregnancy

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

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information				Adult - Exposure Information						
							Modeled				Maximum		
Exposure Year	Exposure Duration (years)	Age	DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age Sensitivity Factor	Infant/Child Cancer Risk (per million)	DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age Sensitivity Factor	Adult Cancer Risk (per million)	Hazard Index	Fugitive PM2.5	Total PM2.5
0	0.25	-0.25 - 0*	2022	0.1051	10	1.43	2022	0.1051	-	-			
1	1	0 - 1	2022	0.1051	10	17.26	2022	0.1051	1	0.30	0.02	0.036	0.14
2	1	1 - 2		0.0000	10	0.00		0.0000	1	0.00			
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00			
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00			
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00			
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00			
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00			
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00			
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00			
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00			
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00			
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00			
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00			
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00			
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00			
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00			
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00			
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00			
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00			
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00			
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00			
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00			
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00			
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00			
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00			
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00			
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00			
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00			
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00			
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00			
Total Increased Cancer Risk						**18.69**				**0.30**			

* Third trimester of pregnancy

Camden Ave, San Jose, CA - Construction Impacts - With Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 4.5 meter receptor height

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information				Adult - Exposure Information				Maximum		
			DPM Conc (ug/m3)		Age	Infant/Child	Modeled DPM Conc (ug/m3)		Age	Adult			
Exposure Year	Exposure Duration (years)	Age	Year	Annual	Sensitivity Factor	Cancer Risk (per million)	Year	Annual	Sensitivity Factor	Cancer Risk (per million)	Hazard Index	Fugitive PM2.5	Total PM2.5
0	0.25	-0.25 - 0*	2022	0.0348	10	0.47	2022	0.0348	-	-			
1	1	0 - 1	2022	0.0348	10	5.71	2022	0.0348	1	0.10	0.007	0.01	0.04
2	1	1 - 2		0.0000	10	0.00		0.0000	1	0.00			
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00			
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00			
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00			
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00			
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00			
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00			
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00			
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00			
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00			
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00			
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00			
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00			
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00			
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00			
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00			
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00			
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00			
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00			
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00			
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00			
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00			
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00			
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00			
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00			
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00			
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00			
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00			
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00			
Total Increased Cancer Risk						**6.19**				**0.10**			

* Third trimester of pregnancy

Camden Ave, San Jose, CA - Construction Impacts - With Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 1.5 meter receptor height

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information				Adult - Exposure Information				Maximum		
			DPM Conc (ug/m3)		Age	Infant/Child	Modeled		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*	2022	0.0274	10	0.37	2022	0.0274	-	-			
1	1	0 - 1	2022	0.0274	10	4.50	2022	0.0274	1	0.08	0.005	0.02	0.04
2	1	1 - 2		0.0000	10	0.00		0.0000	1	0.00			
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00			
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00			
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00			
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00			
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00			
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00			
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00			
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00			
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00			
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00			
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00			
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00			
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00			
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00			
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00			
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00			
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00			
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00			
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00			
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00			
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00			
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00			
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00			
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00			
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00			
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00			
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00			
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00			
Total Increased Cancer Risk						**4.87**				**0.08**			

* Third trimester of pregnancy

Camden Ave, San Jose, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction Impacts at Learning Care Child Care Preschool - 1 meter - Child Exposure

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

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

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

Where: C_{air} = concentration in air ($\mu g/m^3$)
SAF = Student Adjustment Factor (unitless)
= (24 hrs/9 hrs) x (7 days/5 days) = 3.73
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

	School 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	240
A =	1	1	1
EF =	250	250	250
AT =	70	70	70
SAF =	3.73	3.73	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)	Age	Child - Exposure Information: DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age* Sensitivity Factor	Child Cancer Risk (per million)
1	1	1 - 2	2022	0.0067	10	3.2
2	1			0.0000	3	0.0
3	1			0.0000	3	0.0
4	1			0.0000	3	0.0
5	1			0.0000	3	0.0
6	1			0.0000	3	0.0
7	1			0.0000	3	0.0
8	1			0.0000	3	0.0
9	1			0.0000	3	0.0
Total Increased Cancer Risk						**3.24**

* Children assumed to be 1 year of age or older with 1 years of Construction Exposure

Maximum		
Hazard Index	**Fugitive PM2.5**	**Total PM2.5**
0.0013	0.0011	0.008

Attachment 5: Community Risk Modeling Information and Calculations

```
           File Name:   Camden Ave 2022.EF
CT-EMFAC2017 Version:   1.0.2.27401
            Run Date:   2/4/2022 11:05:09 AM
                Area:   Santa Clara (SF)
       Analysis Year:   2022
              Season:   Annual

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

Vehicle Category        VMT Fraction            Diesel VMT Fraction     Gas VMT Fraction
                        Across Category         Within Category         Within Category
         Truck 1             0.015                   0.478                   0.522
         Truck 2             0.020                   0.940                   0.046
       Non-Truck             0.965                   0.014                   0.961

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

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

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

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

       Pollutant Name        40 mph
                PM2.5      0.001715
                  TOG      0.030252
            Diesel PM      0.000677

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

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

       Pollutant Name   Emission Factor
                  TOG          1.418515

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

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

       Pollutant Name   Emission Factor
                PM2.5          0.002108

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

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

       Pollutant Name   Emission Factor
                PM2.5          0.016811

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

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

       Pollutant Name   Emission Factor
                PM2.5          0.014871

============================END=======================================
```

File Name:	Camden Ave 2023.EF
CT-EMFAC2017 Version:	1.0.2.27401
Run Date:	2/4/2022 11:43:18 AM
Area:	Santa Clara (SF)
Analysis Year:	2023
Season:	Annual

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category	Gas VMT Fraction Within Category
Truck 1	0.015	0.487	0.513
Truck 2	0.020	0.938	0.047
Non-Truck	0.965	0.014	0.958

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

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

Pollutant Name	40 mph
PM2.5	0.001375
TOG	0.027137
Diesel PM	0.000370

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

Pollutant Name	Emission Factor
TOG	1.357610

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

Pollutant Name	Emission Factor
PM2.5	0.002108

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

Pollutant Name	Emission Factor
PM2.5	0.016808

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

Pollutant Name	Emission Factor
PM2.5	0.014855

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

Camden Ave, San Jose, CA - Off-Site Residential
Cumulative Operation - Camden Ave
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = **2022**

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_CAM	Camden Ave	Both	6	727.8	0.45	27.9	91.7	3.4	40	32,171
									Total	32,171

Emission Factors

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle (g/VMT)	0.00068			

Emisson Factors from CT-EMFAC2017

2022 Hourly Traffic Volumes and DPM Emissions - DPM_CAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	3.91%	1258	1.07E-04	9	6.44%	2072	1.76E-04	17	5.52%	1776	1.51E-04
2	2.59%	832	7.08E-05	10	7.25%	2331	1.98E-04	18	3.34%	1073	9.13E-05
3	2.82%	906	7.71E-05	11	6.33%	2035	1.73E-04	19	2.42%	777	6.61E-05
4	3.39%	1091	9.28E-05	12	6.90%	2220	1.89E-04	20	0.92%	296	2.52E-05
5	2.19%	703	5.98E-05	13	6.27%	2016	1.71E-04	21	2.99%	962	8.18E-05
6	3.39%	1091	9.28E-05	14	6.15%	1979	1.68E-04	22	4.14%	1332	1.13E-04
7	6.10%	1961	1.67E-04	15	5.12%	1646	1.40E-04	23	2.47%	795	6.77E-05
8	4.66%	1498	1.27E-04	16	3.85%	1239	1.05E-04	24	0.86%	277	2.36E-05
								Total		32,171	

Camden Ave, San Jose, CA - Off-Site Residential
Cumulative Operation - Camden Ave
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2022

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_CAM	Camden Ave	Both	6	727.8	0.45	27.9	92	1.3	40	32,171
									Total	32,171

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle (g/VMT)	0.001715			

Emisson Factors from CT-EMFAC2017

2022 Hourly Traffic Volumes and PM2.5 Emissions - PM2.5_CAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	370	7.98E-05	9	7.11%	2288	4.93E-04	17	7.39%	2376	5.12E-04
2	0.42%	135	2.90E-05	10	4.39%	1413	3.04E-04	18	8.17%	2628	5.66E-04
3	0.41%	132	2.84E-05	11	4.67%	1501	3.23E-04	19	5.70%	1832	3.95E-04
4	0.27%	86	1.85E-05	12	5.89%	1895	4.08E-04	20	4.27%	1375	2.96E-04
5	0.50%	161	3.46E-05	13	6.15%	1978	4.26E-04	21	3.26%	1048	2.26E-04
6	0.91%	292	6.28E-05	14	6.03%	1941	4.18E-04	22	3.30%	1062	2.29E-04
7	3.79%	1221	2.63E-04	15	7.01%	2255	4.86E-04	23	2.46%	790	1.70E-04
8	7.76%	2497	5.38E-04	16	7.13%	2295	4.95E-04	24	1.86%	599	1.29E-04
								Total		32,171	

Camden Ave, San Jose, CA - Off-Site Residential
Cumulative Operation - Camden Ave
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2022

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_CAM	Camden Ave	Both	6	727.8	0.45	27.9	92	1.3	40	32,171
									Total	32,171

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle (g/VMT)	0.03025			

Emisson Factors from CT-EMFAC2017

2022 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_CAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	370	1.41E-03	9	7.11%	2288	8.70E-03	17	7.39%	2376	9.03E-03
2	0.42%	135	5.12E-04	10	4.39%	1413	5.37E-03	18	8.17%	2628	9.99E-03
3	0.41%	132	5.00E-04	11	4.67%	1501	5.71E-03	19	5.70%	1832	6.96E-03
4	0.27%	86	3.26E-04	12	5.89%	1895	7.20E-03	20	4.27%	1375	5.22E-03
5	0.50%	161	6.10E-04	13	6.15%	1978	7.52E-03	21	3.26%	1048	3.98E-03
6	0.91%	292	1.11E-03	14	6.03%	1941	7.38E-03	22	3.30%	1062	4.04E-03
7	3.79%	1221	4.64E-03	15	7.01%	2255	8.57E-03	23	2.46%	790	3.00E-03
8	7.76%	2497	9.49E-03	16	7.13%	2295	8.72E-03	24	1.86%	599	2.28E-03
								Total		32,171	

Camden Ave, San Jose, CA - Off-Site Residential
Cumulative Operation - Camden Ave
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = **2022**

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_CAM	Camden Ave	Both	6	727.8	0.45	27.9	92	1.3	40	32,171
									Total	32,171

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle per Hour (g/hour)	1.41852			
Emissions per Vehicle per Mile (g/VMT)	0.03546			

Emisson Factors from CT-EMFAC2017

2022 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_CAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	370	1.65E-03	9	7.11%	2288	1.02E-02	17	7.39%	2376	1.06E-02
2	0.42%	135	6.01E-04	10	4.39%	1413	6.29E-03	18	8.17%	2628	1.17E-02
3	0.41%	132	5.86E-04	11	4.67%	1501	6.69E-03	19	5.70%	1832	8.16E-03
4	0.27%	86	3.82E-04	12	5.89%	1895	8.44E-03	20	4.27%	1375	6.12E-03
5	0.50%	161	7.16E-04	13	6.15%	1978	8.81E-03	21	3.26%	1048	4.67E-03
6	0.91%	292	1.30E-03	14	6.03%	1941	8.65E-03	22	3.30%	1062	4.73E-03
7	3.79%	1221	5.44E-03	15	7.01%	2255	1.00E-02	23	2.46%	790	3.52E-03
8	7.76%	2497	1.11E-02	16	7.13%	2295	1.02E-02	24	1.86%	599	2.67E-03
								Total		32,171	

Camden Ave, San Jose, CA - Off-Site Residential
Cumulative Operation - Camden Ave
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = **2022**

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_CAM	Camden Ave	Both	6	727.8	0.45	27.9	92	1.3	40	32,171
									Total	32,171

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	40			
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)	0.01487			
otal Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.03379			

Emisson Factors from CT-EMFAC2017

2022 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_CAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	370	1.57E-03	9	7.11%	2288	9.71E-03	17	7.39%	2376	1.01E-02
2	0.42%	135	5.72E-04	10	4.39%	1413	6.00E-03	18	8.17%	2628	1.12E-02
3	0.41%	132	5.59E-04	11	4.67%	1501	6.37E-03	19	5.70%	1832	7.78E-03
4	0.27%	86	3.64E-04	12	5.89%	1895	8.05E-03	20	4.27%	1375	5.84E-03
5	0.50%	161	6.82E-04	13	6.15%	1978	8.40E-03	21	3.26%	1048	4.45E-03
6	0.91%	292	1.24E-03	14	6.03%	1941	8.24E-03	22	3.30%	1062	4.51E-03
7	3.79%	1221	5.18E-03	15	7.01%	2255	9.57E-03	23	2.46%	790	3.35E-03
8	7.76%	2497	1.06E-02	16	7.13%	2295	9.74E-03	24	1.86%	599	2.54E-03
								Total		32,171	

Camden Ave, San Jose, CA - Camden Ave Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
at Construction Residential MEI Receptor (4.5 meter receptor height)

Emission Year	2022
Receptor Information	Construction Residential MEI receptor
Number of Receptors	1
Receptor Height	4.5 meters
Receptor Distances	At Construction Residential MEI location

Meteorological Conditions

BAAQMD San Jose International Met D	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Wind Direction	Variable

Construction Residential MEI Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0056	0.2396	0.2810

Construction Residential MEI PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)*		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.2814	0.2678	0.0136

Camden Ave, San Jose, CA - Camden Ave Traffic Cancer Risk
Impacts at Construction Residential MEI - 4.5 meter receptor height
30 Year Residential Exposure

Cancer Risk Calculation Method

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

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

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	0.25	-0.25 - 0*	2022	10	0.0056	0.2396	0.2810	0.076	0.019	0.0013	0.10
1	1	0 - 1	2022	10	0.0056	0.2396	0.2810	0.913	0.225	0.0155	1.15
2	1	1 - 2	2023	10	0.0056	0.2396	0.2810	0.913	0.225	0.0155	1.15
3	1	2 - 3	2024	3	0.0056	0.2396	0.2810	0.144	0.035	0.0024	0.18
4	1	3 - 4	2025	3	0.0056	0.2396	0.2810	0.144	0.035	0.0024	0.18
5	1	4 - 5	2026	3	0.0056	0.2396	0.2810	0.144	0.035	0.0024	0.18
6	1	5 - 6	2027	3	0.0056	0.2396	0.2810	0.144	0.035	0.0024	0.18
7	1	6 - 7	2028	3	0.0056	0.2396	0.2810	0.144	0.035	0.0024	0.18
8	1	7 - 8	2029	3	0.0056	0.2396	0.2810	0.144	0.035	0.0024	0.18
9	1	8 - 9	2030	3	0.0056	0.2396	0.2810	0.144	0.035	0.0024	0.18
10	1	9 - 10	2031	3	0.0056	0.2396	0.2810	0.144	0.035	0.0024	0.18
11	1	10 - 11	2032	3	0.0056	0.2396	0.2810	0.144	0.035	0.0024	0.18
12	1	11 - 12	2033	3	0.0056	0.2396	0.2810	0.144	0.035	0.0024	0.18
13	1	12 - 13	2034	3	0.0056	0.2396	0.2810	0.144	0.035	0.0024	0.18
14	1	13 - 14	2035	3	0.0056	0.2396	0.2810	0.144	0.035	0.0024	0.18
15	1	14 - 15	2036	3	0.0056	0.2396	0.2810	0.144	0.035	0.0024	0.18
16	1	15 - 16	2037	3	0.0056	0.2396	0.2810	0.144	0.035	0.0024	0.18
17	1	16-17	2038	1	0.0056	0.2396	0.2810	0.016	0.004	0.0003	0.02
18	1	17-18	2039	1	0.0056	0.2396	0.2810	0.016	0.004	0.0003	0.02
19	1	18-19	2040	1	0.0056	0.2396	0.2810	0.016	0.004	0.0003	0.02
20	1	19-20	2041	1	0.0056	0.2396	0.2810	0.016	0.004	0.0003	0.02
21	1	20-21	2042	1	0.0056	0.2396	0.2810	0.016	0.004	0.0003	0.02
22	1	21-22	2043	1	0.0056	0.2396	0.2810	0.016	0.004	0.0003	0.02
23	1	22-23	2044	1	0.0056	0.2396	0.2810	0.016	0.004	0.0003	0.02
24	1	23-24	2045	1	0.0056	0.2396	0.2810	0.016	0.004	0.0003	0.02
25	1	24-25	2046	1	0.0056	0.2396	0.2810	0.016	0.004	0.0003	0.02
26	1	25-26	2047	1	0.0056	0.2396	0.2810	0.016	0.004	0.0003	0.02
27	1	26-27	2048	1	0.0056	0.2396	0.2810	0.016	0.004	0.0003	0.02
28	1	27-28	2049	1	0.0056	0.2396	0.2810	0.016	0.004	0.0003	0.02
29	1	28-29	2050	1	0.0056	0.2396	0.2810	0.016	0.004	0.0003	0.02
30	1	29-30	2051	1	0.0056	0.2396	0.2810	0.016	0.004	0.0003	0.02
Total Increased Cancer Risk								4.14	1.018	0.070	**5.23**

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.00111	0.27	0.28

* Third trimester of pregnancy

Camden Ave, San Jose, CA - Off-Site Residential
Cumulative Operation - Camden Ave
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = **2023**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
DPM_CAM	Camden Ave	Both	6	727.8	0.45	27.9	91.7	3.4	40	32,472
									Total	32,472

Emission Factors

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle (g/VMT)	0.00037			

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and DPM Emissions - DPM_CAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	3.91%	1270	5.90E-05	9	6.50%	2110	9.81E-05	17	5.58%	1811	8.42E-05
2	2.59%	840	3.91E-05	10	7.36%	2390	1.11E-04	18	3.28%	1064	4.95E-05
3	2.88%	934	4.34E-05	11	6.33%	2054	9.55E-05	19	2.36%	766	3.56E-05
4	3.34%	1083	5.03E-05	12	6.84%	2222	1.03E-04	20	0.92%	299	1.39E-05
5	2.19%	710	3.30E-05	13	6.15%	1998	9.29E-05	21	2.99%	971	4.51E-05
6	3.39%	1102	5.12E-05	14	6.15%	1998	9.29E-05	22	4.14%	1344	6.25E-05
7	5.98%	1942	9.03E-05	15	5.23%	1699	7.90E-05	23	2.47%	803	3.73E-05
8	4.66%	1512	7.03E-05	16	3.91%	1270	5.90E-05	24	0.86%	280	1.30E-05
								Total		32,472	

Camden Ave, San Jose, CA - Off-Site Residential
Cumulative Operation - Camden Ave
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
PM2.5_CAM	Camden Ave	Both	6	727.8	0.45	27.9	92	1.3	40	32,472
									Total	32,472

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle (g/VMT)	0.001375			

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and PM2.5 Emissions - PM2.5_CAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	374	6.46E-05	9	7.11%	2309	3.99E-04	17	7.38%	2398	4.14E-04
2	0.42%	136	2.34E-05	10	4.39%	1426	2.46E-04	18	8.17%	2654	4.58E-04
3	0.41%	132	2.29E-05	11	4.66%	1514	2.62E-04	19	5.70%	1850	3.20E-04
4	0.26%	85	1.48E-05	12	5.89%	1912	3.30E-04	20	4.27%	1388	2.40E-04
5	0.50%	163	2.81E-05	13	6.15%	1998	3.45E-04	21	3.26%	1058	1.83E-04
6	0.90%	294	5.07E-05	14	6.04%	1960	3.39E-04	22	3.30%	1071	1.85E-04
7	3.79%	1232	2.13E-04	15	7.01%	2277	3.93E-04	23	2.46%	799	1.38E-04
8	7.76%	2521	4.35E-04	16	7.14%	2317	4.00E-04	24	1.86%	605	1.05E-04
								Total		32,472	

Camden Ave, San Jose, CA - Off-Site Residential
Cumulative Operation - Camden Ave
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
TEXH_CAM	Camden Ave	Both	6	727.8	0.45	27.9	92	1.3	40	32,472
									Total	32,472

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle (g/VMT)	0.02714			

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_CAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	374	1.27E-03	9	7.11%	2309	7.87E-03	17	7.38%	2398	8.17E-03
2	0.42%	136	4.62E-04	10	4.39%	1426	4.86E-03	18	8.17%	2654	9.05E-03
3	0.41%	132	4.51E-04	11	4.66%	1514	5.16E-03	19	5.70%	1850	6.31E-03
4	0.26%	85	2.91E-04	12	5.89%	1912	6.52E-03	20	4.27%	1388	4.73E-03
5	0.50%	163	5.54E-04	13	6.15%	1998	6.81E-03	21	3.26%	1058	3.61E-03
6	0.90%	294	1.00E-03	14	6.04%	1960	6.68E-03	22	3.30%	1071	3.65E-03
7	3.79%	1232	4.20E-03	15	7.01%	2277	7.76E-03	23	2.46%	799	2.72E-03
8	7.76%	2521	8.59E-03	16	7.14%	2317	7.90E-03	24	1.86%	605	2.06E-03
								Total		32,472	

Camden Ave, San Jose, CA - Off-Site Residential
Cumulative Operation - Camden Ave
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
TEVAP_CAM	Camden Ave	Both	6	727.8	0.45	27.9	92	1.3	40	32,472
									Total	32,472

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle per Hour (g/hour)	1.35761			
Emissions per Vehicle per Mile (g/VMT)	0.03394			

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_CAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	374	1.59E-03	9	7.11%	2309	9.85E-03	17	7.38%	2398	1.02E-02
2	0.42%	136	5.78E-04	10	4.39%	1426	6.08E-03	18	8.17%	2654	1.13E-02
3	0.41%	132	5.64E-04	11	4.66%	1514	6.46E-03	19	5.70%	1850	7.89E-03
4	0.26%	85	3.64E-04	12	5.89%	1912	8.15E-03	20	4.27%	1388	5.92E-03
5	0.50%	163	6.93E-04	13	6.15%	1998	8.52E-03	21	3.26%	1058	4.51E-03
6	0.90%	294	1.25E-03	14	6.04%	1960	8.36E-03	22	3.30%	1071	4.57E-03
7	3.79%	1232	5.25E-03	15	7.01%	2277	9.71E-03	23	2.46%	799	3.41E-03
8	7.76%	2521	1.07E-02	16	7.14%	2317	9.88E-03	24	1.86%	605	2.58E-03
								Total		32,472	

Camden Ave, San Jose, CA - Off-Site Residential
Cumulative Operation - Camden Ave
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = **2023**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
FUG_CAM	Camden Ave	Both	6	727.8	0.45	27.9	92	1.3	40	32,472
									Total	32,472

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00211			
Brake Wear - Emissions per Vehicle (g/VMT)	0.01681			
Road Dust - Emissions per Vehicle (g/VMT)	0.01486			
otal Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.03377			

Emisson Factors from CT-EMFAC2017

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

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.15%	374	1.59E-03	9	7.11%	2309	9.80E-03	17	7.38%	2398	1.02E-02
2	0.42%	136	5.75E-04	10	4.39%	1426	6.05E-03	18	8.17%	2654	1.13E-02
3	0.41%	132	5.62E-04	11	4.66%	1514	6.42E-03	19	5.70%	1850	7.85E-03
4	0.26%	85	3.63E-04	12	5.89%	1912	8.11E-03	20	4.27%	1388	5.89E-03
5	0.50%	163	6.90E-04	13	6.15%	1998	8.47E-03	21	3.26%	1058	4.49E-03
6	0.90%	294	1.25E-03	14	6.04%	1960	8.32E-03	22	3.30%	1071	4.54E-03
7	3.79%	1232	5.23E-03	15	7.01%	2277	9.66E-03	23	2.46%	799	3.39E-03
8	7.76%	2521	1.07E-02	16	7.14%	2317	9.83E-03	24	1.86%	605	2.57E-03
								Total		32,472	

Camden Ave, San Jose, CA - Camden Ave Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
On-Site Receptors (1.5 meter receptor height)

Emission Year	2023
Receptor Information	Maximum On-Site Receptor
Number of Receptors	7
Receptor Height	4.5 meters
Receptor Distances	On each house plot

Meteorological Conditions

BAAQMD San Jose International Met D	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Wind Direction	Variable

Construction School MEI Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0034	0.2255	0.2823

Construction School MEI PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)*		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.2923	0.2808	0.0115

Camden Ave, San Jose, CA - Camden Ave Traffic Cancer Risk
Impacts at On-Site 1st Floor Receptors - 1.5 meter receptor height
30 Year Residential Exposure

Cancer Risk Calculation Method

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

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
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 $(\mu g/m^3)$
SAF = Student Adjustment Factor (unitless)
= (24 hrs/9 hrs) x (7 days/5 days) = 3.73
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

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
8-Hr BR* =	361	1200	520	240
A =	1	1	1	1
EF =	250	250	250	250
AT =	70	70	70	70
FAH =	1.00	1.00	3.73	1.00

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	1	-0.25 - 0*	2022	10	0.0034	0.2255	0.2823	0.132	0.050	0.0037	0.19
1	1	0 - 1	2023	10	0.0034	0.2255	0.2823	0.439	0.166	0.0123	0.62
2	1	1 - 2	2024	10	0.0034	0.2255	0.2823	0.439	0.166	0.0123	0.62
3	1	2 - 3	2025	3	0.0034	0.2255	0.2823	0.213	0.081	0.0059	0.30
4	1	3 - 4	2026	3	0.0034	0.2255	0.2823	0.213	0.081	0.0059	0.30
5	1	4 - 5	2027	3	0.0034	0.2255	0.2823	0.213	0.081	0.0059	0.30
6	1	5 - 6	2028	3	0.0034	0.2255	0.2823	0.213	0.081	0.0059	0.30
7	1	6 - 7	2029	3	0.0034	0.2255	0.2823	0.213	0.081	0.0059	0.30
8	1	7 - 8	2030	3	0.0034	0.2255	0.2823	0.213	0.081	0.0059	0.30
9	1	8 - 9	2031	3	0.0034	0.2255	0.2823	0.213	0.081	0.0059	0.30
10	1	9 - 10	2032	3	0.0034	0.2255	0.2823	0.213	0.081	0.0059	0.30
11	1	10 - 11	2033	3	0.0034	0.2255	0.2823	0.213	0.081	0.0059	0.30
12	1	11 - 12	2034	3	0.0034	0.2255	0.2823	0.213	0.081	0.0059	0.30
13	1	12 - 13	2035	3	0.0034	0.2255	0.2823	0.213	0.081	0.0059	0.30
14	1	13 - 14	2036	3	0.0034	0.2255	0.2823	0.213	0.081	0.0059	0.30
15	1	14 - 15	2037	3	0.0034	0.2255	0.2823	0.213	0.081	0.0059	0.30
16	1	15 - 16	2038	3	0.0034	0.2255	0.2823	0.213	0.081	0.0059	0.30
17	1	16-17	2039	1	0.0034	0.2255	0.2823	0.009	0.003	0.0002	0.01
18	1	17-18	2040	1	0.0034	0.2255	0.2823	0.009	0.003	0.0002	0.01
19	1	18-19	2041	1	0.0034	0.2255	0.2823	0.009	0.003	0.0002	0.01
20	1	19-20	2042	1	0.0034	0.2255	0.2823	0.009	0.003	0.0002	0.01
21	1	20-21	2043	1	0.0034	0.2255	0.2823	0.009	0.003	0.0002	0.01
22	1	21-22	2044	1	0.0034	0.2255	0.2823	0.009	0.003	0.0002	0.01
23	1	22-23	2045	1	0.0034	0.2255	0.2823	0.009	0.003	0.0002	0.01
24	1	23-24	2046	1	0.0034	0.2255	0.2823	0.009	0.003	0.0002	0.01
25	1	24-25	2047	1	0.0034	0.2255	0.2823	0.009	0.003	0.0002	0.01
26	1	25-26	2048	1	0.0034	0.2255	0.2823	0.009	0.003	0.0002	0.01
27	1	26-27	2049	1	0.0034	0.2255	0.2823	0.009	0.003	0.0002	0.01
28	1	27-28	2050	1	0.0034	0.2255	0.2823	0.009	0.003	0.0002	0.01
29	1	28-29	2051	1	0.0034	0.2255	0.2823	0.009	0.003	0.0002	0.01
30	1	29-30	2052	1	0.0034	0.2255	0.2823	0.009	0.003	0.0002	0.01
Total Increased Cancer Risk								4.114	1.558	0.115	**5.79**

Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.0007	0.28	0.29

* Third trimester of pregnancy

Bay Area Air Quality Management District

Risk & Hazard Stationary Source Inquiry Form

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

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

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

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

Table A: Requester Contact Information

Date of Request	**2/2/2022**
Contact Name	Zachary Palm
Affiliation	Illingworth & Rodkin, Inc.
Phone	707-794-0400 x117
Email	zpalm@illingworthrodkin.com
Project Name	Camden Ave
Address	Camden Ave
City	San Jose
County	Santa Clara
Type (residential, commercial, mixed use, industrial, etc.)	Residential
Project Size (# of units or building square feet)	7du
Comments:	

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

1. Complete all the contact and project information requested in Table A ncomplete forms will not be processed. Please include a project site map.

2. Download and install the free program Google Earth, **http://www.google.com/earth/download/ge/,** and then download the county specific Google Earth stationary source application files from the District's website, **http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx.** The small points on the map represent stationary sources permitted by the District (Map A on right). These permitted sources include diesel back-up generators, gas stations, dry cleaners, boilers, printers, auto spray booths, etc. Click on a point to view the source's Information Table, including the name, location, and preliminary estimated cancer risk, hazard index, and PM2.5 concentration.

3. Find the project site in Google Earth by inputting the site's address in the Google Earth search box.

4. Identify stationary sources within at least a 1000ft radius of project site. Verify that the location of the source on the map matches with the source's address in the Information Table, by using the Google E[illegible] search box to confirm the source's address location. Please report any mapping errors to the District.

5. List the stationary source information in Table B [illegible]lue section only.

6. Note that a small percentage of the stationary sources have Health Risk Screening Assessment (HRSA) data INSTEAD of screening level data. These sources will be noted by an asterisk next to the Plant Name (Map B on right). If HRSA values are presented, these values have already been modeled and cannot be adjusted further.

7. Email this completed form to District staff. District staff will provide the most recent risk, hazard, and PM2.5 data that are available for the source(s). If this information or data are not available, source emissions data will be provided. Staff will respond to inquiries within three weeks.

Note that a public records request received for the same stationary source information will cancel the processing of your SSIF request.

Submit forms, maps, and questions to Areana Flores at 415-749-4616, or aflores@baaqmd.gov

Table B: Google Earth data

Distance from Receptor (feet) or MEI[1]	Plant No.	Facility Name	Address	Cancer Risk[2]	Hazard Risk[2]	$PM_{2.5}$[2]	Source No.[3]	Type of Source[4]	Fuel Code[5]	Status/Comments
185	110679	ARCO Facility #02155 - Camden Gas & Mmart	5755 Camden Ave	19.12	0.08	0		Gas Dispensing Facility		2018 Dataset

Construction MEIs

Distance Adjustment Multiplier	Adjusted Cancer Risk Estimate	Adjusted Hazard Risk	Adjusted PM2.5
0.23	4.30	0.018	0.00

Project Site

Distance from Receptor (feet) or MEI[1]	FACID (Plant No.)	Distance Adjustment Multiplier	Adjusted Cancer Risk Estimate	Adjusted Hazard Risk	Adjusted PM2.5
120	110679	0.45	8.51	0.036	0.000

Footnotes:

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

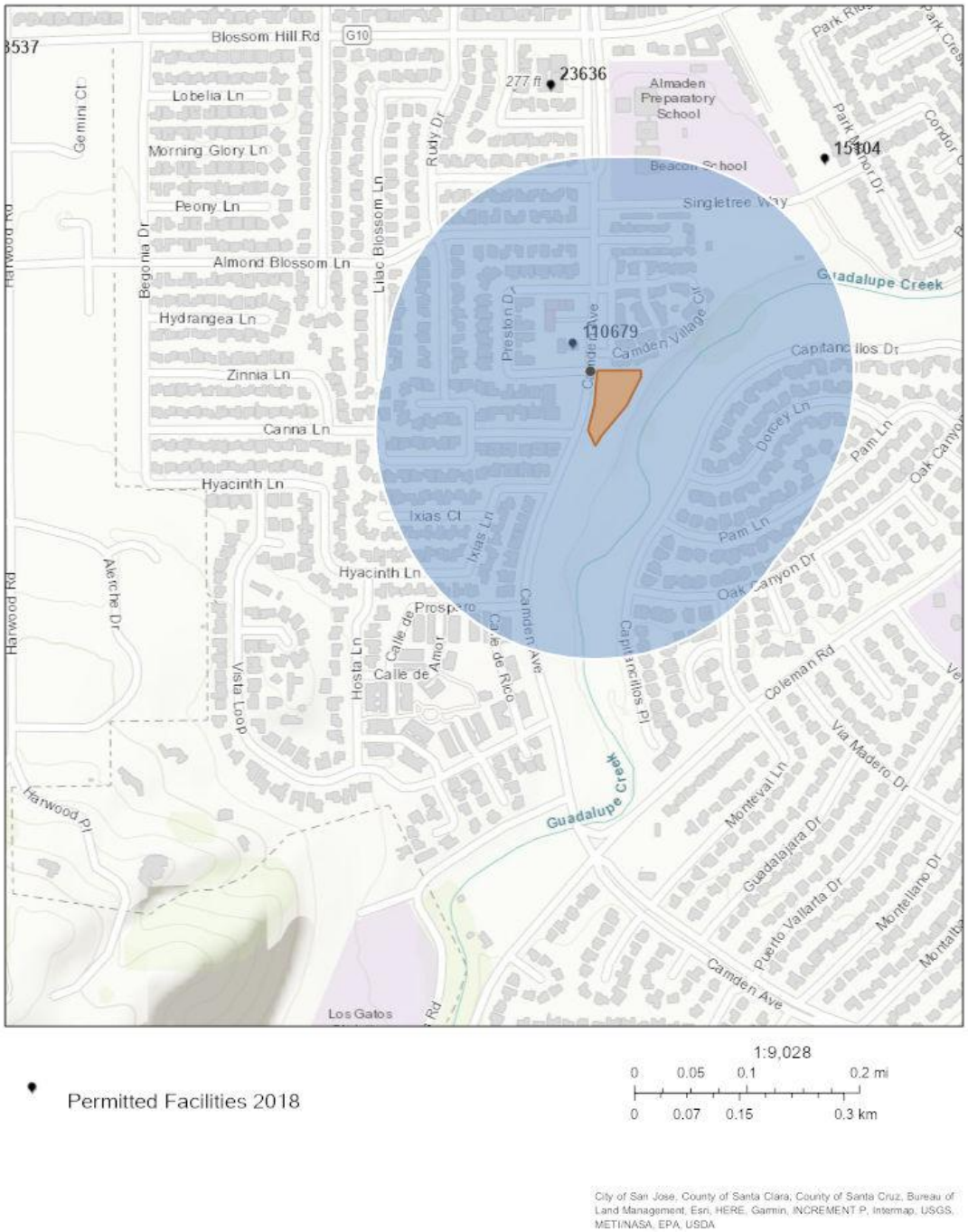
Date last updated:
03/13/2018

Stationary Source Risk & Hazards Screening Report

Area of Interest (AOI) Information

Area : 4,171,936.06 ft²

Feb 2 2022 8:49:03 Pacific Standard Time



Summary

Name	Count	Area(ft²)	Length(ft)
Permitted Facilities 2018	1	N/A	N/A

Permitted Facilities 2018

#	FACID	Name	Address	City	St
1	110679	ARCO Facility #02155 - Camden Gas & Mmart	5755 Camden Ave	San Jose	CA

#	Zip	County	Cancer	Hazard	PM_25	Type	Count
1	95124	Santa Clara	19.120	0.080	0.000	Gas Dispensing Facility	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.

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