HAWTHORN SENIOR APARTMENTS
118 NORTH 5TH STREET
AIR QUALITY ASSESSMENT

San José, California

October 5, 2022

Prepared for:

Maria Kisyova
Associate Project Manager
David J Powers & Associates Inc.
1871 The Alameda Suite 200
San José, CA 95126

Prepared by:

Casey Divine
James Reyff
Jordyn Bauer

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

I&R Project#: 22-109

Introduction

This report addresses the potential air quality and community risk impacts associated with the construction of the proposed affordable senior housing development located at 118 North 15th Street in San José, California. Air quality impacts from this project would be associated with the demolition of the existing land use, construction of the new building and infrastructure, and operation of the project. Air pollutant emissions were predicted using appropriate computer models. In addition, the potential health risk impacts associated with construction and operation of the project, and the impact of existing toxic air contaminant (TAC) sources affecting the nearby and proposed sensitive receptors, were evaluated. The analysis was conducted following guidance provided by the Bay Area Air Quality Management District (BAAQMD).[1]

Project Description

The 1.11-acre project site is currently developed with a vacant surface parking lot. The project proposes to demolish the existing parking lot and construct a 118,687-square foot (sf) residential building with up to four stories and a total of 104 apartment units. The project would also include an enclosed parking garage with 48 parking spaces, including 10 spaces for electric vehicles (EV) and 33-EV ready spaces.

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

TACs are a broad class of compounds known to cause morbidity or mortality, often because they cause cancer. TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., diesel particulate matter [DPM] near a freeway). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, State, and federal level.

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

Sensitive Receptors

There are groups of people more affected by air pollution than others. CARB has identified the following persons who are most likely to be affected by air pollution: children under 16, people over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, and elementary schools. For cancer risk assessments, children are the most sensitive receptors, since they are more susceptible to cancer causing TACs. Residential locations are assumed to include infants and small children. The closest sensitive receptors to the project site are the adjacent single- and multi-family residences to the north of the site. Additional sensitive receptors are located at further distances to the east, and west of the site, and a hospital to the southeast. 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

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

fuel standards. However, California also has the ability to set motor vehicle emission standards and standards for fuel, as long as they are the same or more stringent than the nationwide standards.

In the past decade the EPA has established a number of emission standards for on- and non-road heavy-duty diesel engines used in trucks and other equipment. This was done in part because diesel engines are a significant source of NO_X and particulate matter ($PM_{2.5}$) and because the EPA has identified DPM as a probable carcinogen. Implementation of the heavy-duty diesel on-road vehicle standards and the non-road diesel engine standards are estimated to reduce particulate matter and NO_X emissions from diesel engines up to 95 percent in 2030 when the heavy-duty vehicle fleet is completely replaced with newer heavy-duty vehicles that comply with these emission standards.[3]

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

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

State Regulations

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

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

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

to meet similar standards. With this regulation, older, more polluting trucks would be removed from the roads sooner.

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

Bay Area Air Quality Management District (BAAQMD)

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

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

BAAQMD's Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposures to outdoor TACs in the Bay Area.[5] The program examines TAC emissions from point sources, area sources, and on-road and off-road mobile sources with an emphasis on diesel exhaust, which is a major contributor to airborne health risk in California. The CARE program is an on-going program that encourages community involvement and input. The technical analysis portion of the CARE program is being implemented in three phases that includes an assessment of the sources of TAC emissions, modeling and measurement 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 score at or above

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

the 70th percentile, or (ii) within 1,000 feet of any such census tract.[6] The BAAQMD has identified six communities as impacted: Concord, Richmond/San Pablo, Western Alameda County, San José, Redwood City/East Palo Alto, and Eastern San Francisco. The project site is located in the San José CARE area but not within an overburdened area as identified by CalEnviroScreen as the Project site is scored at the 52nd percentile.[7]

The BAAQMD California Environmental Quality Act (*CEQA) Air Quality Guidelines*[8] were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process consistent with CEQA requirements including thresholds of significance, mitigation measures, and background air quality information. They also include assessment methodologies for TACs, odors, and GHG emissions.

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.

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

[6] See BAAQMD: https://www.baaqmd.gov/~/media/dotgov/files/rules/reg-2-permits/2021-amendments/documents/20210722_01_appendixd_mapsofoverburdenedcommunities-pdf.pdf?la=en , accessed 10/1/2021.
[7] OEHAA, CalEnviroScreen 4.0 Indicator Maps https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40
[8] Bay Area Air Quality Management District, 2017. *CEQA Air Quality Guidelines*. May.

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

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

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

Applicable Goals – Toxic Air Contaminants

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

Applicable Policies – Toxic Air Contaminants

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

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

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

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

Actions – Toxic Air Contaminants

MS-11.6 Develop and adopt a comprehensive Community Risk Reduction Plan that includes: baseline inventory of toxic air contaminants (TACs) and particulate matter smaller than 2.5 microns (PM2.5), emissions from all sources, emissions reduction targets, and enforceable emission reduction strategies and performance measures. The Community Risk Reduction Plan will include enforcement and monitoring tools to ensure regular review of progress toward the emission reduction

targets, progress reporting to the public and responsible agencies, and periodic updates of the plan, as appropriate.

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

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

Applicable Goals – Construction Air Emissions

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

Applicable Policies – Construction Air Emissions

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

Applicable Actions – Construction Air Emissions

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

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

Table 1. BAAQMD CEQA Significance Thresholds

Criteria Air Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (lbs./day)	Average Daily Emissions (lbs./day)	Annual Average Emissions (tons/year)
ROG	54	54	10
NO_x	54	54	10
PM_{10}	82 (Exhaust)	82	15
$PM_{2.5}$	54 (Exhaust)	54	10
CO	Not Applicable	9.0 ppm (8-hour average) or 20.0 ppm (1-hour average)	
Fugitive Dust	Construction Dust Ordinance or other Best Management Practices	None	
Health Risks and Hazards	**Single Sources Within 1,000-foot Zone of Influence**	**Combined Sources (Cumulative from all sources within 1000-foot zone of influence)**	
Excess Cancer Risk	10 per one million	100 per one million	
Hazard Index	1.0	10.0	
Incremental annual $PM_{2.5}$	0.3 µg/m^3	0.8 µg/m^3	

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

Source: Bay Area Air Quality Management District, 2017

An area's compliance with national ambient air quality standards under the Clean Air Act is categorized as nonattainment, attainment (better than national standards), unclassifiable, or attainment/cannot be classified. The unclassified designation includes attainment areas that comply with federal standards, as well as areas for which monitoring data are lacking. Unclassified areas are treated as attainment areas for most regulatory purposes. Simple attainment designations generally are used only for areas that transition from nonattainment status to attainment status. Areas that have been reclassified from nonattainment to attainment of federal air quality standards are automatically considered maintenance areas, although this designation is seldom noted in status listings. The San Francisco Bay Area is designated as nonattainment for the federal 8-hour ozone standard and the 24-hour $PM_{2.5}$ standard. The San Francisco Bay Area is designated as attainment or unclassified for the other national ambient air quality standards.

With respect to the state ambient air quality standards, California classifies areas as attainment, nonattainment, nonattainment-transitional, or unclassified. The San Francisco Bay Area is designated as nonattainment for the state ozone, inhalable particulate matter (PM_{10}), and $PM_{2.5}$ standards and as attainment or unclassified for the other state ambient air quality standards. The predominant regulation that guides assessment of air quality impacts of federal actions is the General Conformity Rule, established under the Clean Air Act (Section 176(c)(4)). The General Conformity Rule ensures that the actions taken by federal agencies in nonattainment and maintenance areas do not interfere with a state's plans to meet national standards for air quality.

The project area is located within the San Francisco Bay Area Air Basin, which is designated as a nonattainment area for the federal 8-hour ozone standard and the federal $PM_{2.5}$ standard. The air basin is designated as a maintenance area with respect to the federal carbon monoxide (CO) standards.

In keeping with the General Conformity Rule process, this assessment applies the appropriate *de minimis* thresholds of the Rule as they apply to the San Francisco Bay Area Air Basin for ozone precursors, $PM_{2.5}$, and CO. The General Conformity *de minimis* thresholds for these pollutants are 100 tons per year for each pollutant or ozone precursor pollutant (i.e., NOx and ROG).

AIR QUALITY IMPACTS AND MITIGATION MEASURES

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

The Bay Area is considered a non-attainment area for ground-level O_3 and $PM_{2.5}$ under both the NAAQS and the CAAQS. The area is also considered non-attainment for PM_{10} under the CAAQS, but not the NAAQS. The area has attained both State and Federal ambient air quality standards for carbon monoxide. As part of an effort to attain and maintain ambient air quality standards for O_3, $PM_{2.5}$ and PM_{10}, the BAAQMD has established thresholds of significance for these air pollutants and their precursors. The O_3 precursor pollutant thresholds are for ROG and NOx, while PM_{10}, and $PM_{2.5}$ have specific thresholds. The thresholds apply to both construction period emissions and operational period emissions.

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, size, and anticipated construction schedule were input to CalEEMod. The CARB EMission FACtors 2021 (EMFAC2021) model was used to predict emissions from construction traffic, which includes worker travel, vendor trucks, and haul trucks.[9] The CalEEMod model output along with construction inputs are included in *Attachment 2* and EMFAC2021 vehicle emissions modeling outputs are included in *Attachment 3*.

CalEEMod Inputs

Land Use Inputs

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

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

Table 2. Summary of Project Land Use Inputs

Project Land Uses	Size	Units	Square Feet (sf)	Acreage
Congregate Care (Assisted Living)	103	Dwelling Unit	118,687	1.11
Enclosed Parking with Elevator	48	Parking Spaces	19,200	

Construction Inputs

CalEEMod computes annual emissions for construction that are based on the project type, size, and acreage. The model provides emission estimates for both on-site and off-site construction activities. On-site activities are primarily made up of construction equipment emissions, while off-site activity includes worker, hauling, and vendor traffic. The construction build-out scenario, including equipment list and schedule, were based on CalEEMod defaults for a project of this type and size that was reviewed and approved by the project applicant. The applicant also provided the demolition volume, soil hauling volume, and total number of concrete truck trips.

The project construction equipment worksheet included the schedule for each phase of construction (included in *Attachment 2*). Within each construction phase, the quantity of equipment to be used along with the average use hours per day and total number of workdays was based on CalEEMod defaults and approved by the applicant. The construction schedule assumed that the earliest possible start date would be January 2023 and the project would be built out over a period of approximately 14 months or 320 construction workdays. The earliest year of operation was assumed to be 2024.

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 demolition material to be exported, soil material imported and/or exported to the site, and the estimate of concrete 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 developed from the estimated and provided demolition and grading volumes, 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. The construction traffic information was combined with EMFAC2021 motor vehicle emissions factors. EMFAC2021 provides aggregate emission rates in grams per mile for each vehicle type. The vehicle mix for this study was based on CalEEMod defaults, where worker trips are assumed to be comprised of light-duty autos (EMFAC category LDA) and light duty trucks (EMFAC category LDT1 and LDT2). Vendor trips are comprised of delivery and large trucks (EMFAC category MHDT and HHDT) and haul trips, including concrete trucks, are comprised of large trucks (EMFAC category HHDT). Travel distances are based on CalEEMod default lengths, which are

10.8 miles for worker travel, 7.3 miles for vendor trips and 20 miles for hauling (demolition material export and soil import/export). Since CalEEMod does not address concrete or asphalt trucks, these were treated as vendor travel distances. Each trip was assumed to include an idle time of 5 minutes. Emissions associated with vehicle starts were also included. On-road emission rates from the year 2023 for Santa Clara County was used. Table 3 provides the traffic inputs that were combined with EMFAC2021 emission rates to compute vehicle emissions.

Table 3. Construction Traffic Data Used for EMFAC2021 Model Runs

CalEEMod Run/Land Uses and Construction Phase	Trips by Trip Type			Notes
	Total Worker[1]	Total Vendor[1]	Total Haul[2]	
Vehicle mix[1]	50% LDA 25% LDT1 25% LDT2	50% MHDT 50% HHDT	100% HHDT	
Trip Length (miles)	10.8	7.3	20.0 (Demo/Soil) 7.3 (Cement/Asphalt)	CalEEMod default distance with 5-min truck idle time.
Demolition	13	-	253	55,514-sf existing site demo. Default worker trips.
Site Preparation	8	-	-	CalEEMod default worker trips.
Grading	10	-	172	70-cy soil import, 1,303-cy soil export. CalEEMod default worker trips.
Trenching	5	-	-	CalEEMod default worker trips.
Building Construction	82	14	1,010	505 concrete truck round trips. CalEEMod default worker and vendor trips.
Architectural Coating	16	-	-	CalEEMod default worker trips.
Paving	13	-	-	CalEEMod default worker trips.

Notes: [1] Based on 2023 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. Concrete and asphalt trips estimated based on data provided by the applicant.

Summary of Computed Construction Emissions

Average daily emissions were annualized for each year of construction by dividing the annual construction emissions by the number of active workdays during that year. Table 4 shows the unmitigated 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 unmitigated annualized project construction emissions would not exceed the BAAQMD significance thresholds during any year of construction or the General Conformity (i.e., NEPA) *de minimis* thresholds.

Table 4. Construction Period Emissions - Unmitigated

Year	ROG	NOx	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
Construction Emissions Per Year (Tons)				
2023-2024*	1.12	2.44	0.12	0.11
NEPA De Minimis Thresholds (tons/year)	*100 tons*	*100 tons*	*100 tons*	*100 tons*
Exceed Threshold?	No	No	No	No
Average Daily Construction Emissions Per Year (pounds/day)				
2023-2024 (307 construction workdays)	7.00	15.26	0.75	0.67
BAAQMD Thresholds (pounds per day)	*54* lbs./day	*54* lbs./day	*82* lbs./day	*54* lbs./day
Exceed Threshold?	No	No	No	No
* Includes 2024 (only three months of construction)				

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. *Mitigation 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.

Operational Period Emissions

Operational air emissions from the project would be generated primarily from autos driven by future residents and employees. Evaporative ROG emissions from architectural coatings and maintenance products (classified as consumer products) are also associated with these types of projects. CalEEMod was used to estimate emissions from operation of the proposed project assuming full build-out.

CalEEMod Inputs

Land Uses

The project land uses were input to CalEEMod as described above for the construction period modeling.

Model Year

Emissions associated with vehicle travel depend on the year of analysis because emission control technology requirements are phased-in over time. Therefore, the earlier the year analyzed in the model, the higher the emission rates utilized by CalEEMod. The earliest year of full operation would be 2024 if construction begins in 2023. Emissions associated with build-out later than 2024 would be lower.

Traffic Information

CalEEMod allows the user to enter specific vehicle trip generation rates. Therefore, the project-

specific daily trips were provided by the traffic consultant was entered into the model.[10] The project would produce approximately 754 daily trips. The daily trip generation was calculated using the project's daily trips and the size of the project. The Saturday and Sunday trip rates were derived by multiplying the ratio of the CalEEMod default rates for Saturday and Sunday trips to the default weekday rate with the project-specific daily weekday trip rate. The default trip lengths and trip types specified by CalEEMod were used.

EMFAC2021 Adjustment

The vehicle emission factors and fleet mix used in CalEEMod are based on EMFAC2017, which is an older CARB emission inventory for on-road mobile sources. Since the release of CalEEMod Version 2020.4.0, new emission factors have been produced by CARB. EMFAC2021 became available for use in January 2021. It includes the latest data on California's car and truck fleets and travel activity. The CalEEMod default vehicle emission factors and fleet mix were updated using the emission rates and fleet mix from EMFAC2021. On road emission rates from 2024 Santa Clara County were used (See *Attachment 3*). More details about the updates in emissions calculation methodologies and data are available in the EMFAC2021 Technical Support Document.[11]

Energy

CalEEMod defaults for energy use were used, which include the 2019 Title 24 Building Standards. GHG emissions modeling includes those indirect emissions from electricity consumption. The electricity produced emission rate was modified in CalEEMod. An emission factor of 178 pounds of CO_2 per megawatt of electricity produced was entered into CalEEMod, which is based on San Jose Clean Energy's (SJCE) 2020 emissions rate.[12] It should be noted that per Climate Smart San Jose and San Jose's Greenhouse Gas Reduction Strategy, SJCE's goal is to provide 100-percent carbon-free electricity prior to 2030.[13]

The City of San José passed an ordinance in December 2020 that prohibits the use of natural gas infrastructure in new residential, office, and most retail-type buildings.[14] This ordinance applies to any new construction starting August 1, 2021. Natural gas use for the residential land use was set to zero and reassigned to electricity use in CalEEMod.

Other Inputs

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

[10] Email correspondence with Maria Kisyova, Associate Project Manager, David J. Powers & Associates, Inc. Received August 18, 2022. Attachment: *RE: NEPA Housing Project - Hawthorn Senior Apartments.*
[11] See CARB 2021: https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-modeling-tools-emfac
[12] San Jose Clean Energy Website, Standard GreenSource service. Web: https://sanjosecleanenergy.org/commercial-rates/
[13] City of San José, 2020. "2030 Greenhouse Gas Reduction Strategy", August. Web: https://www.sanjoseca.gov/home/showpublisheddocument/63667/637347412207870000
[14] City of San José, 2020. "Expand Natural Gas Ban", December. Web: https://www.sanjoseca.gov/Home/Components/News/News/2210/4699

represent City wastewater treatment plant conditions. The project site would not send wastewater to on-site septic tanks or facultative lagoons.

Summary of Computed Operational Emissions

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

Table 5. Operational Period Emissions

Scenario	ROG	NOx	PM_{10}	$PM_{2.5}$
2024 Annual Project Operational Emissions (*tons/year*)	1.06	0.36	0.63	0.16
BAAQMD Thresholds (tons /year)	*10 tons*	*10 tons*	*15 tons*	*10 tons*
NEPA De Minimis Thresholds (tons/year)	*100 tons*	*100 tons*	*100 tons*	*100 tons*
Exceed Threshold?	*No*	*No*	*No*	*No*
2024 Daily Project Operational Emissions (*pounds/day*)[1]	5.81	1.96	3.44	0.89
BAAQMD Thresholds (pounds/day)	*54* lbs.	*54* lbs.	*82* lbs.	*54* lbs.
Exceed Threshold?	*No*	*No*	*No*	*No*
Notes: [1]Assumes 365-day operation.				

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

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

Project construction activity would generate dust and equipment exhaust that would affect nearby sensitive receptors. The project would not include the installation of any stationary TAC emissions sources (i.e., generators) but would generate some traffic consisting of mostly light-duty gasoline-powered vehicles, which would produce TAC and air pollutant emissions.

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

Community Risk Methodology for Construction and Operation

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

traffic from the project. To evaluate the increased cancer risks from the project, a 30-year exposure period was used, per BAAQMD guidance,[15] with the sensitive receptors being exposed to both project construction and operation emissions during this timeframe.

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

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

Modeled Sensitive Receptors

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

Community Health Risk from Project Construction

Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, specifically DPM, 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 $PM_{2.5}$. DPM poses both a potential health and nuisance impact to nearby receptors. A health risk assessment of the project construction activities was conducted that evaluated potential health effects to nearby sensitive receptors from construction emissions of DPM and $PM_{2.5}$.[16] This assessment included dispersion modeling to predict the offsite concentrations resulting from project construction, so that lifetime cancer risks and non-cancer health effects could be evaluated.

Construction Emissions

The CalEEMod and EMFAC2021 models provided total annual PM_{10} exhaust emissions (assumed to be DPM) for the off-road construction equipment and for exhaust emissions from on-road vehicles, with total DPM emissions from all construction stages estimated to be 0.11 tons (222 pounds). The on-road emissions are a result of haul truck travel, worker travel, and vendor deliveries during construction. A trip length of half a mile was used to represent vehicle travel

[15] BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*. December 2016.
[16] DPM is identified by California as a toxic air contaminant due to the potential to cause cancer.

while at or near the construction site. It was assumed that these emissions from on-road vehicles traveling at or near the site would occur at the construction site. Fugitive $PM_{2.5}$ dust emissions were calculated by CalEEMod and EMFAC2021 to be 0.09 tons (179 pounds) for the overall construction period.

Dispersion Modeling

The U.S. EPA AERMOD dispersion model was used to predict DPM and $PM_{2.5}$ concentrations at sensitive receptors (i.e., residences) in the vicinity of the project construction area. The AERMOD dispersion model is a BAAQMD-recommended model for use in modeling analysis of these types of emission activities for CEQA projects.[17,18] 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.[19] The release height incorporates both the physical release height from the construction equipment (i.e., the height of the exhaust pipe) and plume rise after it leaves the exhaust pipe. Plume rise is due to both the high temperature of the exhaust and the high velocity of the exhaust gas. It should be noted that when modeling an area source, plume rise is not calculated by the AERMOD dispersion model as it would be for a point source (exhaust stack). Therefore, the release height from an area source used to represent emissions from sources with plume rise, such as construction equipment, should be based on the height the exhaust plume is expected to achieve, not just the height of the top of the exhaust pipe. Emissions from vehicle travel on- and off-site were distributed among the exhaust emission area sources throughout the site.

For modeling fugitive $PM_{2.5}$ emissions, a near-ground level release height of 7 feet (2 meters) was used for the area source. Fugitive dust emissions at construction sites come from a variety of sources, including truck and equipment travel, grading activities, truck loading (with loaders) and unloading (rear or bottom dumping), loaders and excavators moving and transferring soil and other materials, etc. All of these activities result in fugitive dust emissions at various heights at the point(s) of generation. Once generated, the dust plume will tend to rise as it moves downwind across the site and exit the site at a higher elevation than when it was generated. For all these reasons, a 7-foot release height was used as the average release height across the construction site. Emissions from the construction equipment and on-road vehicle travel were distributed throughout the modeled area sources. Figure 1 shows the project construction site and receptors.

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

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

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

AERMOD Inputs and Meteorological Data

The modeling used a five-year meteorological data set (2013-2017) from the San José Airport prepared for use with the AERMOD model by the BAAQMD. Construction emissions were modeled as occurring daily between 8:00 a.m. to 5:00 p.m., when the majority of construction activity would occur. Annual DPM and $PM_{2.5}$ concentrations from construction activities during the 2023-2024 period were calculated using the model. DPM and $PM_{2.5}$ concentrations were calculated at nearby sensitive 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 floors of sensitive receptors of nearby residents.[20]

Summary of Construction Community Risk Impacts

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

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

The maximum modeled annual DPM and $PM_{2.5}$ concentrations were identified at nearby sensitive receptors to find the maximally exposed individuals (MEI). Results of this assessment indicated that the construction MEI was located on the first floor (5 feet above ground) of a single-family residence to the east of the project. The location of the MEI and nearby sensitive receptors are shown in Figure 1. Table 6 summarizes the maximum cancer risks, $PM_{2.5}$ concentrations, and health hazard indexes for project related construction activities. *Attachment 4* to this report includes the emission calculations used for the construction modeling and the cancer risk calculations.

Community Risks from Project Operation

Stationary equipment that could emit substantial TACs (e.g., emergency generators) are not planned for this project. Diesel powered vehicles are the primary concern with local traffic-generated TAC impacts. Per BAAQMD recommended risks and methodology, a road with less than 10,000 total vehicle per day is considered a low-impact source of TACs.[21] This project would

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

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

generate 754 daily trips.[22] The project traffic would be dispersed on the roadway system with a majority of the trips being from light-duty vehicles (i.e., passenger automobiles), which is a fraction of 10,000 daily vehicles. In addition, projects with the potential to cause or contribute to increased cancer risk from traffic include those that have attract high numbers of diesel-powered on road trucks or use off-road diesel equipment on site, such as a warehouse distribution center, a quarry, or a manufacturing facility, may potentially expose existing or future planned receptors to substantial cancer risk levels and/or health hazards. This is not a project of concern for non-BAAQMD permitted mobile sources. Therefore, emissions from project traffic are considered negligible and not included within this analysis.

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

For this project, the sensitive receptor identified in Figure 1 as the construction MEI is also the project MEI. At this location, the MEI would be exposed to emissions from 15 months of construction that involves diesel-powered equipment usage. The annual $PM_{2.5}$ concentration and HI values are based on an annual maximum risk for the entirety of the project. As shown in Table 6, the unmitigated maximum cancer risks and annual $PM_{2.5}$ concentration from construction activities at the MEI location would exceed the BAAQMD single-source significance thresholds. However, with the incorporation of the *Mitigation Measure AQ-1 and AQ-2*, the mitigated risk and hazard values would reduce emissions such that cancer risk and $PM_{2.5}$ concentration caused by construction would no longer exceed the BAAQMD single-source significance thresholds. The unmitigated annual HI at the MEI does not exceed its respective BAAQMD single-source significance threshold.

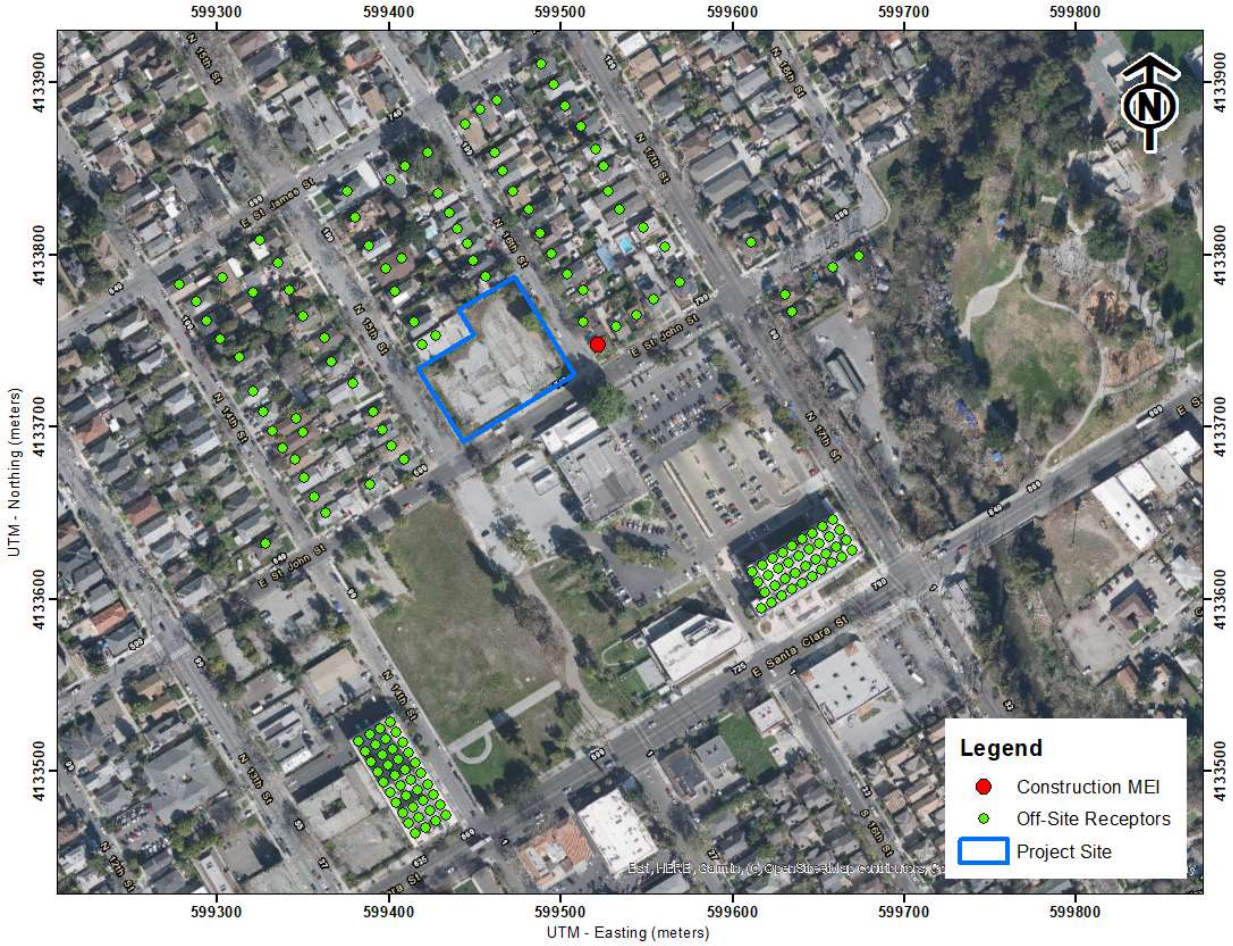
Table 6. Construction Risk Impacts at the Off-Site Receptors

Source		Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Project Construction	Unmitigated	**57.93 (infant)**	**0.76**	0.07
	Mitigated*	6.40 (infant)	0.23	0.01
BAAQMD Single-Source Threshold		***10***	***0.3***	***1.0***
Exceed Threshold?	Unmitigated	***Yes***	***Yes***	*No*
	Mitigated*	*No*	*No*	*No*

* Construction equipment with Tier 4 interim engines and BMPs as Mitigation Measures.

[22] Email correspondence with Maria Kisyova, Associate Project Manager, David J. Powers & Associates, Inc. Received August 18, 2022. Attachment: *RE: NEPA Housing Project - Hawthorn Senior Apartments.*

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

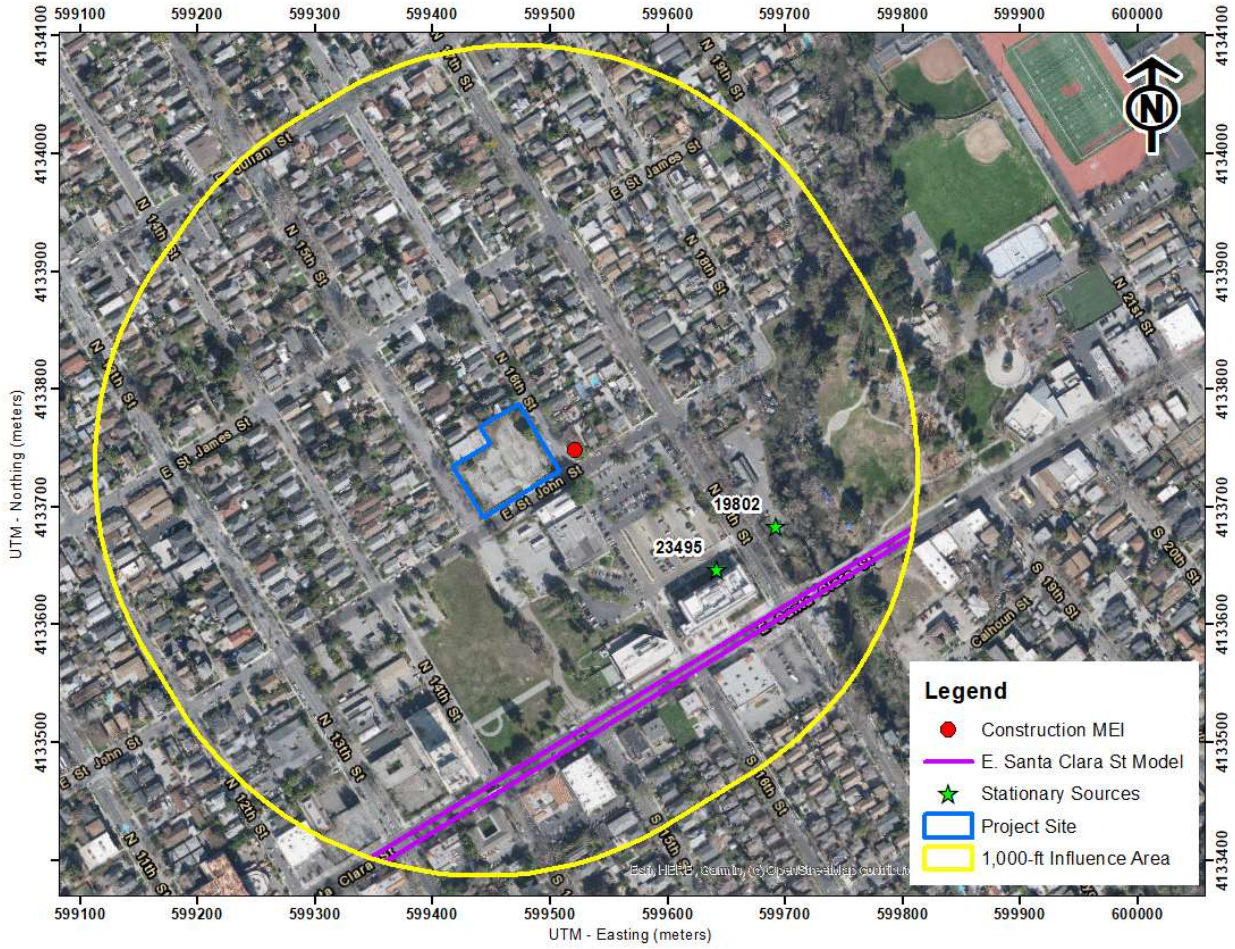


Cumulative Community Risks of all TAC Sources at the Off-Site Project MEI

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

A review of the project area based on provided traffic information indicated that East Santa Clara Street would have average daily traffic (ADT) exceeding 10,000 vehicles. Other nearby streets would have less than 10,000 vehicles per day. A review of BAAQMD's stationary source map website identified two stationary sources with the potential to affect the project MEI. Figure 2 shows the location of the sources affecting the MEI. Community risk impacts from these sources upon the MEI are reported in Table 7. Details of the modeling and community risk calculations are included in *Attachment 5*.

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



Local Roadways – East Santa Clara Street

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

Traffic Emissions Modeling

This analysis involved the development of DPM, organic TACs, and $PM_{2.5}$ emissions for traffic on East Santa Clara Street using the Caltrans version of the EMFAC2017 emissions model, known as CT-EMFAC2017. CT-EMFAC2017 provides emission factors for mobile source criteria pollutants and TACs, including DPM.[23] Emission processes modeled include running exhaust for DPM, $PM_{2.5}$ and total organic compounds (e.g., TOG), running evaporative losses for TOG, and

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

tire and brake wear and fugitive road dust for $PM_{2.5}$. All $PM_{2.5}$ emissions from all vehicles were used, rather than just the $PM_{2.5}$ fraction from diesel powered vehicles, because all vehicle types (i.e., gasoline and diesel powered) produce $PM_{2.5}$. Additionally, $PM_{2.5}$ emissions from vehicle tire and brake wear and from re-entrained roadway dust were included. DPM emissions are projected to decrease in the future and are reflected in the CT-EMFAC2017 emissions data. Inputs to the model include region (i.e., Santa Clara County), type of road (i.e., major/collector), truck percentage for non-state highways in Santa Clara County (3.51 percent),[24] traffic mix assigned by CT-EMFAC2017 for the county, year of analysis (2023 – construction start year), and season (annual).

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

The ADT on East Santa Clara Street was based on the ADT data for that road near the project site available on the City's Traffic Volume geographic information system (GIS) website.[25] The calculated ADT on East Santa Clara Street was 17,961 vehicles. Average hourly traffic distributions for Santa Clara County roadways were developed using the EMFAC model,[26] which were then applied to the ADT volumes to obtain estimated hourly traffic volumes and emissions for the roadway. For all hours of the day, the average speed of 20 mph on the roadway was assumed for all vehicles, 5 mph below the posted speed limit on East Santa Clara Street to account for commute congestion and the amount of access in the area.

Dispersion Modeling

Dispersion modeling of TAC and $PM_{2.5}$ emissions was conducted using the EPA AERMOD air quality dispersion model, which is recommended by the BAAQMD for this type of analysis.[27] TAC and $PM_{2.5}$ emissions from traffic on East Santa Clara Street within about 1,000 feet of the project site was evaluated. Vehicle traffic emissions were modeled in AERMOD using a series of volume sources along a line (line volume sources), with line segments used to represent the opposing travel lanes on the roadway. The same meteorological data used in the construction dispersion modeling were used in the roadway modeling. Other inputs to the model included road

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

[25] City of San Jose, Traffic Volume GIS Site, 2022. Web: *https://csj.maps.arcgis.com/apps/webappviewer/index.html?id=067fbd3db8dd44f8a60f48148331b3d7*

[26] 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.

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

geometry, hourly traffic emissions, and receptor locations and heights. Annual TAC and $PM_{2.5}$ concentrations at the project MEI for 2023 from traffic on the roadway were calculated using receptor heights of 5 feet (1.5 meters) to represent the breathing heights on the first floor of the nearby residences.

Computed Cancer and Non-Cancer Health Impacts

The cancer risk, $PM_{2.5}$ concentration, and HI impacts from East Santa Clara Street on the project MEI are shown in Table 7. Figure 2 shows the roadway links used for the modeling. Details of the emission calculations, dispersion modeling, and cancer risk calculations for the receptors with the maximum cancer risk from the roadway's traffic are provided in *Attachment 5*.

BAAQMD Permitted Stationary Sources

Permitted stationary sources of air pollution near the project site were identified using BAAQMD's *Permitted Stationary Sources 2020* GIS map website.[28] This mapping tool identifies the location of nearby stationary sources and their estimated risk and hazard impacts, including emissions and adjustments to account for new OEHHA guidance. Two sources were identified using this tool, with both sources being diesel generator. The BAAQMD GIS website provided screening risks and hazards for these sources; therefore, a stationary source information request was not required to be submitted to BAAQMD.

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

Summary of Cumulative Risks at the Project MEI

Table 7 reports both the project and cumulative community risk impacts at the sensitive receptors most affected by project construction (i.e., the MEI). The project would have an exceedance with respect to community risk caused by project construction since the unmitigated maximum cancer risk and annual $PM_{2.5}$ concentration exceeds the BAAQMD single-source thresholds. With the implementation of *Mitigation Measure AQ-1 and AQ-2*, the project's cancer risk and $PM_{2.5}$ concentration would be lowered to a level below the single-source thresholds and would not exceed the cumulative thresholds. The annual HI, unmitigated and mitigated, does not exceed the single-source or cumulative-source thresholds.

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

Table 7. Cumulative Community Risk Impacts at the Project MEI

Source		Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Project Impacts				
Project Construction	Unmitigated	**57.93 (infant)**	**0.76**	0.07
	Mitigated	6.40 (infant)	0.23	0.01
BAAQMD Single-Source Threshold		***10***	***0.3***	***1.0***
Exceed Threshold?	Unmitigated	***Yes***	***Yes***	*No*
	Mitigated	*No*	*No*	*No*
Cumulative Impacts				
East Santa Clara, ADT 17,961		0.51	0.03	<0.01
San Jose Water Company (Facility ID #19802, Generator), MEI at 570 feet		9.14	0.02	<0.01
Downtown San Jose - Valley Health Clinic (Facility ID #11952, Generator), MEI at 490 feet		0.11	<0.01	<0.01
Combined Sources	Unmitigated	67.69	<0.82*	<0.11
	Mitigated	16.16	<0.29	<0.11
BAAQMD Cumulative Source Threshold		***100***	***0.8***	***10.0***
Exceed Threshold?	Unmitigated	*No*	*No*	*No*
	Mitigated	*No*	*No*	*No*

* Unmitigated $PM_{2.5}$ concentration is at but not exceeding the cumulative threshold.

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

Implement a feasible plan to reduce DPM emissions by 83 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 an 83 percent reduction in particulate matter exhaust in comparison to uncontrolled equipment; alternatively (or in combination).

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 83 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 engines 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-1 and AQ-2

CalEEMod was used to compute emissions associated with this mitigation measure assuming that all equipment met U.S. EPA Tier 4 Interim engine standards and BAAQMD best management practices for construction were included. With these implemented, the project's construction cancer risk levels (assuming infant exposure) would be reduced by 89 percent to 6.40 chances per million and the $PM_{2.5}$ concentration would be reduced by 70 percent to 0.23 $\mu g/m^3$. As a result, the project's construction risks and hazards would be reduced below the BAAQMD single-source thresholds.

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

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

In addition to evaluating health impact from project construction, a health risk assessment was completed to assess the impact that the existing TAC sources would have on the new proposed sensitive receptors (residents) that the project would introduce. The same TAC sources identified above were used in this health risk assessment.[29] Figure 3 shows the on-site sensitive receptors in relation to the nearby TAC sources. All on-site community task results are listed in Table 8. *Attachment 5* includes the dispersion modeling and risk calculations for TAC source impacts upon the proposed on-site sensitive receptors.

Local Roadways – East Santa Clara Street

The roadway analysis for the project residents was conducted in the same manner as described above for the off-site MEI. However, year 2024 (operational year) was conservatively assumed as being representative of future conditions, instead of 2023 (construction year). An analysis based on 2024 resulted in an increased ADT on East Santa Clara Street of 18,129 vehicles. On-site receptors were placed throughout the project site with a spacing of 7 meters (23 feet). Roadway impacts were modeled at receptor heights of 5 feet (1.5 meters) and 22 feet (6.7 meters) representing sensitive receptors on the first and second floors of the proposed building. The portion of the roadway 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 adults only and were assumed to be in the new apartments for 24 hours per day for 350 days per year. The highest impacts from East Santa Clara Street occurred at a receptor on the first floor along the southern boundary of the project site. Cancer risks associated with the roadway 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 8. Details of the emission calculations, dispersion modeling, and cancer risk calculations are contained in *Attachment 5.*

[29] 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.

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 8 includes the health risk assessment results from the stationary sources.

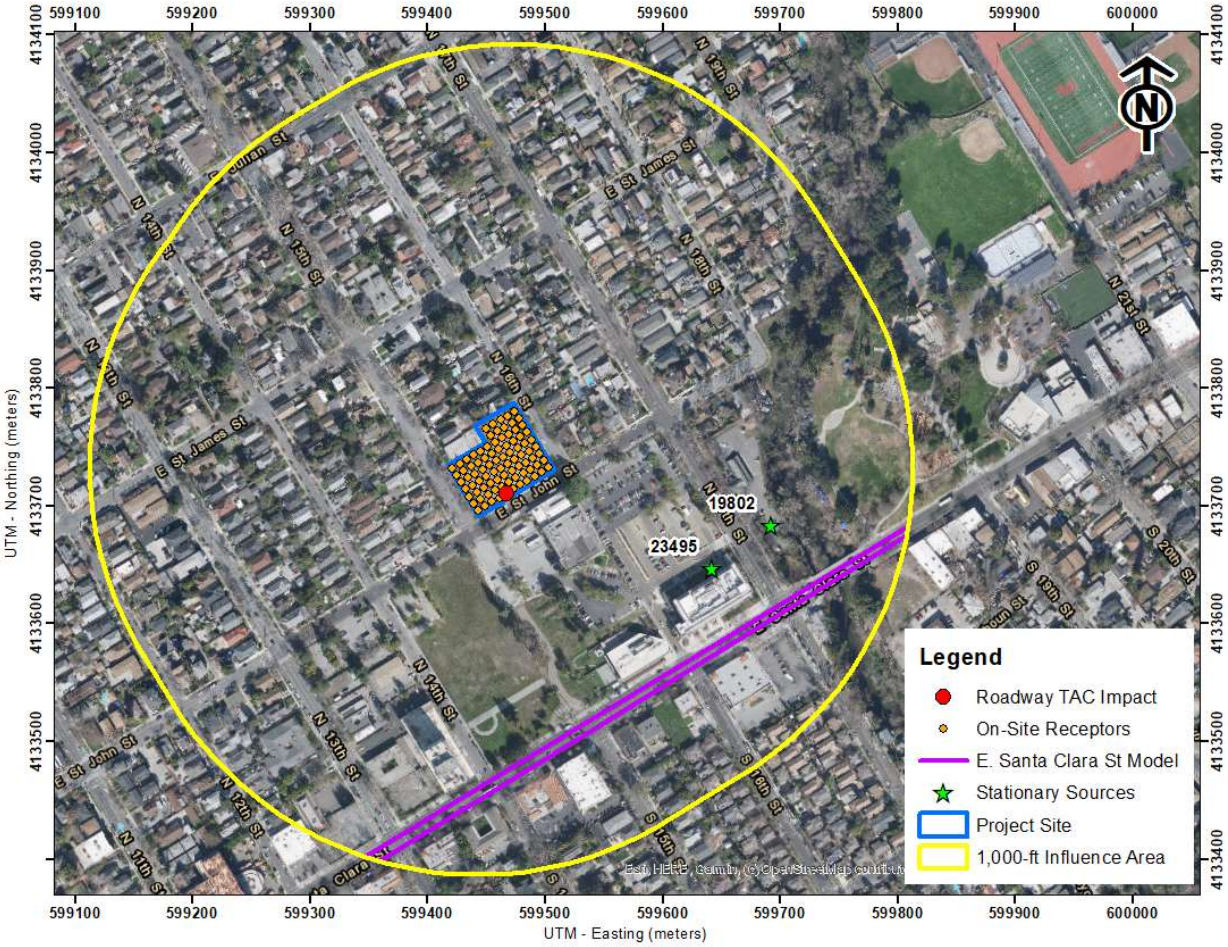
Summary of Cumulative Community Risks at the Project Site

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

Table 8. Impacts from Combined Sources to Project Site Receptors

Source	Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
East Santa Clara, ADT 18,129	0.06	0.03	<0.01
San Jose Water Company (Facility ID #19802, Generator), MEI at 620 feet	8.13	0.02	<0.01
Downtown San Jose - Valley Health Clinic (Facility ID #11952, Generator), MEI at 515 feet	0.09	<0.01	<0.01
BAAQMD Single-Source Threshold	***10***	***0.3***	***1.0***
Exceed Threshold?	*No*	*No*	*No*
Cumulative Total	8.28	<0.06	<0.03
BAAQMD Cumulative Source Threshold	***100***	***0.8***	***10.0***
Exceed Threshold?	*No*	*No*	*No*

Figure 3. Locations of Project Site, On-Site Residential Receptors, Roadway Models, Stationary Sources, and Maximum TAC Impacts



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 and operational criteria air pollutant emissions. Also included are any modeling assumptions.

Attachment 3 includes the EMFAC2021 emissions modeling.

Attachment 4 is the construction health risk assessment. AERMOD dispersion modeling files for these assessments, 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 MEI and proposed sensitive 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.[30] These guidelines incorporate substantial changes designed to provide for enhanced protection of children, as required by State law, compared to previous published risk assessment guidelines. CARB has provided additional guidance on implementing OEHHA's recommended methods.[31] This HRA used the 2015 OEHHA risk assessment guidelines and CARB guidance. The BAAQMD has adopted recommended procedures for applying the newest OEHHA guidelines as part of Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants.[32] Exposure parameters from the OEHHA guidelines and the recent BAAQMD HRA Guidelines were used in this evaluation.

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

[30] OEHHA, 2015. *Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. Office of Environmental Health Hazard Assessment. February.
[31] CARB, 2015. *Risk Management Guidance for Stationary Sources of Air Toxics*. July 23.
[32] BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*. December 2016.

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

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

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

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

Where:

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

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

Where:

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

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

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

Parameter	*Exposure Type* →	Infant		Child	Adult
	Age Range →	3rd Trimester	0<2	2 < 16	16 - 30
DPM Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$		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*

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

Construction Criteria Air Pollutants						
Unmitigated	ROG	NOX	PM10 Exhaust	PM2.5 Exhaust	**CO2e**	
Year	Tons				MT	
Construction Equipment						
2023-2024	1.09	2.32	0.11	0.10	375.60	
EMFAC						
2023-2024	0.0323	0.1268	0.01	0.004	132.05	
Total Construction Emissions by Year						
2023	1.12	2.44	0.12	0.11	507.66	
	Total Construction Emissions					
Tons	1.12	2.44	0.12	0.11	507.66	
Pounds/Workdays	*Average Daily Emissions*				Workdays	
2023-2024	7.00	15.26	0.75	0.67		**320**
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**		
	Total Construction Emissions					
Pounds	7.00	15.26	0.75	0.67	0.00	
Average	7.00	15.26	0.75	0.67	0.00	320.00
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**		

Operational Criteria Air Pollutants						
Unmitigated	ROG	NOX	Total PM10	Total PM2.5		
Year 2024	Tons					
Total	1.06	0.36	0.63	0.16		
	Existing Use Emissions					
	Net Annual Operational Emissions					
Tons/year	1.06	0.36	0.63	0.16		
Threshold - Tons/year	**10.0**	**10.0**	**15.0**	**10.0**		
	Average Daily Emissions					
Pounds Per Day	5.81	1.96	3.44	0.89		
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**		

Category	**CO2e**			
	Project	Existing	Project 2030	Existing
Area	1.28			
Energy	61.71			
Mobile	633.29			
Waste	47.27			
Water	8.29			
TOTAL	751.83	0.00	0.00	0.00
Net GHG Emissions		751.83		0.00
Service Population	103.00			
Per Capita Emissions		7.30		0.00

	0	units
CA DOF 2021 =	0	pphh

Air Quality/Noise Construction Information Data Request

Project Name: Hawthorn Senior Apts

Complete ALL Portions in Yellow

See Equipment Type TAB for type, horsepower and load factor

Project Size 103 Dwelling Units _____ total project acres disturbed

118687 s.f. assisted living

_____ s.f. retail

_____ s.f. office/commercial

_____ s.f. other, specify:

_____ s.f. parking garage 48 spaces

_____ s.f. parking lot _____ spaces

Construction Days _____ to _____

Construction Hours _____ am to _____ pm

Pile Driving? Y/N? NO

Project include on-site GENERATOR OR FIRE PUMP during project OPERATION (not construction)? Y/N? _Y___

IF YES (if BOTH separate values) --> Firepump

Kilowatts/Horsepower: _____

Fuel Type: _____

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

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:**	**1/2/2023**	**Total phase:**	**20**			**Overall Import/Export Volumes**
		End Date:	**1/27/2023**					
1	Concrete/Industrial Saws	81	0.73	8	20	8	9461	**Demolition Volume**
3	Excavators	158	0.38	8	20	8	28819	Square footage of buildings to be demolished
2	Rubber-Tired Dozers	247	0.4	8	20	8	31616	(*or* total tons to be hauled)
	Tractors/Loaders/Backhoes	97	0.37			0	0	**55,514** square feet of Site Demo, No Bldgs. *or*
	Other Equipment?							**?** Hauling volume (tons)
								Any pavement demolished and hauled? **? tons . NOT APPLICABLE**
	Site Preparation	**Start Date:**	**1/28/2023**	**Total phase:**	**10**			
		End Date:	**2/10/2023**					
	Graders	187	0.41			0	0	
3	Rubber Tired Dozers	247	0.4	8	10	8	23712	
4	Tractors/Loaders/Backhoes	97	0.37	8	10	8	11485	
	Other Equipment?							
	Grading / Excavation	**Start Date:**	**2/11/2023**	**Total phase:**	**20**			
		End Date:	**3/10/2023**					**Soil Hauling Volume**
1	Excavators	158	0.38	8	20	8	9606	Export volume = **1,303** cubic yards?
1	Graders	187	0.41	8	20	8	12267	Import volume = **70** cubic yards?
1	Rubber Tired Dozers	247	0.4	8	20	8	15808	
	Concrete/Industrial Saws	81	0.73			0	0	
3	Tractors/Loaders/Backhoes	97	0.37	8	20	8	17227	
	Other Equipment?							
	Trenching/Foundation	**Start Date:**	**2/11/2023**	**Total phase:**	**20**			
		End Date:	**3/10/2023**					
1	Tractor/Loader/Backhoe	97	0.37	8	20	8	5742	
1	Excavators	158	0.38	8	20	8	9606	
	Other Equipment?							
	Building - Exterior	**Start Date:**	**3/11/2023**	**Total phase:**	**230**			**Cement Trucks? 505 Total Round-Trips**
		End Date:	**1/26/2024**					
1	Cranes	231	0.29	7	230	7	107854	Electric? (Y/N) YES Otherwise assumed diesel
3	Forklifts	89	0.2	8	230	8	98256	Liquid Propane (LPG)? (Y/N) Otherwise Assumed diesel
1	Generator Sets	84	0.74	8	230	8	114374	Or temporary line power? (Y/N) YES
3	Tractors/Loaders/Backhoes	97	0.37	7	230	7	173349	
1	Welders	46	0.45	8	230	8	38088	
	Other Equipment?							
	Building - Interior/Architectural Coating	**Start Date:**	**1/27/2024**	**Total phase:**	**20**			
		End Date:	**2/23/2024**					
1	Air Compressors	78	0.48	6	20	6	4493	
	Aerial Lift	62	0.31			0	0	
	Other Equipment?							
	Paving	**Start Date:**	**2/24/2024**	**Total phase:**	**20**			
		Start Date:	**3/22/2024**					
	Cement and Mortar Mixers	9	0.56			0	0	
2	Pavers	130	0.42	8	20	8	17472	**Asphalt? ___ cubic yards or ____ round trips?**
2	Paving Equipment	132	0.36	8	20	8	15206	
2	Rollers	80	0.38	8	20	8	9728	
	Tractors/Loaders/Backhoes	97	0.37			0	0	
	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

Traffic Consultant Trip Gen						CalEEMod Default		
Land Use		**Size**	**Daily Trips**	**New Trips**	**Weekday Trip Gen**	**Weekday**	**Sat**	**Sun**
Congregate Care	DU	103	754	754	***7.32***	2.6	2.93	3.15
						Rev	***8.25***	***8.87***

Trip generation

- Using ITE land use code 220 (low-rise multifamily housing), the project will have:
  - Daily rate = 754
  - AM peak hour = 47
  - PM peak hour = 102

Hawthorn Senior Apts, Santa Clara - Santa Clara County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Hawthorn Senior Apts, San Jose

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	48.00	Space	0.00	19,200.00	0
Congregate Care (Assisted Living)	103.00	Dwelling Unit	1.11	118,687.00	295

1.2 Other Project Characteristics

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

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SJCE 2020 rate = 178

Land Use - Total acrage and square footage - provided by construction worksheet.

Construction Phase - Provided in construction schedule sheet.

Off-road Equipment -

Off-road Equipment - Provided in construction equipment sheet.

Off-road Equipment - Provided in construction equipment sheet.

Off-road Equipment - Provided in construction equipment sheet.

Off-road Equipment - Provided in construction equipment sheet.

Off-road Equipment - Provided in construction equipment sheet.

Off-road Equipment - Provided in construction equipment sheet.

Trips and VMT - EMFAC2021 adjustment 0 trips, building const = 505 cement truck round trips.

Demolition - Existing building demo = 55,514-sqft.

Grading - Grading = 1,303-cy exported, 70-cy imported.

Vehicle Trips - Provided trip gen

Vehicle Emission Factors - EMFAC2021 vehicle emissions factors Santa Clara County 2024.

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves - No hearths.

Energy Use - San Jose Reach Code - no natural gas - convert to electricity.

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

Construction Off-road Equipment Mitigation - BMPs, Tier 4 Interim Mitgiation

Fleet Mix - EMFAC2021 fleet mix Santa Clara County 2024.

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	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	200.00	230.00
tblConstructionPhase	NumDays	4.00	20.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	2.00	10.00
tblEnergyUse	NT24E	3,054.10	3,978.74
tblEnergyUse	NT24NG	3,155.00	0.00
tblEnergyUse	T24E	70.89	1,602.68
tblEnergyUse	T24NG	5,226.68	0.00
tblFireplaces	FireplaceDayYear	11.14	0.00
tblFireplaces	FireplaceHourDay	3.50	0.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	15.45	0.00
tblFireplaces	NumberNoFireplace	4.12	0.00
tblFireplaces	NumberWood	17.51	0.00
tblFleetMix	HHD	6.4040e-003	7.3070e-003
tblFleetMix	HHD	6.4040e-003	7.3070e-003
tblFleetMix	LDA	0.57	0.53
tblFleetMix	LDA	0.57	0.53
tblFleetMix	LDT1	0.06	0.04
tblFleetMix	LDT1	0.06	0.04
tblFleetMix	LDT2	0.19	0.23
tblFleetMix	LDT2	0.19	0.23
tblFleetMix	LHD1	0.02	0.02
tblFleetMix	LHD1	0.02	0.02
tblFleetMix	LHD2	5.1020e-003	5.6410e-003
tblFleetMix	LHD2	5.1020e-003	5.6410e-003
tblFleetMix	MCY	0.02	0.02
tblFleetMix	MCY	0.02	0.02
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MH	2.7760e-003	2.6660e-003
tblFleetMix	MH	2.7760e-003	2.6660e-003
tblFleetMix	MHD	7.9340e-003	9.3580e-003
tblFleetMix	MHD	7.9340e-003	9.3580e-003
tblFleetMix	OBUS	9.0000e-004	1.0550e-003
tblFleetMix	OBUS	9.0000e-004	1.0550e-003
tblFleetMix	SBUS	9.1400e-004	6.8200e-004
tblFleetMix	SBUS	9.1400e-004	6.8200e-004
tblFleetMix	UBUS	3.8000e-004	4.1700e-004
tblFleetMix	UBUS	3.8000e-004	4.1700e-004
tblGrading	MaterialExported	0.00	1,303.00
tblGrading	MaterialImported	0.00	70.00
tblLandUse	LandUseSquareFeet	103,000.00	118,687.00

Hawthorn Senior Apts, Santa Clara - Santa Clara County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblLandUse	LotAcreage	0.43	0.00
tblLandUse	LotAcreage	6.44	1.11
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	6.00	7.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	7.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	807.98	178
tblTripsAndVMT	HaulingTripNumber	253.00	0.00
tblTripsAndVMT	HaulingTripNumber	172.00	0.00
tblTripsAndVMT	VendorTripNumber	14.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	0.00
tblTripsAndVMT	WorkerTripNumber	82.00	0.00
tblTripsAndVMT	WorkerTripNumber	16.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblVehicleEF	HHD	0.02	0.23
tblVehicleEF	HHD	0.05	0.12
tblVehicleEF	HHD	6.33	5.20
tblVehicleEF	HHD	0.40	0.77
tblVehicleEF	HHD	5.9420e-003	6.2600e-004
tblVehicleEF	HHD	1,048.88	832.32
tblVehicleEF	HHD	1,413.90	1,617.13
tblVehicleEF	HHD	0.05	0.02
tblVehicleEF	HHD	0.17	0.13
tblVehicleEF	HHD	0.22	0.26
tblVehicleEF	HHD	7.0000e-006	1.9000e-005
tblVehicleEF	HHD	5.39	4.08
tblVehicleEF	HHD	2.69	1.85
tblVehicleEF	HHD	2.32	2.73
tblVehicleEF	HHD	2.5820e-003	2.1820e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.02	0.03
tblVehicleEF	HHD	2.4710e-003	2.0820e-003

Hawthorn Senior Apts, Santa Clara - Santa Clara County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8830e-003	8.7810e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	2.0000e-006	1.9600e-004
tblVehicleEF	HHD	9.3000e-005	5.8000e-005
tblVehicleEF	HHD	0.43	0.33
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	4.1000e-005	5.2500e-004
tblVehicleEF	HHD	2.0000e-006	0.00
tblVehicleEF	HHD	9.7610e-003	7.2800e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	2.0000e-006	1.9600e-004
tblVehicleEF	HHD	9.3000e-005	5.8000e-005
tblVehicleEF	HHD	0.49	0.59
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	0.08	0.14
tblVehicleEF	HHD	4.1000e-005	5.2500e-004
tblVehicleEF	HHD	3.0000e-006	0.00
tblVehicleEF	LDA	1.7200e-003	2.0530e-003
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.53	0.65
tblVehicleEF	LDA	2.09	2.89
tblVehicleEF	LDA	239.41	245.08
tblVehicleEF	LDA	50.82	63.51
tblVehicleEF	LDA	3.9560e-003	4.1620e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	0.17	0.23
tblVehicleEF	LDA	0.04	7.1680e-003
tblVehicleEF	LDA	1.2960e-003	1.1710e-003
tblVehicleEF	LDA	1.6880e-003	1.9100e-003
tblVehicleEF	LDA	0.02	2.5090e-003
tblVehicleEF	LDA	1.1940e-003	1.0780e-003
tblVehicleEF	LDA	1.5520e-003	1.7560e-003
tblVehicleEF	LDA	0.04	0.27
tblVehicleEF	LDA	0.08	0.08
tblVehicleEF	LDA	0.03	0.00
tblVehicleEF	LDA	6.4160e-003	7.8860e-003
tblVehicleEF	LDA	0.03	0.20
tblVehicleEF	LDA	0.19	0.30
tblVehicleEF	LDA	2.3210e-003	2.4230e-003
tblVehicleEF	LDA	4.9300e-004	6.2800e-004
tblVehicleEF	LDA	0.04	0.27
tblVehicleEF	LDA	0.08	0.08
tblVehicleEF	LDA	0.03	0.00
tblVehicleEF	LDA	9.3280e-003	0.01
tblVehicleEF	LDA	0.03	0.20
tblVehicleEF	LDA	0.21	0.32
tblVehicleEF	LDT1	3.6010e-003	6.2220e-003
tblVehicleEF	LDT1	0.06	0.10
tblVehicleEF	LDT1	0.85	1.42
tblVehicleEF	LDT1	2.27	5.22
tblVehicleEF	LDT1	286.67	325.38
tblVehicleEF	LDT1	61.55	85.98
tblVehicleEF	LDT1	5.8110e-003	9.3750e-003
tblVehicleEF	LDT1	0.03	0.04

Hawthorn Senior Apts, Santa Clara - Santa Clara County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblVehicleEF	LDT1	0.07	0.13
tblVehicleEF	LDT1	0.21	0.38
tblVehicleEF	LDT1	0.04	9.2260e-003
tblVehicleEF	LDT1	1.6460e-003	1.9270e-003
tblVehicleEF	LDT1	2.1190e-003	2.8980e-003
tblVehicleEF	LDT1	0.02	3.2290e-003
tblVehicleEF	LDT1	1.5140e-003	1.7740e-003
tblVehicleEF	LDT1	1.9480e-003	2.6650e-003
tblVehicleEF	LDT1	0.07	0.60
tblVehicleEF	LDT1	0.15	0.16
tblVehicleEF	LDT1	0.06	0.00
tblVehicleEF	LDT1	0.02	0.03
tblVehicleEF	LDT1	0.08	0.47
tblVehicleEF	LDT1	0.27	0.54
tblVehicleEF	LDT1	2.7790e-003	3.2170e-003
tblVehicleEF	LDT1	5.9700e-004	8.5000e-004
tblVehicleEF	LDT1	0.07	0.60
tblVehicleEF	LDT1	0.15	0.16
tblVehicleEF	LDT1	0.06	0.00
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.08	0.47
tblVehicleEF	LDT1	0.30	0.59
tblVehicleEF	LDT2	2.9320e-003	2.8180e-003
tblVehicleEF	LDT2	0.06	0.08
tblVehicleEF	LDT2	0.74	0.83
tblVehicleEF	LDT2	2.70	3.62
tblVehicleEF	LDT2	307.96	336.52
tblVehicleEF	LDT2	66.71	86.38
tblVehicleEF	LDT2	5.6680e-003	6.0160e-003
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.06	0.07
tblVehicleEF	LDT2	0.25	0.33
tblVehicleEF	LDT2	0.04	8.8660e-003
tblVehicleEF	LDT2	1.3470e-003	1.3330e-003
tblVehicleEF	LDT2	1.7090e-003	2.1080e-003
tblVehicleEF	LDT2	0.02	3.1030e-003
tblVehicleEF	LDT2	1.2400e-003	1.2260e-003
tblVehicleEF	LDT2	1.5720e-003	1.9380e-003
tblVehicleEF	LDT2	0.06	0.29
tblVehicleEF	LDT2	0.12	0.08
tblVehicleEF	LDT2	0.06	0.00
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.06	0.21
tblVehicleEF	LDT2	0.28	0.38
tblVehicleEF	LDT2	2.9850e-003	3.3260e-003
tblVehicleEF	LDT2	6.4700e-004	8.5400e-004
tblVehicleEF	LDT2	0.06	0.29
tblVehicleEF	LDT2	0.12	0.08
tblVehicleEF	LDT2	0.06	0.00
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.21
tblVehicleEF	LDT2	0.31	0.42
tblVehicleEF	LHD1	4.9880e-003	5.3690e-003
tblVehicleEF	LHD1	7.8580e-003	8.1950e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.18	0.20
tblVehicleEF	LHD1	0.71	0.90

Hawthorn Senior Apts, Santa Clara - Santa Clara County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblVehicleEF	LHD1	1.05	2.16
tblVehicleEF	LHD1	8.86	8.72
tblVehicleEF	LHD1	779.34	782.62
tblVehicleEF	LHD1	11.55	17.84
tblVehicleEF	LHD1	7.4200e-004	6.4000e-004
tblVehicleEF	LHD1	0.04	0.04
tblVehicleEF	LHD1	0.02	0.04
tblVehicleEF	LHD1	0.06	0.05
tblVehicleEF	LHD1	0.65	0.66
tblVehicleEF	LHD1	0.30	0.44
tblVehicleEF	LHD1	8.4200e-004	6.8100e-004
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	9.7790e-003	9.4140e-003
tblVehicleEF	LHD1	9.6230e-003	0.01
tblVehicleEF	LHD1	2.4700e-004	2.2700e-004
tblVehicleEF	LHD1	8.0500e-004	6.5100e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.4450e-003	2.3540e-003
tblVehicleEF	LHD1	9.1590e-003	0.01
tblVehicleEF	LHD1	2.2800e-004	2.0900e-004
tblVehicleEF	LHD1	1.9120e-003	0.13
tblVehicleEF	LHD1	0.07	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	9.8500e-004	0.00
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	0.20	0.18
tblVehicleEF	LHD1	0.07	0.11
tblVehicleEF	LHD1	8.6000e-005	8.5000e-005
tblVehicleEF	LHD1	7.6080e-003	7.6450e-003
tblVehicleEF	LHD1	1.1400e-004	1.7600e-004
tblVehicleEF	LHD1	1.9120e-003	0.13
tblVehicleEF	LHD1	0.07	0.03
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	9.8500e-004	0.00
tblVehicleEF	LHD1	0.11	0.11
tblVehicleEF	LHD1	0.20	0.18
tblVehicleEF	LHD1	0.08	0.12
tblVehicleEF	LHD2	3.0380e-003	3.1580e-003
tblVehicleEF	LHD2	6.6540e-003	6.9670e-003
tblVehicleEF	LHD2	7.7290e-003	0.01
tblVehicleEF	LHD2	0.14	0.14
tblVehicleEF	LHD2	0.59	0.57
tblVehicleEF	LHD2	0.60	1.22
tblVehicleEF	LHD2	13.88	13.77
tblVehicleEF	LHD2	754.92	827.31
tblVehicleEF	LHD2	7.59	9.92
tblVehicleEF	LHD2	1.7350e-003	1.6800e-003
tblVehicleEF	LHD2	0.07	0.08
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.77	0.90
tblVehicleEF	LHD2	0.17	0.24
tblVehicleEF	LHD2	1.4370e-003	1.3710e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.2700e-004	1.0100e-004

Hawthorn Senior Apts, Santa Clara - Santa Clara County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblVehicleEF	LHD2	1.3750e-003	1.3110e-003
tblVehicleEF	LHD2	0.04	0.03
tblVehicleEF	LHD2	2.6920e-003	2.6640e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.1700e-004	9.3000e-005
tblVehicleEF	LHD2	9.8500e-004	0.07
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	5.1400e-004	0.00
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	LHD2	1.3300e-004	1.3200e-004
tblVehicleEF	LHD2	7.2890e-003	7.9720e-003
tblVehicleEF	LHD2	7.5000e-005	9.8000e-005
tblVehicleEF	LHD2	9.8500e-004	0.07
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	5.1400e-004	0.00
tblVehicleEF	LHD2	0.13	0.13
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.04	0.07
tblVehicleEF	MCY	0.33	0.16
tblVehicleEF	MCY	0.25	0.18
tblVehicleEF	MCY	18.60	12.67
tblVehicleEF	MCY	9.06	8.00
tblVehicleEF	MCY	210.08	187.74
tblVehicleEF	MCY	60.71	48.38
tblVehicleEF	MCY	0.07	0.04
tblVehicleEF	MCY	0.02	8.0200e-003
tblVehicleEF	MCY	1.15	0.57
tblVehicleEF	MCY	0.27	0.14
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	1.9970e-003	1.9020e-003
tblVehicleEF	MCY	2.9300e-003	3.4560e-003
tblVehicleEF	MCY	5.0400e-003	4.2000e-003
tblVehicleEF	MCY	1.8650e-003	1.7790e-003
tblVehicleEF	MCY	2.7520e-003	3.2480e-003
tblVehicleEF	MCY	0.90	3.90
tblVehicleEF	MCY	0.68	3.56
tblVehicleEF	MCY	0.49	0.00
tblVehicleEF	MCY	2.19	1.06
tblVehicleEF	MCY	0.53	3.75
tblVehicleEF	MCY	1.93	1.35
tblVehicleEF	MCY	2.0790e-003	1.8560e-003
tblVehicleEF	MCY	6.0100e-004	4.7800e-004
tblVehicleEF	MCY	0.90	0.09
tblVehicleEF	MCY	0.68	3.56
tblVehicleEF	MCY	0.49	0.00
tblVehicleEF	MCY	2.72	1.28
tblVehicleEF	MCY	0.53	3.75
tblVehicleEF	MCY	2.10	1.46
tblVehicleEF	MDV	3.4000e-003	3.7500e-003
tblVehicleEF	MDV	0.07	0.10
tblVehicleEF	MDV	0.78	0.94
tblVehicleEF	MDV	2.96	3.90
tblVehicleEF	MDV	372.22	405.81

Hawthorn Senior Apts, Santa Clara - Santa Clara County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblVehicleEF	MDV	79.53	103.32
tblVehicleEF	MDV	7.5920e-003	8.3410e-003
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.07	0.10
tblVehicleEF	MDV	0.29	0.41
tblVehicleEF	MDV	0.04	9.0000e-003
tblVehicleEF	MDV	1.4370e-003	1.3730e-003
tblVehicleEF	MDV	1.8190e-003	2.1610e-003
tblVehicleEF	MDV	0.02	3.1500e-003
tblVehicleEF	MDV	1.3260e-003	1.2660e-003
tblVehicleEF	MDV	1.6720e-003	1.9870e-003
tblVehicleEF	MDV	0.07	0.35
tblVehicleEF	MDV	0.13	0.09
tblVehicleEF	MDV	0.07	0.00
tblVehicleEF	MDV	0.01	0.02
tblVehicleEF	MDV	0.06	0.27
tblVehicleEF	MDV	0.34	0.49
tblVehicleEF	MDV	3.6060e-003	4.0090e-003
tblVehicleEF	MDV	7.7100e-004	1.0210e-003
tblVehicleEF	MDV	0.07	0.35
tblVehicleEF	MDV	0.13	0.09
tblVehicleEF	MDV	0.07	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.06	0.27
tblVehicleEF	MDV	0.38	0.54
tblVehicleEF	MH	9.5570e-003	0.01
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	0.93	1.29
tblVehicleEF	MH	2.03	2.49
tblVehicleEF	MH	1,501.42	1,686.59
tblVehicleEF	MH	18.14	22.55
tblVehicleEF	MH	0.06	0.07
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.31	1.54
tblVehicleEF	MH	0.24	0.30
tblVehicleEF	MH	0.13	0.04
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	2.6100e-004	3.1300e-004
tblVehicleEF	MH	0.06	0.02
tblVehicleEF	MH	3.2790e-003	3.3010e-003
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	2.4000e-004	2.8800e-004
tblVehicleEF	MH	0.64	32.73
tblVehicleEF	MH	0.05	8.70
tblVehicleEF	MH	0.23	0.00
tblVehicleEF	MH	0.06	0.08
tblVehicleEF	MH	0.01	0.20
tblVehicleEF	MH	0.09	0.11
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	1.7900e-004	2.2300e-004
tblVehicleEF	MH	0.64	32.73
tblVehicleEF	MH	0.05	8.70
tblVehicleEF	MH	0.23	0.00
tblVehicleEF	MH	0.08	0.11
tblVehicleEF	MH	0.01	0.20
tblVehicleEF	MH	0.10	0.12

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblVehicleEF	MHD	3.5790e-003	0.01
tblVehicleEF	MHD	1.6940e-003	9.6580e-003
tblVehicleEF	MHD	9.1320e-003	8.7730e-003
tblVehicleEF	MHD	0.39	0.67
tblVehicleEF	MHD	0.23	0.35
tblVehicleEF	MHD	1.07	1.07
tblVehicleEF	MHD	72.08	160.26
tblVehicleEF	MHD	1,080.76	1,229.18
tblVehicleEF	MHD	9.15	8.53
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.14	0.16
tblVehicleEF	MHD	7.2440e-003	6.0320e-003
tblVehicleEF	MHD	0.41	0.89
tblVehicleEF	MHD	1.45	1.11
tblVehicleEF	MHD	1.70	1.41
tblVehicleEF	MHD	3.6900e-004	2.1280e-003
tblVehicleEF	MHD	0.13	0.05
tblVehicleEF	MHD	7.0230e-003	0.01
tblVehicleEF	MHD	1.1500e-004	1.0700e-004
tblVehicleEF	MHD	3.5300e-004	2.0350e-003
tblVehicleEF	MHD	0.06	0.02
tblVehicleEF	MHD	6.7130e-003	0.01
tblVehicleEF	MHD	1.0600e-004	9.8000e-005
tblVehicleEF	MHD	3.8300e-004	0.03
tblVehicleEF	MHD	0.02	6.2600e-003
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	1.9800e-004	0.00
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	0.02	0.05
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	6.8400e-004	1.4900e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	9.1000e-005	8.4000e-005
tblVehicleEF	MHD	3.8300e-004	0.03
tblVehicleEF	MHD	0.02	6.2600e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	1.9800e-004	0.00
tblVehicleEF	MHD	0.02	0.05
tblVehicleEF	MHD	0.02	0.05
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	OBUS	7.0640e-003	7.4580e-003
tblVehicleEF	OBUS	3.6240e-003	9.2750e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.58	0.51
tblVehicleEF	OBUS	0.43	0.49
tblVehicleEF	OBUS	1.84	1.96
tblVehicleEF	OBUS	92.66	85.71
tblVehicleEF	OBUS	1,326.08	1,388.86
tblVehicleEF	OBUS	15.18	15.49
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.13	0.16
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.38	0.37
tblVehicleEF	OBUS	1.47	1.01
tblVehicleEF	OBUS	1.09	0.98
tblVehicleEF	OBUS	1.2200e-004	4.2300e-004
tblVehicleEF	OBUS	0.13	0.05

Hawthorn Senior Apts, Santa Clara - Santa Clara County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblVehicleEF	OBUS	7.3930e-003	0.02
tblVehicleEF	OBUS	1.4500e-004	1.3400e-004
tblVehicleEF	OBUS	1.1700e-004	4.0500e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	7.0600e-003	0.02
tblVehicleEF	OBUS	1.3300e-004	1.2400e-004
tblVehicleEF	OBUS	1.0900e-003	0.07
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.05	0.04
tblVehicleEF	OBUS	4.8500e-004	0.00
tblVehicleEF	OBUS	0.02	0.05
tblVehicleEF	OBUS	0.04	0.08
tblVehicleEF	OBUS	0.09	0.09
tblVehicleEF	OBUS	8.8000e-004	8.1100e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	1.5000e-004	1.5300e-004
tblVehicleEF	OBUS	1.0900e-003	0.07
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.06	0.05
tblVehicleEF	OBUS	4.8500e-004	0.00
tblVehicleEF	OBUS	0.03	0.06
tblVehicleEF	OBUS	0.04	0.08
tblVehicleEF	OBUS	0.10	0.10
tblVehicleEF	SBUS	0.05	0.07
tblVehicleEF	SBUS	6.0180e-003	0.09
tblVehicleEF	SBUS	4.9720e-003	4.8000e-003
tblVehicleEF	SBUS	2.27	1.65
tblVehicleEF	SBUS	0.49	0.88
tblVehicleEF	SBUS	0.72	0.66
tblVehicleEF	SBUS	346.78	189.38
tblVehicleEF	SBUS	1,049.23	1,027.72
tblVehicleEF	SBUS	4.12	3.73
tblVehicleEF	SBUS	0.05	0.03
tblVehicleEF	SBUS	0.13	0.13
tblVehicleEF	SBUS	4.7550e-003	4.2250e-003
tblVehicleEF	SBUS	3.44	1.39
tblVehicleEF	SBUS	4.65	2.57
tblVehicleEF	SBUS	0.86	0.48
tblVehicleEF	SBUS	3.6120e-003	1.3090e-003
tblVehicleEF	SBUS	0.74	0.04
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	4.8000e-005	4.0000e-005
tblVehicleEF	SBUS	3.4560e-003	1.2520e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7190e-003	2.6500e-003
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	4.4000e-005	3.6000e-005
tblVehicleEF	SBUS	5.6700e-004	0.03
tblVehicleEF	SBUS	5.5090e-003	7.3010e-003
tblVehicleEF	SBUS	0.25	0.18
tblVehicleEF	SBUS	2.4700e-004	0.00
tblVehicleEF	SBUS	0.08	0.06
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	3.3010e-003	1.7230e-003
tblVehicleEF	SBUS	0.01	9.5530e-003

Hawthorn Senior Apts, Santa Clara - Santa Clara County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblVehicleEF	SBUS	4.1000e-005	3.7000e-005
tblVehicleEF	SBUS	5.6700e-004	0.03
tblVehicleEF	SBUS	5.5090e-003	7.3010e-003
tblVehicleEF	SBUS	0.36	0.30
tblVehicleEF	SBUS	2.4700e-004	0.00
tblVehicleEF	SBUS	0.10	0.16
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	UBUS	1.35	0.35
tblVehicleEF	UBUS	1.5380e-003	3.7340e-003
tblVehicleEF	UBUS	10.12	4.17
tblVehicleEF	UBUS	0.14	0.53
tblVehicleEF	UBUS	1,597.16	1,098.80
tblVehicleEF	UBUS	1.39	3.20
tblVehicleEF	UBUS	0.26	0.17
tblVehicleEF	UBUS	1.0770e-003	6.2180e-003
tblVehicleEF	UBUS	0.73	0.33
tblVehicleEF	UBUS	0.01	0.04
tblVehicleEF	UBUS	0.07	0.11
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	5.3280e-003	6.2290e-003
tblVehicleEF	UBUS	1.5000e-005	1.2000e-005
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	8.3320e-003	8.1710e-003
tblVehicleEF	UBUS	5.0960e-003	5.9560e-003
tblVehicleEF	UBUS	1.4000e-005	1.1000e-005
tblVehicleEF	UBUS	2.1000e-005	9.8940e-003
tblVehicleEF	UBUS	1.6100e-004	3.3030e-003
tblVehicleEF	UBUS	9.0000e-006	0.00
tblVehicleEF	UBUS	0.02	0.06
tblVehicleEF	UBUS	2.9000e-005	7.9870e-003
tblVehicleEF	UBUS	6.4070e-003	0.01
tblVehicleEF	UBUS	0.01	9.4250e-003
tblVehicleEF	UBUS	1.4000e-005	3.2000e-005
tblVehicleEF	UBUS	2.1000e-005	9.8940e-003
tblVehicleEF	UBUS	1.6100e-004	3.3030e-003
tblVehicleEF	UBUS	9.0000e-006	0.00
tblVehicleEF	UBUS	1.38	0.42
tblVehicleEF	UBUS	2.9000e-005	7.9870e-003
tblVehicleEF	UBUS	7.0150e-003	0.01
tblVehicleTrips	ST_TR	2.93	8.25
tblVehicleTrips	SU_TR	3.15	8.87
tblVehicleTrips	WD_TR	2.60	7.32
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	NumberCatalytic	2.06	0.00
tblWoodstoves	NumberNoncatalytic	2.06	0.00
tblWoodstoves	WoodstoveDayYear	14.12	0.00
tblWoodstoves	WoodstoveWoodMass	582.40	0.00

2.0 Emissions Summary

2.1 Overall Construction

Hawthorn Senior Apts, Santa Clara - Santa Clara County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.2216	2.0731	2.1957	3.7900e-003	0.1965	0.0990	0.2956	0.0889	0.0928	0.1817	0.0000	327.4458	327.4458	0.0836	0.0000	329.5360
2024	0.8659	0.2419	0.3260	5.3000e-004	0.0000	0.0114	0.0114	0.0000	0.0107	0.0107	0.0000	45.7647	45.7647	0.0121	0.0000	46.0673
Maximum	**0.8659**	**2.0731**	**2.1957**	**3.7900e-003**	**0.1965**	**0.0990**	**0.2956**	**0.0889**	**0.0928**	**0.1817**	**0.0000**	**327.4458**	**327.4458**	**0.0836**	**0.0000**	**329.5360**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0719	1.4818	2.4908	3.7900e-003	0.0884	0.0104	0.0989	0.0400	0.0104	0.0504	0.0000	327.4454	327.4454	0.0836	0.0000	329.5356
2024	0.8487	0.2201	0.3700	5.3000e-004	0.0000	1.2600e-003	1.2600e-003	0.0000	1.2600e-003	1.2600e-003	0.0000	45.7646	45.7646	0.0121	0.0000	46.0672
Maximum	**0.8487**	**1.4818**	**2.4908**	**3.7900e-003**	**0.0884**	**0.0104**	**0.0989**	**0.0400**	**0.0104**	**0.0504**	**0.0000**	**327.4454**	**327.4454**	**0.0836**	**0.0000**	**329.5356**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**15.35**	**26.48**	**-13.45**	**0.00**	**55.00**	**89.42**	**67.39**	**55.00**	**88.70**	**73.12**	**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	1-2-2023	4-1-2023	0.7276	0.4317
2	4-2-2023	7-1-2023	0.5186	0.3720
3	7-2-2023	10-1-2023	0.5243	0.3761
4	10-2-2023	1-1-2024	0.5240	0.3761
5	1-2-2024	4-1-2024	1.0918	1.0566
		Highest	1.0918	1.0566

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	0.5718	8.8100e-003	0.7649	4.0000e-005		4.2400e-003	4.2400e-003		4.2400e-003	4.2400e-003	0.0000	1.2501	1.2501	1.2000e-003	0.0000	1.2802
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	61.0150	61.0150	0.0113	1.3700e-003	61.7064
Mobile	0.4882	0.3488	3.1451	6.7500e-003	0.6185	4.8500e-003	0.6234	0.1543	4.5300e-003	0.1588	0.0000	623.4406	623.4406	0.0358	0.0300	633.2868
Waste						0.0000	0.0000		0.0000	0.0000	19.0791	0.0000	19.0791	1.1275	0.0000	47.2677
Water						0.0000	0.0000		0.0000	0.0000	2.3743	4.1274	6.5017	8.9400e-003	5.2600e-003	8.2915
Total	**1.0600**	**0.3576**	**3.9100**	**6.7900e-003**	**0.6185**	**9.0900e-003**	**0.6276**	**0.1543**	**8.7700e-003**	**0.1630**	**21.4534**	**689.8331**	**711.2865**	**1.1848**	**0.0367**	**751.8326**

Mitigated Operational

Hawthorn Senior Apts, Santa Clara - Santa Clara County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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	0.5718	8.8100e-003	0.7649	4.0000e-005		4.2400e-003	4.2400e-003		4.2400e-003	4.2400e-003	0.0000	1.2501	1.2501	1.2000e-003	0.0000	1.2802
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	61.0150	61.0150	0.0113	1.3700e-003	61.7064
Mobile	0.4882	0.3488	3.1451	6.7500e-003	0.6185	4.8500e-003	0.6234	0.1543	4.5300e-003	0.1588	0.0000	623.4406	623.4406	0.0358	0.0300	633.2868
Waste						0.0000	0.0000		0.0000	0.0000	19.0791	0.0000	19.0791	1.1275	0.0000	47.2677
Water						0.0000	0.0000		0.0000	0.0000	2.3743	4.1274	6.5017	8.9400e-003	5.2600e-003	8.2915
Total	**1.0600**	**0.3576**	**3.9100**	**6.7900e-003**	**0.6185**	**9.0900e-003**	**0.6276**	**0.1543**	**8.7700e-003**	**0.1630**	**21.4534**	**689.8331**	**711.2865**	**1.1848**	**0.0367**	**751.8326**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/2/2023	1/27/2023	5	20	
2	Site Preparation	Site Preparation	1/28/2023	2/10/2023	5	10	
3	Grading	Grading	2/11/2023	3/10/2023	5	20	
4	Trenching	Trenching	2/11/2023	3/10/2023	5	20	
5	Building Construction	Building Construction	3/11/2023	1/26/2024	5	230	
6	Architectural Coating	Architectural Coating	1/27/2024	2/23/2024	5	20	
7	Paving	Paving	2/24/2024	3/22/2024	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 20

Acres of Paving: 0

Residential Indoor: 240,341; Residential Outdoor: 80,114; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 1,152 (Architectural

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Site Preparation	Graders	0	0.00	187	0.41
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	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	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48

Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	0.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	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	9	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0273	0.0000	0.0273	4.1400e-003	0.0000	4.1400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0227	0.2148	0.1964	3.9000e-004		9.9800e-003	9.9800e-003		9.2800e-003	9.2800e-003	0.0000	33.9921	33.9921	9.5200e-003	0.0000	34.2301
Total	**0.0227**	**0.2148**	**0.1964**	**3.9000e-004**	**0.0273**	**9.9800e-003**	**0.0373**	**4.1400e-003**	**9.2800e-003**	**0.0134**	**0.0000**	**33.9921**	**33.9921**	**9.5200e-003**	**0.0000**	**34.2301**

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					

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Fugitive Dust					0.0123	0.0000	0.0123	1.8600e-003	0.0000	1.8600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.8400e-003	0.1356	0.2467	3.9000e-004		6.2000e-004	6.2000e-004		6.2000e-004	6.2000e-004	0.0000	33.9920	33.9920	9.5200e-003	0.0000	34.2300
Total	**5.8400e-003**	**0.1356**	**0.2467**	**3.9000e-004**	**0.0123**	**6.2000e-004**	**0.0129**	**1.8600e-003**	**6.2000e-004**	**2.4800e-003**	**0.0000**	**33.9920**	**33.9920**	**9.5200e-003**	**0.0000**	**34.2300**

Mitigated Construction Off-Site

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

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	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					0.0983	0.0000	0.0983	0.0505	0.0000	0.0505	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0133	0.1376	0.0912	1.9000e-004		6.3300e-003	6.3300e-003		5.8200e-003	5.8200e-003	0.0000	16.7254	16.7254	5.4100e-003	0.0000	16.8606
Total	**0.0133**	**0.1376**	**0.0912**	**1.9000e-004**	**0.0983**	**6.3300e-003**	**0.1046**	**0.0505**	**5.8200e-003**	**0.0563**	**0.0000**	**16.7254**	**16.7254**	**5.4100e-003**	**0.0000**	**16.8606**

Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0442	0.0000	0.0442	0.0227	0.0000	0.0227	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Off-Road	3.4800e-003	0.0608	0.1148	1.9000e-004		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	16.7253	16.7253	5.4100e-003	0.0000	16.8606
Total	**3.4800e-003**	**0.0608**	**0.1148**	**1.9000e-004**	**0.0442**	**3.1000e-004**	**0.0445**	**0.0227**	**3.1000e-004**	**0.0230**	**0.0000**	**16.7253**	**16.7253**	**5.4100e-003**	**0.0000**	**16.8606**

Mitigated Construction Off-Site

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

3.4 Grading - 2023

Unmitigated Construction On-Site

	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					0.0709	0.0000	0.0709	0.0343	0.0000	0.0343	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0171	0.1794	0.1475	3.0000e-004		7.7500e-003	7.7500e-003		7.1300e-003	7.1300e-003	0.0000	26.0606	26.0606	8.4300e-003	0.0000	26.2713
Total	**0.0171**	**0.1794**	**0.1475**	**3.0000e-004**	**0.0709**	**7.7500e-003**	**0.0787**	**0.0343**	**7.1300e-003**	**0.0414**	**0.0000**	**26.0606**	**26.0606**	**8.4300e-003**	**0.0000**	**26.2713**

Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0319	0.0000	0.0319	0.0154	0.0000	0.0154	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.2000e-003	0.1033	0.1899	3.0000e-004		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004	0.0000	26.0606	26.0606	8.4300e-003	0.0000	26.2713

Hawthorn Senior Apts, Santa Clara - Santa Clara County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Total	**5.2000e-003**	**0.1033**	**0.1899**	**3.0000e-004**	**0.0319**	**4.8000e-004**	**0.0324**	**0.0154**	**4.8000e-004**	**0.0159**	**0.0000**	**26.0606**	**26.0606**	**8.4300e-003**	**0.0000**	**26.2713**

Mitigated Construction Off-Site

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

3.5 Trenching - 2023

Unmitigated Construction On-Site

	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	3.4000e-003	0.0308	0.0549	8.0000e-005		1.5200e-003	1.5200e-003		1.3900e-003	1.3900e-003	0.0000	7.2727	7.2727	2.3500e-003	0.0000	7.3315
Total	**3.4000e-003**	**0.0308**	**0.0549**	**8.0000e-005**		**1.5200e-003**	**1.5200e-003**		**1.3900e-003**	**1.3900e-003**	**0.0000**	**7.2727**	**7.2727**	**2.3500e-003**	**0.0000**	**7.3315**

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	1.3300e-003	0.0363	0.0626	8.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	7.2727	7.2727	2.3500e-003	0.0000	7.3315
Total	**1.3300e-003**	**0.0363**	**0.0626**	**8.0000e-005**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**	**0.0000**	**7.2727**	**7.2727**	**2.3500e-003**	**0.0000**	**7.3315**

Hawthorn Senior Apts, Santa Clara - Santa Clara County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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**

3.6 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1651	1.5104	1.7056	2.8300e-003		0.0735	0.0735		0.0691	0.0691	0.0000	243.3950	243.3950	0.0579	0.0000	244.8425
Total	**0.1651**	**1.5104**	**1.7056**	**2.8300e-003**		**0.0735**	**0.0735**		**0.0691**	**0.0691**	**0.0000**	**243.3950**	**243.3950**	**0.0579**	**0.0000**	**244.8425**

Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0560	1.1458	1.8767	2.8300e-003		8.8800e-003	8.8800e-003		8.8800e-003	8.8800e-003	0.0000	243.3947	243.3947	0.0579	0.0000	244.8422
Total	**0.0560**	**1.1458**	**1.8767**	**2.8300e-003**		**8.8800e-003**	**8.8800e-003**		**8.8800e-003**	**8.8800e-003**	**0.0000**	**243.3947**	**243.3947**	**0.0579**	**0.0000**	**244.8422**

Mitigated Construction Off-Site

Hawthorn Senior Apts, Santa Clara - Santa Clara County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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**

3.6 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0147	0.1344	0.1617	2.7000e-004		6.1300e-003	6.1300e-003		5.7700e-003	5.7700e-003	0.0000	23.1849	23.1849	5.4800e-003	0.0000	23.3220
Total	**0.0147**	**0.1344**	**0.1617**	**2.7000e-004**		**6.1300e-003**	**6.1300e-003**		**5.7700e-003**	**5.7700e-003**	**0.0000**	**23.1849**	**23.1849**	**5.4800e-003**	**0.0000**	**23.3220**

Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.3300e-003	0.1091	0.1787	2.7000e-004		8.5000e-004	8.5000e-004		8.5000e-004	8.5000e-004	0.0000	23.1849	23.1849	5.4800e-003	0.0000	23.3220
Total	**5.3300e-003**	**0.1091**	**0.1787**	**2.7000e-004**		**8.5000e-004**	**8.5000e-004**		**8.5000e-004**	**8.5000e-004**	**0.0000**	**23.1849**	**23.1849**	**5.4800e-003**	**0.0000**	**23.3220**

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					

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.8395					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8100e-003	0.0122	0.0181	3.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5569
Total	**0.8413**	**0.0122**	**0.0181**	**3.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5569**

Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.8395					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4000e-004	0.0106	0.0183	3.0000e-005		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5568
Total	**0.8400**	**0.0106**	**0.0183**	**3.0000e-005**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5568**

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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

3.8 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8800e-003	0.0953	0.1463	2.3000e-004		4.6900e-003	4.6900e-003		4.3100e-003	4.3100e-003	0.0000	20.0265	20.0265	6.4800e-003	0.0000	20.1885
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.8800e-003**	**0.0953**	**0.1463**	**2.3000e-004**		**4.6900e-003**	**4.6900e-003**		**4.3100e-003**	**4.3100e-003**	**0.0000**	**20.0265**	**20.0265**	**6.4800e-003**	**0.0000**	**20.1885**

Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.3400e-003	0.1004	0.1730	2.3000e-004		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	20.0265	20.0265	6.4800e-003	0.0000	20.1884
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.3400e-003**	**0.1004**	**0.1730**	**2.3000e-004**		**3.7000e-004**	**3.7000e-004**		**3.7000e-004**	**3.7000e-004**	**0.0000**	**20.0265**	**20.0265**	**6.4800e-003**	**0.0000**	**20.1884**

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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

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	0.4882	0.3488	3.1451	6.7500e-003	0.6185	4.8500e-003	0.6234	0.1543	4.5300e-003	0.1588	0.0000	623.4406	623.4406	0.0358	0.0300	633.2868
Unmitigated	0.4882	0.3488	3.1451	6.7500e-003	0.6185	4.8500e-003	0.6234	0.1543	4.5300e-003	0.1588	0.0000	623.4406	623.4406	0.0358	0.0300	633.2868

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Congregate Care (Assisted Living)	753.96	849.75	913.61	1,825,632	1,825,632
Enclosed Parking with Elevator	0.00	0.00	0.00		
Total	753.96	849.75	913.61	1,825,632	1,825,632

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
Congregate Care (Assisted Living)	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Congregate Care (Assisted Living)	0.531160	0.041583	0.227794	0.127091	0.023141	0.005641	0.009358	0.007307	0.001055	0.000417	0.022105	0.000682	0.002666
Enclosed Parking with Elevator	0.531160	0.041583	0.227794	0.127091	0.023141	0.005641	0.009358	0.007307	0.001055	0.000417	0.022105	0.000682	0.002666

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	61.0150	61.0150	0.0113	1.3700e-003	61.7064
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	61.0150	61.0150	0.0113	1.3700e-003	61.7064
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Hawthorn Senior Apts, Santa Clara - Santa Clara County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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					
Congregate Care (Assisted Living)	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Congregate Care (Assisted Living)	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Congregate Care (Assisted Living)	651255	52.5819	9.7500e-003	1.1800e-003	53.1778
Enclosed Parking with Elevator	104448	8.4331	1.5600e-003	1.9000e-004	8.5286
Total		**61.0150**	**0.0113**	**1.3700e-003**	**61.7064**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Congregate Care (Assisted Living)	651255	52.5819	9.7500e-003	1.1800e-003	53.1778
Enclosed Parking with Elevator	104448	8.4331	1.5600e-003	1.9000e-004	8.5286
Total		**61.0150**	**0.0113**	**1.3700e-003**	**61.7064**

6.0 Area Detail

6.1 Mitigation Measures Area

Hawthorn Senior Apts, Santa Clara - Santa Clara County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule 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					
Mitigated	0.5718	8.8100e-003	0.7649	4.0000e-005		4.2400e-003	4.2400e-003		4.2400e-003	4.2400e-003	0.0000	1.2501	1.2501	1.2000e-003	0.0000	1.2802
Unmitigated	0.5718	8.8100e-003	0.7649	4.0000e-005		4.2400e-003	4.2400e-003		4.2400e-003	4.2400e-003	0.0000	1.2501	1.2501	1.2000e-003	0.0000	1.2802

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	0.0840					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4648					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0230	8.8100e-003	0.7649	4.0000e-005		4.2400e-003	4.2400e-003		4.2400e-003	4.2400e-003	0.0000	1.2501	1.2501	1.2000e-003	0.0000	1.2802
Total	**0.5718**	**8.8100e-003**	**0.7649**	**4.0000e-005**		**4.2400e-003**	**4.2400e-003**		**4.2400e-003**	**4.2400e-003**	**0.0000**	**1.2501**	**1.2501**	**1.2000e-003**	**0.0000**	**1.2802**

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	0.0840					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4648					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0230	8.8100e-003	0.7649	4.0000e-005		4.2400e-003	4.2400e-003		4.2400e-003	4.2400e-003	0.0000	1.2501	1.2501	1.2000e-003	0.0000	1.2802
Total	**0.5718**	**8.8100e-003**	**0.7649**	**4.0000e-005**		**4.2400e-003**	**4.2400e-003**		**4.2400e-003**	**4.2400e-003**	**0.0000**	**1.2501**	**1.2501**	**1.2000e-003**	**0.0000**	**1.2802**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	6.5017	8.9400e-003	5.2600e-003	8.2915
Unmitigated	6.5017	8.9400e-003	5.2600e-003	8.2915

Hawthorn Senior Apts, Santa Clara - Santa Clara County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Congregate Care (Assisted Living)	6.71086 / 4.23076	6.5017	8.9400e-003	5.2600e-003	8.2915
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**6.5017**	**8.9400e-003**	**5.2600e-003**	**8.2915**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Congregate Care (Assisted Living)	6.71086 / 4.23076	6.5017	8.9400e-003	5.2600e-003	8.2915
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**6.5017**	**8.9400e-003**	**5.2600e-003**	**8.2915**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	19.0791	1.1275	0.0000	47.2677
Unmitigated	19.0791	1.1275	0.0000	47.2677

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Congregate Care (Assisted Living)	93.99	19.0791	1.1275	0.0000	47.2677
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		**19.0791**	**1.1275**	**0.0000**	**47.2677**

Hawthorn Senior Apts, Santa Clara - Santa Clara County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Congregate Care (Assisted Living)	93.99	19.0791	1.1275	0.0000	47.2677
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		**19.0791**	**1.1275**	**0.0000**	**47.2677**

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Summary of Construction Traffic Emissions (EMFAC2021)

Pollutants YEAR	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	NBio- CO2	CH4	N2O	CO2e
					Tons							*Metric Tons*		
Criteria Pollutants														
2023-2024	0.0323	0.1268	0.3659	0.0013	0.0845	0.0095	0.0940	0.0127	0.0039	0.0166	128.4026	0.0068	0.0117	132.0544
Toxic Air Contaminants (0.5 Mile Trip Length)														
2023-2024	0.0277	0.0392	0.1197	0.0001	0.0041	0.0006	0.0046	0.0006	0.0003	0.0009	10.8707	0.0027	0.0018	11.4622

Attachment 3: EMFAC2021 Calculations

Summary of Construction Traffic Emissions (EMFAC2021)

Pollutants YEAR	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	NBio- CO2	CH4	N2O	CO2e
					Tons							*Metric Tons*		
Criteria Pollutants														
2023-2024	0.0323	0.1268	0.3659	0.0013	0.0845	0.0095	0.0940	0.0127	0.0039	0.0166	128.4026	0.0068	0.0117	132.0544
Toxic Air Contaminants (0.5 Mile Trip Length)														
2023-2024	0.0277	0.0392	0.1197	0.0001	0.0041	0.0006	0.0046	0.0006	0.0003	0.0009	10.8707	0.0027	0.0018	11.4622

CalEEMod Construction Inputs

Phase	CalEEMod WORKER TRIPS	CalEEMod VENDOR TRIPS	Total Worker Trips	Total Vendor Trips	CalEEMod HAULING TRIPS	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class	*Worker VMT*	*Vendor VMT*	*Hauling VMT*
Demolition	13	0	260	0	253	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	2808	0	5060
Site Preparation	8	0	80	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	864	0	0
Grading	10	0	200	0	172	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	2160	0	3440
Trenching	5	0	100	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	1080	0	0
Building Construction	82	14	18860	3220	1010	10.8	7.3	7.3	LD_Mix	HDT_Mix	HHDT	203688	23506	7373
Architectural Coating	16	0	320	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	3456	0	0
Paving	13	0	260	0	0	10.8	7.3	7.3	LD_Mix	HDT_Mix	HHDT	2808	0	0

Number of Days Per Year					
2023-2024	1/2/23	3/22/24	446	320	
			446	**320**	***Total Workdays***

Phase	Start Date	End Date	Days/Week	Workdays
Demolition	1/2/2023	1/27/2023	5	20
Site Preparation	1/28/2023	2/10/2023	5	10
Grading	2/11/2023	3/10/2023	5	20
Trenching	2/11/2023	3/10/2023	5	20
Building Construction	3/11/2023	1/26/2024	5	230
Architectural Coating	1/27/2024	2/23/2024	5	20
Paving	2/24/2024	3/22/2024	5	20

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: Santa Clara
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Populatior	Total VMT	CVMT	EVMT	Trips
Santa Clar	2023	HHDT	Aggregate	Aggregate	Gasoline	3.45401	114.309	114.309	0	69.1078
Santa Clar	2023	HHDT	Aggregate	Aggregate	Diesel	8235.06	991289	991289	0	120861
Santa Clar	2023	HHDT	Aggregate	Aggregate	Electricity	6.70171	411.505	0	411.505	103.204
Santa Clar	2023	HHDT	Aggregate	Aggregate	Natural Ga	753.737	53296	53296	0	6914.03
Santa Clar	2023	LDA	Aggregate	Aggregate	Gasoline	601938	2.2E+07	2.2E+07	0	2795479
Santa Clar	2023	LDA	Aggregate	Aggregate	Diesel	1871.12	56220.8	56220.8	0	8000.53
Santa Clar	2023	LDA	Aggregate	Aggregate	Electricity	53751.1	2268185	0	2268185	265250
Santa Clar	2023	LDA	Aggregate	Aggregate	Plug-in Hy	15805.3	700611	356650	343961	65355
Santa Clar	2023	LDT1	Aggregate	Aggregate	Gasoline	53782.3	1744480	1744480	0	239738
Santa Clar	2023	LDT1	Aggregate	Aggregate	Diesel	26.0471	391.87	391.87	0	75.1774
Santa Clar	2023	LDT1	Aggregate	Aggregate	Electricity	194.894	7068.18	0	7068.18	916.483
Santa Clar	2023	LDT1	Aggregate	Aggregate	Plug-in Hy	43.2768	2048.37	944.158	1104.21	178.949
Santa Clar	2023	LDT2	Aggregate	Aggregate	Gasoline	280180	1E+07	1E+07	0	1311796
Santa Clar	2023	LDT2	Aggregate	Aggregate	Diesel	978.497	36936.9	36936.9	0	4673.4
Santa Clar	2023	LDT2	Aggregate	Aggregate	Electricity	1105.88	38931.7	0	38931.7	5663.05
Santa Clar	2023	LDT2	Aggregate	Aggregate	Plug-in Hy	1696.55	77270.7	37142.7	40128	7015.23
Santa Clar	2023	LHDT1	Aggregate	Aggregate	Gasoline	19181	711085	711085	0	285768
Santa Clar	2023	LHDT1	Aggregate	Aggregate	Diesel	9807.46	384085	384085	0	123366
Santa Clar	2023	LHDT2	Aggregate	Aggregate	Gasoline	2494.38	90793	90793	0	37162.6
Santa Clar	2023	LHDT2	Aggregate	Aggregate	Diesel	4479.53	176769	176769	0	56346.9
Santa Clar	2023	MCY	Aggregate	Aggregate	Gasoline	27894.5	164895	164895	0	55789
Santa Clar	2023	MDV	Aggregate	Aggregate	Gasoline	153799	5358084	5358084	0	712434
Santa Clar	2023	MDV	Aggregate	Aggregate	Diesel	2374.92	86834.4	86834.4	0	11267.1
Santa Clar	2023	MDV	Aggregate	Aggregate	Electricity	1130.12	40073.7	0	40073.7	5799.83
Santa Clar	2023	MDV	Aggregate	Aggregate	Plug-in Hy	986.09	41899.1	20787.3	21111.8	4077.48
Santa Clar	2023	MH	Aggregate	Aggregate	Gasoline	2522.74	22546.9	22546.9	0	252.375
Santa Clar	2023	MH	Aggregate	Aggregate	Diesel	959.158	9344.85	9344.85	0	95.9158
Santa Clar	2023	MHDT	Aggregate	Aggregate	Gasoline	1418.7	70785.9	70785.9	0	28385.4
Santa Clar	2023	MHDT	Aggregate	Aggregate	Diesel	10273.6	431550	431550	0	122419
Santa Clar	2023	MHDT	Aggregate	Aggregate	Electricity	4.74984	101.802	0	101.802	59.6458
Santa Clar	2023	MHDT	Aggregate	Aggregate	Natural Ga	83.841	4047.87	4047.87	0	762.81
Santa Clar	2023	OBUS	Aggregate	Aggregate	Gasoline	458.897	20830.1	20830.1	0	9181.62
Santa Clar	2023	OBUS	Aggregate	Aggregate	Diesel	870.421	61645.7	61645.7	0	8910.75
Santa Clar	2023	OBUS	Aggregate	Aggregate	Natural Ga	6.1456	409.547	409.547	0	54.6958
Santa Clar	2023	SBUS	Aggregate	Aggregate	Gasoline	166.987	8309.31	8309.31	0	667.947
Santa Clar	2023	SBUS	Aggregate	Aggregate	Diesel	667.118	15392.7	15392.7	0	9659.88
Santa Clar	2023	SBUS	Aggregate	Aggregate	Electricity	0.30237	3.51049	0	3.51049	4.37836
Santa Clar	2023	SBUS	Aggregate	Aggregate	Natural Ga	23.5076	595.871	595.871	0	340.39
Santa Clar	2023	UBUS	Aggregate	Aggregate	Gasoline	45.9471	4798.24	4798.24	0	183.788
Santa Clar	2023	UBUS	Aggregate	Aggregate	Diesel	436.668	48829.7	48829.7	0	1746.67
Santa Clar	2023	UBUS	Aggregate	Aggregate	Electricity	5.04676	199.003	0	199.003	20.187
Santa Clar	2023	UBUS	Aggregate	Aggregate	Natural Ga	42.2611	4829.67	4829.67	0	169.045

Vehicle Ca	Fuel	NOx RUN	NOx IDLE	NOx STRE	PM2.5 RU	PM2.5 IDI	PM2.5 STI	PM2.5 PM	PM2.5 PM	PM10 RU	PM10 IDL	PM10 STF	PM10 PM	PM10 PM	CO2 RUN	CO2 IDLE	CO2 STRE
HHDT	Gasoline	8.10787	0	1.6025	0.00493	0	0.0017	0.005	0.03527	0.00536	0	0.00185	0.02	0.10076	2306.82	0	49.8119
HHDT	Diesel	1.96937	63.4049	2.84946	0.02596	0.03163	0	0.00877	0.02753	0.02713	0.03306	0	0.03508	0.07866	1656.8	12241.3	0
HHDT	Electricity	0	0	0	0	0	0	0.00874	0.01338	0	0	0	0.03496	0.03824	0	0	0
HHDT	Natural Ga	1.20884	13.9283	0	0.00177	0.02424	0	0.009	0.04673	0.00193	0.02636	0	0.036	0.13351	1398.51	10630.2	0
LDA	Gasoline	0.04741	0	0.27189	0.00122	0	0.00199	0.002	0.00266	0.00132	0	0.00217	0.008	0.00759	281.43	0	71.6648
LDA	Diesel	0.23832	0	0	0.01856	0	0	0.002	0.0027	0.0194	0	0	0.008	0.00771	234.426	0	0
LDA	Electricity	0	0	0	0	0	0	0.002	0.00153	0	0	0	0.008	0.00438	0	0	0
LDA	Plug-in Hy	0.00334	0	0.11551	0.00066	0	0.00217	0.002	0.00137	0.00072	0	0.00236	0.008	0.00392	142.11	0	66.0887
LDT1	Gasoline	0.14329	0	0.40434	0.00185	0	0.00284	0.002	0.00324	0.00201	0	0.00308	0.008	0.00925	332.654	0	88.3113
LDT1	Diesel	1.65906	0	0	0.24041	0	0	0.002	0.00373	0.25128	0	0	0.008	0.01065	415.548	0	0
LDT1	Electricity	0	0	0	0	0	0	0.002	0.00154	0	0	0	0.008	0.0044	0	0	0
LDT1	Plug-in Hy	0.00302	0	0.11551	0.00039	0	0.00141	0.002	0.00138	0.00042	0	0.00153	0.008	0.00395	128.765	0	70.8664
LDT2	Gasoline	0.07721	0	0.35835	0.00126	0	0.002	0.002	0.00313	0.00138	0	0.00218	0.008	0.00893	348.396	0	89.5445
LDT2	Diesel	0.04616	0	0	0.00543	0	0	0.002	0.0031	0.00568	0	0	0.008	0.00886	313.067	0	0
LDT2	Electricity	0	0	0	0	0	0	0.002	0.00152	0	0	0	0.008	0.00436	0	0	0
LDT2	Plug-in Hy	0.00315	0	0.11551	0.0005	0	0.00176	0.002	0.00138	0.00055	0	0.00191	0.008	0.00394	134.254	0	77.036
LHDT1	Gasoline	0.19781	0.03737	0.6588	0.00159	0	0.00033	0.002	0.0273	0.00173	0	0.00036	0.008	0.078	889.742	120.266	25.8396
LHDT1	Diesel	1.78063	2.02927	0	0.03825	0.02697	0	0.003	0.0273	0.03998	0.02819	0	0.012	0.078	635.427	132.908	0
LHDT2	Gasoline	0.18702	0.03682	0.64206	0.00145	0	0.00026	0.002	0.03185	0.00157	0	0.00028	0.008	0.091	997.384	138.797	25.7233
LHDT2	Diesel	1.41694	1.99826	0	0.03418	0.02703	0	0.003	0.03185	0.03572	0.02825	0	0.012	0.091	764.504	212.121	0
MCY	Gasoline	0.58693	0	0.14237	0.00178	0	0.00341	0.001	0.0042	0.0019	0	0.00363	0.004	0.012	188.309	0	49.5981
MDV	Gasoline	0.11759	0	0.47011	0.00129	0	0.00214	0.002	0.00319	0.0014	0	0.00233	0.008	0.00911	422.679	0	109.033
MDV	Diesel	0.0531	0	0	0.00515	0	0	0.002	0.00318	0.00538	0	0	0.008	0.00909	411.163	0	0
MDV	Electricity	0	0	0	0	0	0	0.002	0.00152	0	0	0	0.008	0.00435	0	0	0
MDV	Plug-in Hy	0.00326	0	0.11551	0.00064	0	0.00215	0.002	0.00138	0.00069	0	0.00234	0.008	0.00393	138.532	0	96.6849
MH	Gasoline	0.47913	0	0.41252	0.00178	0	0.00043	0.003	0.01576	0.00194	0	0.00047	0.012	0.04502	1948.24	0	31.8758
MH	Diesel	4.26955	0	0	0.09791	0	0	0.004	0.01567	0.10233	0	0	0.016	0.04479	1081.43	0	0
MHDT	Gasoline	0.56286	0.0883	0.45305	0.00139	0	0.00055	0.003	0.01576	0.00151	0	0.0006	0.012	0.04502	1792.41	536.966	47.1992
MHDT	Diesel	1.33734	13.5724	1.62416	0.01652	0.03574	0	0.003	0.01594	0.01726	0.03736	0	0.012	0.04555	1151.56	2263.79	0
MHDT	Electricity	0	0	0	0	0	0	0.003	0.00799	0	0	0	0.012	0.02283	0	0	0
MHDT	Natural Ga	0.14132	6.52743	0	0.00114	0.01765	0	0.003	0.016	0.00124	0.01919	0	0.012	0.04572	989.385	5296.53	0
OBUS	Gasoline	0.55308	0.06499	0.40562	0.00089	0	0.00026	0.003	0.01568	0.00097	0	0.00029	0.012	0.0448	1784.09	381.846	31.8944
OBUS	Diesel	1.20319	7.4101	1.5414	0.02032	0.00863	0	0.003	0.01802	0.02124	0.00902	0	0.012	0.05148	1282.54	1552.95	0
OBUS	Natural Ga	0.21932	1.54911	0	0.00092	0.00362	0	0.003	0.01615	0.001	0.00394	0	0.012	0.04614	1017.4	1188.28	0
SBUS	Gasoline	0.51932	0.9257	0.7051	0.00086	0	0.00056	0.002	0.01572	0.00094	0	0.00061	0.008	0.04492	815.091	2602.03	58.6695
SBUS	Diesel	4.02801	22.3986	0.46716	0.02091	0.02125	0	0.003	0.01572	0.02185	0.02221	0	0.012	0.04492	1148.52	2237.81	0
SBUS	Electricity	0	0	0	0	0	0	0.003	0.00786	0	0	0	0.012	0.02246	0	0	0
SBUS	Natural Ga	0.58732	5.2827	0	0.00338	0.01108	0	0.003	0.01572	0.00367	0.01205	0	0.012	0.04492	1271.13	4058.81	0
UBUS	Gasoline	0.02681	0	0.44344	0.00114	0	0.00013	0.002	0.03185	0.00124	0	0.00014	0.008	0.091	926.292	0	36.8461
UBUS	Diesel	0.38626	0	0	0.00702	0	0	0.0083	0.0385	0.00734	0	0	0.0332	0.11	1100.96	0	0
UBUS	Electricity	0	0	0	0	0	0	0.009	0.01925	0	0	0	0.036	0.055	0	0	0
UBUS	Natural Ga	0.05878	0	0	0.00028	0	0	0.00818	0.0385	0.0003	0	0	0.03273	0.11	1299.13	0	0

Vehicle Ca	Fuel	CH4 RUN	CH4 IDLE	CH4 STRE	N2O RUN	N2O IDLE	N2O STRE	ROG RUN	ROG IDLE	ROG STRE	ROG HOT	ROG RUN	ROG DIUR	TOG RUN
HHDT	Gasoline	0.34023	0	0.00018	0.20891	0	0.0457	2.10487	0	0.00098	0.15837	1.42664	10.6538	3.07142
HHDT	Diesel	0.00081	0.23745	0	0.26103	1.92863	0	0.01742	5.11216	0	0	0	0	0.01983
HHDT	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0
HHDT	Natural Ga	2.44811	37.4467	0	0.2851	2.16704	0	0.05457	0.57226	0	0	0	0	2.5208
LDA	Gasoline	0.0026	0	0.07645	0.005	0	0.03413	0.01016	0	0.35379	0.09476	0.24061	1.48055	0.01482
LDA	Diesel	0.00141	0	0	0.03693	0	0	0.03042	0	0	0	0	0	0.03463
LDA	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0
LDA	Plug-in Hy	0.00046	0	0.0426	0.00061	0	0.02092	0.00144	0	0.17328	0.04064	0.03609	0.44706	0.00211
LDT1	Gasoline	0.00699	0	0.11256	0.01026	0	0.03983	0.03122	0	0.58321	0.17414	0.50309	2.80701	0.04555
LDT1	Diesel	0.01393	0	0	0.06547	0	0	0.29985	0	0	0	0	0	0.34136
LDT1	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0
LDT1	Plug-in Hy	0.00041	0	0.04244	0.00054	0	0.02076	0.00131	0	0.17328	0.02458	0.02178	0.28592	0.00191
LDT2	Gasoline	0.00312	0	0.08776	0.00638	0	0.03865	0.01242	0	0.41073	0.08512	0.22419	1.4049	0.01812
LDT2	Diesel	0.00065	0	0	0.04932	0	0	0.01398	0	0	0	0	0	0.01592
LDT2	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0
LDT2	Plug-in Hy	0.00043	0	0.04246	0.00057	0	0.02078	0.00136	0	0.17328	0.02624	0.02445	0.31823	0.00199
LHDT1	Gasoline	0.00948	0.11564	0.03452	0.01108	0.00301	0.05189	0.04766	0.42815	0.17223	0.05056	0.2776	2.91378	0.06954
LHDT1	Diesel	0.00862	0.0051	0	0.10011	0.02094	0	0.18565	0.10976	0	0	0	0	0.21135
LHDT2	Gasoline	0.00707	0.11457	0.03346	0.01097	0.00297	0.05045	0.03305	0.42203	0.16561	0.04699	0.25097	2.6763	0.04822
LHDT2	Diesel	0.00782	0.0051	0	0.12045	0.03342	0	0.16845	0.10976	0	0	0	0	0.19177
MCY	Gasoline	0.16762	0	0.18748	0.04022	0	0.00838	1.10592	0	1.39264	3.5601	3.74568	3.94787	1.32414
MDV	Gasoline	0.00441	0	0.11029	0.00848	0	0.04308	0.01883	0	0.55926	0.10198	0.2858	1.72733	0.02744
MDV	Diesel	0.00053	0	0	0.06478	0	0	0.0114	0	0	0	0	0	0.01297
MDV	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV	Plug-in Hy	0.00044	0	0.04226	0.00058	0	0.02059	0.00141	0	0.17328	0.02985	0.02806	0.35962	0.00205
MH	Gasoline	0.01815	0	0.03803	0.02809	0	0.04265	0.08225	0	0.16378	13.0399	0.30297	4.77362	0.12002
MH	Diesel	0.0057	0	0	0.17038	0	0	0.12281	0	0	0	0	0	0.13981
MHDT	Gasoline	0.01807	0.25459	0.04939	0.02638	0.00706	0.03257	0.09086	1.01002	0.27957	0.03719	0.30238	3.03792	0.13258
MHDT	Diesel	0.00172	0.0123	0	0.18143	0.35666	0	0.03705	0.26478	0	0	0	0	0.04218
MHDT	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0
MHDT	Natural Ga	0.74006	17.5916	0	0.20169	1.07973	0	0.01057	0.25135	0	0	0	0	0.75528
OBUS	Gasoline	0.01581	0.19494	0.03628	0.02618	0.00525	0.03077	0.07811	0.74523	0.1923	0.03471	0.15404	2.76625	0.11398
OBUS	Diesel	0.00199	0.02057	0	0.20206	0.24467	0	0.04286	0.44283	0	0	0	0	0.04879
OBUS	Natural Ga	0.77407	4.38127	0	0.2074	0.24224	0	0.01106	0.0626	0	0	0	0	0.78999
SBUS	Gasoline	0.01187	2.46208	0.07492	0.02773	0.08622	0.0649	0.05774	10.6294	0.42706	0.11222	0.2593	1.59144	0.08426
SBUS	Diesel	0.00275	0.00808	0	0.18095	0.35257	0	0.05916	0.17402	0	0	0	0	0.06735
SBUS	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0
SBUS	Natural Ga	3.49061	15.4024	0	0.25913	0.82742	0	0.04987	0.22007	0	0	0	0	3.56242
UBUS	Gasoline	0.00203	0	0.04171	0.00421	0	0.07015	0.00561	0	0.14784	0.03814	0.09212	0.4568	0.00819
UBUS	Diesel	0.00321	0	0	0.17346	0	0	0.06921	0	0	0	0	0	0.07879
UBUS	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0
UBUS	Natural Ga	4.24574	0	0	0.26484	0	0	0.06066	0	0	0	0	0	4.33309

Vehicle Ca	Fuel	TOG IDLE	TOG STRE	TOG HOT	TOG RUN	TOG DIUR	NH3 RUN	CO RUNEX	CO_IDLEX	CO_STREX	SOx RUN	SOx IDLE	SOx_STREX
HHDT	Gasoline	0	0.00107	0.15837	1.42664	10.6538	0.04047	83.0074	0	1.02738	0.02281	0	0.00049
HHDT	Diesel	5.8198	0	0	0	0	0.21462	0.08739	74.2014	0	0.01569	0.11592	0
HHDT	Electricity	0	0	0	0	0	0	0	0	0	0	0	0
HHDT	Natural Ga	38.2595	0	0	0	0	0.86011	13.7825	74.0396	0	0	0	0
LDA	Gasoline	0	0.38736	0.09476	0.24061	1.48055	0.03378	0.78762	0	3.43661	0.00278	0	0.00071
LDA	Diesel	0	0	0	0	0	0.0031	0.34246	0	0	0.00222	0	0
LDA	Electricity	0	0	0	0	0	0	0	0	0	0	0	0
LDA	Plug-in Hy	0	0.18973	0.04064	0.03609	0.44706	0.01971	0.21991	0	1.33989	0.0014	0	0.00065
LDT1	Gasoline	0	0.63854	0.17414	0.50309	2.80701	0.03577	1.55341	0	5.66004	0.00329	0	0.00087
LDT1	Diesel	0	0	0	0	0	0.0031	1.6014	0	0	0.00394	0	0
LDT1	Electricity	0	0	0	0	0	0	0	0	0	0	0	0
LDT1	Plug-in Hy	0	0.18973	0.02458	0.02178	0.28592	0.01936	0.19958	0	1.33989	0.00127	0	0.0007
LDT2	Gasoline	0	0.44969	0.08512	0.22419	1.4049	0.03554	0.89682	0	3.8921	0.00344	0	0.00089
LDT2	Diesel	0	0	0	0	0	0.0031	0.1321	0	0	0.00297	0	0
LDT2	Electricity	0	0	0	0	0	0	0	0	0	0	0	0
LDT2	Plug-in Hy	0	0.18973	0.02624	0.02445	0.31823	0.02014	0.20798	0	1.33989	0.00133	0	0.00076
LHDT1	Gasoline	0.62476	0.18857	0.05056	0.2776	2.91378	0.04487	1.22511	3.75343	3.08025	0.0088	0.00119	0.00026
LHDT1	Diesel	0.12495	0	0	0	0	0.16551	0.51888	0.90975	0	0.00602	0.00126	0
LHDT2	Gasoline	0.61583	0.18132	0.04699	0.25097	2.6763	0.04497	0.96189	3.75941	3.11931	0.00986	0.00137	0.00025
LHDT2	Diesel	0.12495	0	0	0	0	0.17898	0.44054	0.90975	0	0.00724	0.00201	0
MCY	Gasoline	0	1.51387	3.5601	3.74568	3.94787	0.00876	13.0896	0	8.0512	0.00186	0	0.00049
MDV	Gasoline	0	0.61231	0.10198	0.2858	1.72733	0.03543	1.06733	0	4.33325	0.00418	0	0.00108
MDV	Diesel	0	0	0	0	0	0.0031	0.20259	0	0	0.0039	0	0
MDV	Electricity	0	0	0	0	0	0	0	0	0	0	0	0
MDV	Plug-in Hy	0	0.18973	0.02985	0.02806	0.35962	0.02084	0.21448	0	1.33989	0.00137	0	0.00096
MH	Gasoline	0	0.17932	13.0399	0.30297	4.77362	0.04474	2.11194	0	3.62938	0.01926	0	0.00032
MH	Diesel	0	0	0	0	0	0.15001	0.41028	0	0	0.01025	0	0
MHDT	Gasoline	1.47383	0.30609	0.03719	0.30238	3.03792	0.04497	1.90969	15.0852	6.15628	0.01772	0.00531	0.00047
MHDT	Diesel	0.30143	0	0	0	0	0.20901	0.13257	7.58339	0	0.0109	0.02144	0
MHDT	Electricity	0	0	0	0	0	0	0	0	0	0	0	0
MHDT	Natural Ga	17.9536	0	0	0	0	1.06	2.99271	33.6434	0	0	0	0
OBUS	Gasoline	1.08744	0.21055	0.03471	0.15404	2.76625	0.04492	1.74396	5.76837	4.0717	0.01764	0.00377	0.00032
OBUS	Diesel	0.50413	0	0	0	0	0.21586	0.15345	7.51086	0	0.01214	0.01471	0
OBUS	Natural Ga	4.4714	0	0	0	0	1.06	3.21195	6.7242	0	0	0	0
SBUS	Gasoline	15.5104	0.46758	0.11222	0.2593	1.59144	0.045	1.46951	82.1675	10.5643	0.00806	0.02572	0.00058
SBUS	Diesel	0.19811	0	0	0	0	0.14415	0.18149	4.58185	0	0.01088	0.02119	0
SBUS	Electricity	0	0	0	0	0	0	0	0	0	0	0	0
SBUS	Natural Ga	15.7193	0	0	0	0	1.06	11.9028	20.112	0	0	0	0
UBUS	Gasoline	0	0.16187	0.03814	0.09212	0.4568	0.045	0.57113	0	6.07379	0.00916	0	0.00036
UBUS	Diesel	0	0	0	0	0	0.18785	0.07937	0	0	0.01043	0	0
UBUS	Electricity	0	0	0	0	0	0	0	0	0	0	0	0
UBUS	Natural Ga	0	0	0	0	0	0.97	49.0423	0	0	0	0	0

CalEEMod EMFAC2021 Fleet Mix Input — Year 2024

FleetMixLandUseSubType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.53116	0.041583	0.227794	0.127091	0.023141	0.005641	0.009358	0.007307	0.001055	0.000417	0.022105	0.000682	0.002666
Enclosed Parking with Elevator	0.53116	0.041583	0.227794	0.127091	0.023141	0.005641	0.009358	0.007307	0.001055	0.000417	0.022105	0.000682	0.002666

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: Santa Clara
Calendar Year: 2024
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Population	Total VMT	CVMT	EVMT	Trips	NOx	RUNNOx	IDLENOx	STREXNOx	PM2.5 RU	PM2.5	IDLPM2.5	STLPM2.5	PM2.5 PM	PM10 RUI	PM10	IDLPM10	STRPM10	PM PM10	PM PM	CO2 RUNI	CO2 IDLE	CO2 STRE	CH4 RUNI	CH4 IDLE	CH4 STRE	N2O RUN	N2O IDLE	N2O STRE	ROG RUN	ROG IDLE	ROG STRE	ROG HOT	ROG RUN	ROG DIUR	TOG RUN	TOG IDLE	TOG STRE	TOG HOT	TOG RUNI	TOG DIUR	NH3 RUN	CO RUNEX	CO_IDLEX	CO_STREX	SOx RUNI	SOx IDLEX	SOx_STREX
Santa Clar:	2024	HHDT	Aggregate	Aggregate	Gasoline	2.58871	115.153	115.153	0	51.7949	7.01372	0	1.69563	0.00361	0	0.00143	0.005	0.03384	0.00393	0	0.00156	0.02	0.09669	2166.16	0	50.0442	0.24601	0	0.00021	0.19293	0	0.0498	1.47824	0	0.00112	0.14902	1.34233	10.0255	2.15705	0	0.00122	0.14902	1.34233	10.0255	0.04274	52.519	0	1.60109	0.02141	0	0.00049
Santa Clar:	2024	HHDT	Aggregate	Aggregate	Diesel	8486.69	1001095	1001095	0	124748	1.89457	62.3204	2.89887	0.02567	0.03017	0	0.00877	0.02745	0.02683	0.03153	0	0.03508	0.07844	1634.1	11997	0	0.00078	0.23663	0	0.25745	1.89013	0	0.01673	5.09458	0	0	0	0	0.01905	5.7998	0	0	0	0	0	0.21508	0.08252	74.1058	0	0.01547	0.1136	0
Santa Clar:	2024	HHDT	Aggregate	Aggregate	Electricity	28.3304	2794.26	0	2794.26	378.795	0	0	0	0	0	0	0.00859	0.01406	0	0	0	0.03434	0.04016	0	0	0	0	0	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 Clar:	2024	HHDT	Aggregate	Aggregate	Natural Ga	794.401	54591.3	54591.3	0	7249.72	1.12825	13.5551	0	0.00172	0.02478	0	0.009	0.04752	0.00187	0.02695	0	0.036	0.13578	1387.53	10583.6	0	2.34474	36.3028	0	0.28286	2.15754	0	0.05083	0.5507	0	0	0	0	0.41273	37.0861	0	0	0	0	0	0.85184	13.402	74.4313	0	0	0	0
Santa Clar:	2024	LDA	Aggregate	Aggregate	Gasoline	600108	2.2E+07	2.2E+07	0	2786617	0.04228	0	0.25799	0.00118	0	0.00193	0.002	0.00266	0.00128	0	0.0021	0.008	0.00759	275.955	0	70.0807	0.00234	0	0.07204	0.00467	0	0.03323	0.00894	0	0.32895	0.09049	0.23039	1.42264	0.01304	0	0.36016	0.09049	0.23039	1.42264	0.03471	0.73752	0	3.23307	0.00273	0	0.00069
Santa Clar:	2024	LDA	Aggregate	Aggregate	Diesel	1750.02	51573.5	51573.5	0	7442.61	0.21318	0	0	0.01675	0	0	0.002	0.00271	0.0175	0	0	0.008	0.00773	232.398	0	0	0.00129	0	0	0.03661	0	0	0.02775	0	0	0	0	0	0.03159	0	0	0	0	0	0.0031	0.33111	0	0	0.0022	0	0
Santa Clar:	2024	LDA	Aggregate	Aggregate	Electricity	57627.4	2472767	0	2472767	282733	0	0	0	0	0	0	0.002	0.00153	0	0	0	0.008	0.00438	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clar:	2024	LDA	Aggregate	Aggregate	Plug-in Hy	17457.1	767059	381569	385491	72185.1	0.00326	0	0.11551	0.00062	0	0.00207	0.002	0.00138	0.00067	0	0.00225	0.008	0.00393	138.86	0	65.1247	0.00044	0	0.04244	0.00059	0	0.02076	0.00141	0	0.17328	0.04111	0.03729	0.4471	0.00206	0	0.18973	0.04111	0.03729	0.4471	0.0195	0.21485	0	1.33989	0.00137	0	0.00064
Santa Clar:	2024	LDT1	Aggregate	Aggregate	Gasoline	52693.4	1706864	1706864	0	234793	0.12836	0	0.38129	0.00174	0	0.00268	0.002	0.00324	0.00189	0	0.00291	0.008	0.00926	327.257	0	86.3843	0.00626	0	0.10537	0.00942	0	0.03869	0.02774	0	0.53932	0.16533	0.47248	2.66716	0.04048	0	0.59049	0.16533	0.47248	2.66716	0.03608	1.42762	0	5.25305	0.00324	0	0.00085
Santa Clar:	2024	LDT1	Aggregate	Aggregate	Diesel	23.4623	343.931	343.931	0	66.4446	1.65193	0	0	0.23937	0	0	0.002	0.00372	0.2502	0	0	0.008	0.01064	415.3	0	0	0.01386	0	0	0.06543	0	0	0.29845	0	0	0	0	0	0.33976	0	0	0	0	0	0.0031	1.59366	0	0	0.00394	0	0
Santa Clar:	2024	LDT1	Aggregate	Aggregate	Electricity	211.003	8008.65	0	8008.65	994.435	0	0	0	0	0	0	0.002	0.00154	0	0	0	0.008	0.0044	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clar:	2024	LDT1	Aggregate	Aggregate	Plug-in Hy	67.6458	3164.46	1414.3	1750.16	279.715	0.00293	0	0.11551	0.00037	0	0.00138	0.002	0.00139	0.0004	0	0.0015	0.008	0.00397	124.846	0	69.3121	0.0004	0	0.04222	0.00052	0	0.02056	0.00127	0	0.17328	0.02415	0.02096	0.27963	0.00185	0	0.18973	0.02415	0.02096	0.27963	0.01877	0.19347	0	1.33989	0.00123	0	0.00069
Santa Clar:	2024	LDT2	Aggregate	Aggregate	Gasoline	285585	1E+07	1E+07	0	1336438	0.06909	0	0.33424	0.00123	0	0.00196	0.002	0.00313	0.00133	0	0.00213	0.008	0.00894	340.325	0	87.2943	0.00286	0	0.08298	0.00594	0	0.03725	0.01124	0	0.38422	0.08174	0.21769	1.36819	0.0164	0	0.42067	0.08174	0.21769	1.36819	0.03636	0.84212	0	3.67376	0.00336	0	0.00086
Santa Clar:	2024	LDT2	Aggregate	Aggregate	Diesel	1015.45	37944.3	37944.3	0	4835.43	0.04151	0	0	0.00481	0	0	0.002	0.00311	0.00503	0	0	0.008	0.00889	307.161	0	0	0.00061	0	0	0.04839	0	0	0.0131	0	0	0	0	0	0.01492	0	0	0	0	0	0.0031	0.12998	0	0	0.00291	0	0
Santa Clar:	2024	LDT2	Aggregate	Aggregate	Electricity	1597.57	55532.6	0	55532.6	8150.93	0	0	0	0	0	0	0.002	0.00153	0	0	0	0.008	0.00436	0	0	0	0	0	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 Clar:	2024	LDT2	Aggregate	Aggregate	Plug-in Hy	2116.58	94757.7	44376.6	50381.1	8752.06	0.00307	0	0.11551	0.00047	0	0.00167	0.002	0.00138	0.00051	0	0.00182	0.008	0.00395	130.788	0	75.6058	0.00042	0	0.04223	0.00055	0	0.02057	0.00133	0	0.17328	0.02595	0.02369	0.30939	0.01964	0.20257	0	1.33989	0.00129	0	0.00075
Santa Clar:	2024	LHDT1	Aggregate	Aggregate	Gasoline	19314.1	722529	722529	0	28775.2	0.17374	0.03622	0.637	0.00153	0	0.0003	0.002	0.0273	0.00167	0	0.00033	0.008	0.078	871.456	119.099	25.7802	0.00836	0.11294	0.033	0.00978	0.00298	0.05097	0.04172	0.41502	0.16361	0.0474	0.26314	2.76851	0.06087	0.6056	0.17913	0.0474	0.26314	2.76851	0.0449	1.14228	3.75621	3.12393	0.00862	0.00118	0.00025
Santa Clar:	2024	LHDT1	Aggregate	Aggregate	Diesel	10107.7	398004	398004	0	127143	1.56302	1.92168	0	0.03506	0.0268	0	0.003	0.0273	0.03664	0.02802	0	0.012	0.078	631.401	131.15	0	0.00801	0.0051	0	0.09948	0.02066	0	0.17236	0.10976	0	0	0	0	0.19622	0.12495	0	0	0	0	0	0.17278	0.47359	0.90975	0	0.00598	0.00124	0
Santa Clar:	2024	LHDT1	Aggregate	Aggregate	Electricity	70.8284	5110.54	0	5110.54	989.427	0	0	0	0	0	0	0.002	0.01365	0	0	0	0.008	0.039	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clar:	2024	LHDT2	Aggregate	Aggregate	Gasoline	2506.91	91452.6	91452.6	0	37349.2	0.16518	0.0356	0.62153	0.00139	0	0.00024	0.002	0.03185	0.00151	0	0.00026	0.008	0.091	980.036	137.592	25.5129	0.00618	0.11145	0.03198	0.00982	0.00291	0.04938	0.02861	0.40822	0.15724	0.04419	0.23817	2.55839	0.04175	0.59567	0.17216	0.04419	0.23817	2.55839	0.04497	0.89921	3.76255	3.12993	0.00969	0.00136	0.00025
Santa Clar:	2024	LHDT2	Aggregate	Aggregate	Diesel	4663.46	183558	183558	0	58660.4	1.2661	1.8954	0	0.03205	0.027	0	0.003	0.03185	0.0335	0.02822	0	0.012	0.091	756.868	209.562	0	0.00741	0.0051	0	0.11924	0.03302	0	0.15944	0.10976	0	0	0	0	0.18151	0.12495	0	0	0	0	0	0.18413	0.41186	0.90975	0	0.00717	0.00199	0
Santa Clar:	2024	LHDT2	Aggregate	Aggregate	Electricity	18.3326	1253.29	0	1253.29	242.668	0	0	0	0	0	0	0.002	0.01593	0	0	0	0.008	0.0455	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clar:	2024	MCY	Aggregate	Aggregate	Gasoline	28171.5	166022	166022	0	56343	0.57134	0	0.13548	0.00178	0	0.00325	0.001	0.0042	0.0019	0	0.00346	0.004	0.012	187.743	0	48.377	0.16261	0	0.18197	0.03956	0	0.00802	1.06218	0	1.34532	3.55928	3.75283	3.90029	1.27695	0	1.46261	3.55928	3.75283	3.90029	0.00881	12.6697	0	8.00299	0.00186	0	0.00048
Santa Clar:	2024	MDV	Aggregate	Aggregate	Gasoline	156642	5468054	5468054	0	726101	0.10128	0	0.42828	0.00123	0	0.00204	0.002	0.00318	0.00134	0	0.00222	0.008	0.0091	412.805	0	106.222	0.00387	0	0.10186	0.00763	0	0.04097	0.01626	0	0.50881	0.09705	0.27572	1.67706	0.02372	0	0.55708	0.09705	0.27572	1.67706	0.03618	0.97224	0	4.02296	0.00408	0	0.00105
Santa Clar:	2024	MDV	Aggregate	Aggregate	Diesel	2400.61	86292.7	86292.7	0	11318.8	0.04884	0	0	0.00491	0	0	0.002	0.00321	0.00513	0	0	0.008	0.00916	405.662	0	0	0.00051	0	0	0.06391	0	0	0.01098	0	0	0	0	0	0.0125	0	0	0	0	0	0.0031	0.20154	0	0	0.00384	0	0
Santa Clar:	2024	MDV	Aggregate	Aggregate	Electricity	1678.68	58660.6	0	58660.6	8578.5	0	0	0	0	0	0	0.002	0.00153	0	0	0	0.008	0.00436	0	0	0	0	0	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 Clar:	2024	MDV	Aggregate	Aggregate	Plug-in Hy	1250.86	52904	25301.5	27602.5	5172.29	0.00314	0	0.11551	0.00056	0	0.00196	0.002	0.00138	0.00061	0	0.00213	0.008	0.00395	133.537	0	94.0638	0.00042	0	0.04205	0.00055	0	0.0204	0.00136	0	0.17328	0.03032	0.02668	0.34169	0.00198	0	0.18973	0.03032	0.02668	0.34169	0.02009	0.20674	0	1.33989	0.00132	0	0.00093
Santa Clar:	2024	MH	Aggregate	Aggregate	Gasoline	2420.57	22012.3	22012.3	0	242.154	0.42094	0	0.41996	0.00168	0	0.0004	0.003	0.01576	0.00183	0	0.00044	0.012	0.04502	1947.5	0	31.6506	0.01548	0	0.03754	0.02573	0	0.04407	0.06827	0	0.15912	12.2114	0.28677	4.59648	0.09962	0	0.17422	12.2114	0.28677	4.59648	0.04485	1.68222	0	3.49725	0.01925	0	0.00031
Santa Clar:	2024	MH	Aggregate	Aggregate	Diesel	977.361	9498.3	9498.3	0	97.7161	4.11717	0	0	0.09177	0	0	0.004	0.01567	0.09592	0	0	0.016	0.04479	1081.93	0	0	0.00556	0	0	0.17046	0	0	0.11965	0	0	0	0	0	0.13621	0	0	0	0	0	0.15554	0.39728	0	0	0.01025	0	0
Santa Clar:	2024	MHDT	Aggregate	Aggregate	Gasoline	1414.55	71600.4	71600.4	0	28302.3	0.47075	0.08848	0.44096	0.00136	0	0.00053	0.003	0.01576	0.00148	0	0.00058	0.012	0.04502	1768.69	531.8	46.2523	0.01505	0.25808	0.04757	0.02291	0.00727	0.03271	0.07495	1.01271	0.26541	0.03395	0.27636	2.79871	0.10937	1.47774	0.29059	0.03395	0.27636	2.79871	0.04498	1.56073	15.1163	5.82581	0.01749	0.00526	0.00046
Santa Clar:	2024	MHDT	Aggregate	Aggregate	Diesel	10390.5	434044	434044	0	123939	1.23282	13.1195	1.64273	0.0144	0.0299	0	0.003	0.01594	0.01505	0.03125	0	0.012	0.04555	1147.31	2248.55	0	0.00151	0.01158	0	0.18076	0.35426	0	0.03245	0.24932	0	0	0	0	0.03695	0.28383	0	0	0	0	0	0.21053	0.12087	7.55603	0	0.01086	0.02129	0
Santa Clar:	2024	MHDT	Aggregate	Aggregate	Electricity	30.916	1660.35	0	1660.35	407.454	0	0	0	0	0	0	0.003	0.00796	0	0	0	0.012	0.02273	0	0	0	0	0	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 Clar:	2024	MHDT	Aggregate	Aggregate	Natural Ga	90.5945	4303.58	4303.58	0	827.623	0.13342	6.49972	0	0.00118	0.01813	0	0.003	0.01601	0.00128	0.01972	0	0.012	0.04573	984.692	5301.1	0	0.74573	17.3141	0	0.20074	1.08066	0	0.01066	0.24738	0	0	0	0	0.76107	17.6703	0	0	0	0	0	1.06	2.99584	34.7393	0	0	0	0
Santa Clar:	2024	OBUS	Aggregate	Aggregate	Gasoline	443.147	19894.3	19894.3	0	8866.48	0.49672	0.06506	0.40855	0.00091	0	0.00025	0.003	0.01568	0.00099	0	0.00027	0.012	0.0448	1764	379.414	31.6131	0.01376	0.19573	0.03606	0.02402	0.0053	0.03103	0.06708	0.74628	0.19096	0.03387	0.15492	2.81839	0.09788	1.08897	0.20908	0.03387	0.15492	2.81839	0.04497	1.49158	5.77464	4.00064	0.01744	0.00375	0.00031
Santa Clar:	2024	OBUS	Aggregate	Aggregate	Diesel	893.138	61949.1	61949.1	0	9141.63	1.17864	7.36339	1.54316	0.01985	0.00817	0	0.003	0.01802	0.02075	0.00854	0	0.012	0.05147	1273.38	1538.56	0	0.00193	0.02048	0	0.20062	0.2424	0	0.04166	0.4409	0	0	0	0	0.04743	0.50194	0	0	0	0	0	0.21602	0.15018	7.50048	0	0.01206	0.01457	0
Santa Clar:	2024	OBUS	Aggregate	Aggregate	Electricity	1.08748	92.501	0	92.501	21.7583	0	0	0	0	0	0	0.003	0.00784	0	0	0	0.012	0.0224	0	0	0	0	0	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 Clar:	2024	OBUS	Aggregate	Aggregate	Natural Ga	7.05737	469.388	469.388	0	62.8106	0.19059	1.53741	0	0.00106	0.0039	0	0.003	0.01615	0.00115	0.00424	0	0.012	0.04614	1004.24	1191.58	0	0.7898	4.2369	0	0.20472	0.24291	0	0.01128	0.06054	0	0	0	0	0.80604	4.32406	0	0	0	0	0	1.06	3.25433	7.35306	0	0	0	0
Santa Clar:	2024	SBUS	Aggregate	Aggregate	Gasoline	172.695	8584.87	8584.87	0	690.779	0.50288	0.92594	0.7168	0.00086	0	0.00057	0.002	0.01572	0.00094	0	0.00062	0.008	0.04492	810.606	2589.13	58.1367	0.01114	2.46486	0.07489	0.0271	0.08631	0.06593	0.05406	10.6329	0.42637	0.11391	0.27469	1.68617	0.07888	15.5155	0.46682	0.11391	0.27469	1.68617	0.045	1.38705	82.1884	10.3662	0.00801	0.0256	0.00057
Santa Clar:	2024	SBUS	Aggregate	Aggregate	Diesel	670.596	15345.3	15345.3	0	9710.23	3.82139	21.8769	0.48285	0.01977	0.0197	0	0.003	0.01572	0.02066	0.02059	0	0.012	0.04492	1144.18	2229	0	0.00266	0.008	0	0.18027	0.35118	0	0.05738	0.17226	0	0	0	0	0.06532	0.1961	0	0	0	0	0	0.14802	0.1775	4.67779	0	0.01083	0.02111	0
Santa Clar:	2024	SBUS	Aggregate	Aggregate	Electricity	2.06467	64.355	0	64.355	23.6464	0	0	0	0	0	0	0.00254	0.00786	0	0	0	0.01016	0.02246	0	0	0	0	0	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 Clar:	2024	SBUS	Aggregate	Aggregate	Natural Ga	24.3995	612.094	612.094	0	353.305	0.56773	5.2709	0	0.00338	0.01136	0	0.003	0.01572	0.00367	0.01235	0	0.012	0.04492	1261.3	4066.74	0	3.43667	15.2567	0	0.25713	0.82903	0	0.0491	0.21799	0	0	0	0	3.50738	15.5705	0	0	0	0	0	1.06	11.649	20.7469	0	0	0	0
Santa Clar:	2024	UBUS	Aggregate	Aggregate	Gasoline	46.0831	4812.45	4812.45	0	184.333	0.02748	0	0.45723	0.00114	0	0.00013	0.002	0.03185	0.00124	0	0.00014	0.008	0.091	926.084	0	36.9478	0.00203	0	0.04307	0.00429	0	0.07172	0.00563	0	0.15298	0.0381	0.09212	0.45644	0.00822	0	0.16749	0.0381	0.09212	0.45644	0.045	0.58115	0	6.1305	0.00916	0	0.00037
Santa Clar:	2024	UBUS	Aggregate	Aggregate	Diesel	437.474	48917.6	48917.6	0	1749.9	0.38626	0	0	0.00702	0	0	0.0083	0.0385	0.00734	0	0	0.0332	0.11	1101.14	0	0	0.00321	0	0	0.17348	0	0	0.06921	0	0	0	0	0	0.07879	0	0	0	0	0	0.18791	0.07937	0	0	0.01043	0	0
Santa Clar:	2024	UBUS	Aggregate	Aggregate	Electricity	5.34757	235.063	0	235.063	21.3903	0	0	0	0	0	0	0.00888	0.01925	0	0	0	0.03552	0.055	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Clar:	2024	UBUS	Aggregate	Aggregate	Natural Ga	42.587	4865.19	4865.19	0	170.348	0.05879	0	0	0.00028	0	0	0.00818	0.0385	0.0003	0	0	0.03273	0.11	1299.21	0	0	4.24606	0	0	0.26485	0	0	0.06067	0	0	0	0	0	4.33341	0	0	0	0	0	0.97	49.0479	0	0	0	0	0

CalEEMod EMFAC2021 Emission Factors Input

Year 2024

Season	EmissionType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
A	CH4_IDLEX	0	0	0	0	0.00536919	0.00315779	0.013382867	0.232934116	0.007458	0	0	0.074530708	0
A	CH4_RUNEX	0.002053	0.006222	0.002818	0.00375	0.008195475	0.006967165	0.009658327	0.121678903	0.009275	0.353982676	0.162609	0.091034859	0.012488
A	CH4_STREX	0.06472	0.104817	0.081929	0.09875	0.022830658	0.012441811	0.008772715	8.02769E-08	0.017671	0.00373411	0.181972	0.004800019	0.026745
A	CO_IDLEX	0	0	0	0	0.196553408	0.142432729	0.671381155	5.195559849	0.514566	0	0	1.654917603	0
A	CO_RUNEX	0.649736	1.418728	0.829336	0.94329	0.900659098	0.571321038	0.346172778	0.774886828	0.491534	4.169725719	12.6697	0.88438603	1.294901
A	CO_STREX	2.891746	5.224818	3.623598	3.897928	2.161458585	1.217590135	1.074329611	0.000626211	1.960551	0.531545824	8.002987	0.664389162	2.491606
A	CO2_NBIO_IDLEX	0	0	0	0	8.718618846	13.77167907	160.2598472	832.3166934	85.70845	0	0	189.3785612	0
A	CO2_NBIO_RUNEX	245.0824	325.3768	336.518	405.8146	782.6209231	827.3105821	1229.180609	1617.129696	1388.863	1098.799805	187.743	1027.722439	1686.59
A	CO2_NBIO_STREX	63.50921	85.97601	86.38427	103.3242	17.83744668	9.924909519	8.529312127	0.019573043	15.49228	3.203569186	48.37697	3.726087932	22.54937
A	NOX_IDLEX	0	0	0	0	0.048387071	0.092994731	0.892858528	4.075118036	0.365684	0	0	1.387931029	0
A	NOX_RUNEX	0.037369	0.127832	0.068032	0.098516	0.664169987	0.895916288	1.112921974	1.850604526	1.007061	0.328284112	0.571344	2.572680489	1.5351
A	NOX_STREX	0.230953	0.379266	0.329632	0.414782	0.440740062	0.241785955	1.40789614	2.731408381	0.979918	0.039644426	0.135477	0.480957844	0.299202
A	PM10_IDLEX	0	0	0	0	0.000680917	0.001370776	0.002127578	0.002182492	0.000423	0	0	0.001309316	0
A	PM10_PMBW	0.007168	0.009226	0.008866	0.009	0.077822958	0.090793613	0.045399173	0.08129752	0.049798	0.11066361	0.012	0.044858399	0.044947
A	PM10_PMTW	0.008	0.008	0.008	0.008	0.009414319	0.010657725	0.012000003	0.035125425	0.012	0.032683644	0.004	0.010599644	0.013206
A	PM10_RUNEX	0.001171	0.001927	0.001333	0.001373	0.014027078	0.022761423	0.012984934	0.025474433	0.015841	0.006229362	0.001902	0.013302942	0.03019
A	PM10_STREX	0.00191	0.002898	0.002108	0.002161	0.000227117	0.00010091	0.000106814	6.09682E-07	0.000134	1.21066E-05	0.003456	3.95033E-05	0.000313
A	PM25_IDLEX	0	0	0	0	0.000651461	0.001311477	0.002035106	0.002082052	0.000405	0	0	0.001251634	0
A	PM25_PMBW	0.002509	0.003229	0.003103	0.00315	0.027238035	0.031777765	0.01588971	0.028454132	0.017429	0.038732263	0.0042	0.01570044	0.015732
A	PM25_PMTW	0.002	0.002	0.002	0.002	0.00235358	0.002664431	0.003000001	0.008781356	0.003	0.008170911	0.001	0.002649911	0.003301
A	PM25_RUNEX	0.001078	0.001774	0.001226	0.001266	0.013380353	0.021758122	0.01241508	0.0243688	0.015147	0.005956092	0.001779	0.012711839	0.028836
A	PM25_STREX	0.001756	0.002665	0.001938	0.001987	0.000208825	9.27828E-05	9.82116E-05	5.6058E-07	0.000124	1.11315E-05	0.003248	3.63219E-05	0.000288
A	ROG_DIURN	0.273594	0.595257	0.288173	0.350288	0.128573071	0.066801999	0.025794994	0.000195977	0.069031	0.00989389	3.900294	0.02701739	32.73442
A	ROG_HTSK	0.08102	0.164422	0.0806	0.094021	0.032797965	0.01719063	0.006259754	5.82846E-05	0.0166	0.00330336	3.559276	0.007300947	8.700008
A	ROG_IDLEX	0	0	0	0	0.021941805	0.01599037	0.026359118	0.329789936	0.040067	0	0	0.181581321	0
A	ROG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
A	ROG_RUNEX	0.007886	0.027617	0.0111	0.015872	0.087722295	0.115407943	0.03811329	0.018605536	0.047576	0.063024567	1.062175	0.055862962	0.083758
A	ROG_RUNLS	0.204737	0.46982	0.214357	0.266704	0.182065104	0.092650617	0.050964014	0.000525006	0.075921	0.007986926	3.75283	0.017605448	0.204308
A	ROG_STREX	0.295072	0.536464	0.379183	0.493019	0.113203416	0.061169305	0.04894298	4.36152E-07	0.093584	0.013264046	1.345317	0.027326673	0.113367
A	SO2_IDLEX	0	0	0	0	8.48839E-05	0.000131968	0.001489976	0.007280347	0.000811	0	0	0.001723406	0
A	SO2_RUNEX	0.002423	0.003217	0.003326	0.004009	0.007645358	0.007972368	0.011664295	0.014635772	0.013275	0.009424712	0.001856	0.009552635	0.01654
A	SO2_STREX	0.000628	0.00085	0.000854	0.001021	0.000176341	9.81178E-05	8.43209E-05	1.93499E-07	0.000153	3.16705E-05	0.000478	3.68362E-05	0.000223
A	TOG_DIURN	0.273594	0.595257	0.288173	0.350288	0.128573071	0.066801999	0.025794994	0.000195977	0.069031	0.00989389	0.086215	0.02701739	32.73442
A	TOG_HTSK	0.08102	0.164422	0.0806	0.094021	0.032797965	0.01719063	0.006259754	5.82846E-05	0.0166	0.00330336	3.559276	0.007300947	8.700008
A	TOG_IDLEX	0	0	0	0	0.031161751	0.021623008	0.043266148	0.594148623	0.053137	0	0	0.296054089	0
A	TOG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
A	TOG_RUNEX	0.011489	0.040276	0.016182	0.023096	0.108455428	0.134422527	0.053053841	0.142671417	0.063874	0.424552446	1.276951	0.155501861	0.11065
A	TOG_RUNLS	0.204737	0.46982	0.214357	0.266704	0.182065104	0.092650617	0.050964014	0.000525006	0.075921	0.007986926	3.75283	0.017605448	0.204308
A	TOG_STREX	0.323066	0.58736	0.415158	0.539792	0.123943492	0.066972689	0.053586402	4.77531E-07	0.102462	0.014522461	1.462608	0.029919267	0.124122
A	N2O_IDLEX	0	0	0	0	0.000640447	0.001679691	0.024688683	0.134071724	0.012191	0	0	0.025109883	0
A	N2O_RUNEX	0.004162	0.009375	0.006016	0.008341	0.041449697	0.082480387	0.158249654	0.258076714	0.157784	0.166507004	0.039558	0.128269363	0.069357
A	N2O_STREX	0.029881	0.038494	0.03679	0.03974	0.035264665	0.019211235	0.006031915	1.94763E-05	0.015206	0.006218272	0.00802	0.004225481	0.031398

Adjustment Factors

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

Category		Mix %	Adj	ROG_DIURN	ROG_HTSK	ROG_IDLEX	ROG_RESTL	ROG_RUNEX	ROG_RUNLS	ROG_STREX	NOX_IDLEX	NOX_RUNEX	NOX_STREX	CO_IDLEX	CO_RUNEX	CO_STREX	SO2_IDLEX	SO2_RUNEX	SO2_STREX	Road Dust PM10	PM10_PMBW	PM10_PMTW	PM10_IDLEX	PM10_RUNEX	PM10_STREX	Road Dust PM25	PM25_PMBW	PM25_PMTW	PM25_IDLEX	PM25_RUNEX	PM25_STREX	CO2_NBIO_IDLEX	CO2_NBIO_RUNEX	CO2_NBIO_STREX	CH4_IDLEX	CH4_RUNEX	CH4_STREX	N2O_IDLE	N2O_RUNEX	N2O_STREX
																												19		22	23	8	9	10						
Hauling	HHDT	100.0	1	0.000287604	8.55424E-05	0.332404817	0	0.01953334	0.00077057	5.28839E-07	4.1629787	1.930480649	2.692504026	5.211988	0.7948148	0.000555	0.0074608	0.01488345	2.65981E-07		0.081444	0.035123	0.002283	0.025833	9.98684E-07		0.028506	0.008781	0.002179	0.0247116	9.18E-07	850.51039	1643.0479	0.0269048	0.235881	0.125647179	9.74075E-08	0.136898	0.262148415	2.4682E-05
	MHD	0.0	0	0.028424515	0.006961572	0.027529656	0	0.04434978	0.05660825	0.052337336	0.9240436	1.219274528	1.396113281	0.673566	0.4037701	1.152494	0.0015021	0.011767743	8.73526E-05	0.299	0.045469	0.012	0.002542	0.014931	0.000112942	0.04499	0.015914	0.003	0.002431	0.0142769	0.000104	161.33734	1239.5984	8.8359741	0.012943	0.009906777	0.009245497	0.024829	0.159885109	0.00609652
Vendor	HHDT	50.0	0.5	0.000143802	4.27712E-05	0.166202408	0	0.00976667	0.00038529	2.6442E-07	2.0814893	0.965240325	1.346252013	2.605994	0.3974074	0.000277	0.0037304	0.007441725	1.32991E-07		0.040722	0.017561	0.001142	0.012916	4.99342E-07		0.014253	0.00439	0.001089	0.0123558	4.59E-07	425.2552	821.52395	0.0134524	0.11794	0.06282359	4.87037E-08	0.068449	0.131074208	1.2341E-05
	MHD	50.0	0.5	0.014212257	0.003480786	0.013764828	0	0.02217489	0.02830413	0.026168668	0.4620218	0.609637264	0.698056641	0.336783	0.2018851	0.576247	0.0007511	0.005883871	4.36763E-05		0.022735	0.006	0.001271	0.007465	5.64711E-05		0.007957	0.0015	0.001216	0.0071384	5.19E-05	80.66867	619.79918	4.417987	0.006471	0.004953388	0.004622749	0.012414	0.079942554	0.00304826
			1	0.01435606	0.003523557	0.179967236	0	0.03194156	0.02868941	0.026168932	2.5435111	1.574877589	2.044308654	2.942777	0.5992925	0.576524	0.0044815	0.013325596	4.38093E-05	0.299	0.063457	0.023561	0.002413	0.020382	5.69705E-05	0.04499	0.02221	0.00589	0.002305	0.0194942	5.24E-05	505.92387	1441.3231	4.4314394	0.124412	0.067776978	0.004622797	0.080863	0.211016762	0.0030606
Worker	LDA	50.0	0.5	0.143306127	0.042683769	0	0	0.0045285	0.10768412	0.159592017	0	0.021192179	0.122461753	0	0.3503116	1.546631	0	0.001247244	0.00032278		0.0036	0.004	0	0.000614	0.000990927		0.00126	0.001	0	0.0005655	0.000911	0	126.17319	32.650143	0	0.001154545	0.034539145	0	0.00224937	0.01544107
	LDT1	25.0	0.25	0.156677436	0.04332923	0	0	0.00778025	0.12516577	0.145126689	0	0.035722679	0.100614187	0	0.3863947	1.408382	0	0.000818289	0.000217331		0.002307	0.002	0	0.000514	0.000767762		0.000807	0.0005	0	0.0004735	0.000706	0	82.773349	21.983712	0	0.00173807	0.028010471	0	0.00255413	0.00991395
	LDT2	25.0	0.25	0.074138692	0.021036563	0	0	0.00307324	0.05534742	0.101569939	0	0.019062039	0.088569484	0	0.2213791	0.96209	0	0.000853405	0.000219425		0.002219	0.002	0	0.000345	0.000540097		0.000777	0.0005	0	0.0003173	0.000497	0	86.33608	22.19552	0	0.000769908	0.021709383	0	0.001616766	0.00956276
			1	0.374122256	0.107049562	0	0	0.01382	0.28819731	0.406288645	0	0.075976897	0.311645425	0	0.9580854	3.917103	0	0.002918938	0.000759537	0.299	0.008126	0.008	0	0.001473	0.002298785	0.04499	0.002844	0.002	0	0.0013563	0.002114	0	295.28262	76.829375	0	0.003662524	0.084258998	0	0.006420266	0.03491778

Attachment 4: Project Construction Emissions and Health Risk Calculations

Hawthorn Senior Apartments, 118 N. 15th Street, San Jose, CA
- Construction Health Impact Summary

Maximum Impacts at MEI Residential 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	(-)	($\mu g/m^3$)
2023-2024*	0.3257	0.4301	**57.93**	0.94	0.07	**0.76**

* Includes 2024 (three months of construction)

Maximum Impacts at MEI Residential 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	(-)	($\mu g/m^3$)
2023-2024*	0.0360	0.1958	6.40	0.10	0.01	0.23

* Includes 2024 (three months of construction)
- Tier 4 Interim Engines and BMPs Mitigation

Hawthorn Senior Apartments, 118 N. 15th Street, San Jose, CA

Year	Unmitigated DPM	DPM EMFAC2021	Unmitigated Emissions	Unmitigated Fug PM2.5	Fug PM2.5 EMFAC2021	Unmitigated Emissions
2023-2024	0.1104	0.0006	0.1110	0.0889	0.0006	0.0895

Year	Mitigated DPM	DPM EMFAC2021	Mitigated Emissions	Mitigated Fug PM2.5	Fug PM2.5 EMFAC2021	Mitigated Emissions
2023-2024	0.0117	0.0006	0.0122	0.0400	0.0006	0.0406

Hawthorn Senior Apartments, 118 N. 15th Street, 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 ($g/s/m^2$)
2023-2024	Construction	0.1110	CON_DPM	221.9	0.06756	8.51E-03	4446	1.91E-06

* Includes 2024 (three months of construction)

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 ($g/s/m^2$)
2023-2024	Construction	0.0122	CON_DPM	24.4	0.00744	9.38E-04	4446	2.11E-07

* Includes 2024 (two months of construction)

Construction Hours

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

area	4445.7	MEI Coords	
x-cen	599462.1	x	0
y-cen	4133738.5	y	0

Hawthorn Senior Apartments, 118 N. 15th Street, 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 $g/s/m^2$
2023-2024	Construction	CON_FUG	0.0895	179.0	0.05450	6.87E-03	4,446	1.54E-06

* Includes 2024 (three months of construction)

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 $g/s/m^2$
2023-2024	Construction	CON_FUG	0.0406	81.2	0.02473	3.12E-03	4,446	7.01E-07

* Includes 2024 (two months of construction)

Construction Hours

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

Hawthorn Senior Apartments, 118 N. 15th Street, San Jose, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 1.5 meter receptor height (1st Floor Level)

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information				Adult - Exposure Information				Maximum		
			DPM Conc (ug/m3)		Age	Infant/Child Cancer	Modeled DPM Conc (ug/m3)		Age	Adult Cancer			
Exposure Year	**Exposure Duration (years)**	**Age**	**Year**	**Annual**	**Sensitivity Factor**	**Risk (per million)**	**Year**	**Annual**	**Sensitivity Factor**	**Risk (per million)**	**Hazard Index**	**Fugitive PM2.5**	**Total PM2.5**
0	0.25	-0.25 - 0*	2023-2024**	0.3257	10	4.43	2023-2024**	0.3257	-	-			
1	1	0 - 1	2023-2024**	0.3257	10	53.50	2023-2024**	0.3257	1	0.94	0.07	0.43	0.76
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						**57.93**				**0.94**			

* Third trimester of pregnancy

** Includes 2024 (three months of construction)

Hawthorn Senior Apartments, 118 N. 15th Street, 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 (2nd Floor Level)

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information				Adult - Exposure Information				Maximum		
			DPM Conc (ug/m3)		Age	Infant/Child	Modeled DPM Conc (ug/m3)		Age	Adult			
Exposure Year	**Exposure Duration (years)**	**Age**	**Year**	**Annual**	**Sensitivity Factor**	**Cancer Risk (per million)**	**Year**	**Annual**	**Sensitivity Factor**	**Cancer Risk (per million)**	**Hazard Index**	**Fugitive PM2.5**	**Total PM2.5**
0	0.25	-0.25 - 0*	2023-2024**	0.2979	10	4.05	2023-2024**	0.2979	-	-			
1	1	0 - 1	2023-2024**	0.2979	10	48.92	2023-2024**	0.2979	1	0.86	0.06	0.25	0.55
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						**52.97**				**0.86**			

* Third trimester of pregnancy

** Includes 2024 (two months of construction)

Hawthorn Senior Apartments, 118 N. 15th Street, San Jose, CA - Construction Impacts - With Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 1.5 meter receptor height (1st Floor Level)

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information			Infant/Child	Adult - Exposure Information			Adult	Maximum		
			DPM Conc (ug/m3)		Age	Cancer	Modeled DPM Conc (ug/m3)		Age	Cancer			
Exposure Year	Exposure Duration (years)	Age	Year	Annual	Sensitivity Factor	Risk (per million)	Year	Annual	Sensitivity Factor	Risk (per million)	Hazard Index	Fugitive PM2.5	Total PM2.5
0	0.25	-0.25 - 0*	2023-2024**	0.0360	10	0.49	2023-2024**	0.0360	-	-			
1	1	0 - 1	2023-2024**	0.0360	10	5.91	2023-2024**	0.0360	1	0.10	0.01	0.20	0.23
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						**6.40**				**0.10**			

* Third trimester of pregnancy

** Includes 2024 (two months of construction)

Hawthorn Senior Apartments, 118 N. 15th Street, 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 (2nd Floor Level)

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information				Adult - Exposure Information				Maximum		
			DPM Conc (ug/m3)		Age	Infant/Child	Modeled DPM Conc (ug/m3)		Age	Adult			
Exposure Year	**Exposure Duration (years)**	**Age**	**Year**	**Annual**	**Sensitivity Factor**	**Cancer Risk (per million)**	**Year**	**Annual**	**Sensitivity Factor**	**Cancer Risk (per million)**	**Hazard Index**	**Fugitive PM2.5**	**Total PM2.5**
0	0.25	-0.25 - 0*	2023-2024**	0.0329	10	0.45	2023-2024**	0.0329	-	-			
1	1	0 - 1	2023-2024**	0.0329	10	5.41	2023-2024**	0.0329	1	0.09	0.01	0.11	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						**5.85**				**0.09**			

* Third trimester of pregnancy

** Includes 2024 (two months of construction)

Hawthorn Senior Apartments, 118 N. 15th Street, San Jose, CA - E. Santa Clara Street Cancer Risk & PM2.5
Impacts at On-Site 1st Floor Receptors - 1.5m receptor heights
30 Year Residential Exposure - Adults Only

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	Adult	-	-	-	-	-	-	-	-	-
1	1	Adult	2024	1	0.0004	0.0417	0.0478	0.001	0.001	0.0000	0.00
2	1	Adult	2025	1	0.0004	0.0417	0.0478	0.001	0.001	0.0000	0.00
3	1	Adult	2026	1	0.0004	0.0417	0.0478	0.001	0.001	0.0000	0.00
4	1	Adult	2027	1	0.0004	0.0417	0.0478	0.001	0.001	0.0000	0.00
5	1	Adult	2028	1	0.0004	0.0417	0.0478	0.001	0.001	0.0000	0.00
6	1	Adult	2029	1	0.0004	0.0417	0.0478	0.001	0.001	0.0000	0.00
7	1	Adult	2030	1	0.0004	0.0417	0.0478	0.001	0.001	0.0000	0.00
8	1	Adult	2031	1	0.0004	0.0417	0.0478	0.001	0.001	0.0000	0.00
9	1	Adult	2032	1	0.0004	0.0417	0.0478	0.001	0.001	0.0000	0.00
10	1	Adult	2033	1	0.0004	0.0417	0.0478	0.001	0.001	0.0000	0.00
11	1	Adult	2034	1	0.0004	0.0417	0.0478	0.001	0.001	0.0000	0.00
12	1	Adult	2035	1	0.0004	0.0417	0.0478	0.001	0.001	0.0000	0.00
13	1	Adult	2036	1	0.0004	0.0417	0.0478	0.001	0.001	0.0000	0.00
14	1	Adult	2037	1	0.0004	0.0417	0.0478	0.001	0.001	0.0000	0.00
15	1	Adult	2038	1	0.0004	0.0417	0.0478	0.001	0.001	0.0000	0.00
16	1	Adult	2039	1	0.0004	0.0417	0.0478	0.001	0.001	0.0000	0.00
17	1	Adult	2040	1	0.0004	0.0417	0.0478	0.001	0.001	0.0000	0.00
18	1	Adult	2041	1	0.0004	0.0417	0.0478	0.001	0.001	0.0000	0.00
19	1	Adult	2042	1	0.0004	0.0417	0.0478	0.001	0.001	0.0000	0.00
20	1	Adult	2043	1	0.0004	0.0417	0.0478	0.001	0.001	0.0000	0.00
21	1	Adult	2044	1	0.0004	0.0417	0.0478	0.001	0.001	0.0000	0.00
22	1	Adult	2045	1	0.0004	0.0417	0.0478	0.001	0.001	0.0000	0.00
23	1	Adult	2046	1	0.0004	0.0417	0.0478	0.001	0.001	0.0000	0.00
24	1	Adult	2047	1	0.0004	0.0417	0.0478	0.001	0.001	0.0000	0.00
25	1	Adult	2048	1	0.0004	0.0417	0.0478	0.001	0.001	0.0000	0.00
26	1	Adult	2049	1	0.0004	0.0417	0.0478	0.001	0.001	0.0000	0.00
27	1	Adult	2050	1	0.0004	0.0417	0.0478	0.001	0.001	0.0000	0.00
28	1	Adult	2051	1	0.0004	0.0417	0.0478	0.001	0.001	0.0000	0.00
29	1	Adult	2052	1	0.0004	0.0417	0.0478	0.001	0.001	0.0000	0.00
30	1	Adult	2053	1	0.0004	0.0417	0.0478	0.001	0.001	0.0000	0.00
Total Increased Cancer Risk								0.04	0.020	0.001	**0.06**

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.0001	0.02	0.03

* Third trimester of pregnancy

Hawthorn Senior Apartments, 118 N. 15th Street, San Jose, CA - E. Santa Clara Street Cancer Risk & PM2.5 Impacts at On-Site 2nd Floor Receptors - 6.7m receptor heights
30 Year Residential Exposure - Adults Only

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	Adult	-	-	-	-	-	-	-	-	-
1	1	Adult	2024	1	0.0004	0.0370	0.0424	0.001	0.001	0.0000	0.00
2	1	Adult	2025	1	0.0004	0.0370	0.0424	0.001	0.001	0.0000	0.00
3	1	Adult	2026	1	0.0004	0.0370	0.0424	0.001	0.001	0.0000	0.00
4	1	Adult	2027	1	0.0004	0.0370	0.0424	0.001	0.001	0.0000	0.00
5	1	Adult	2028	1	0.0004	0.0370	0.0424	0.001	0.001	0.0000	0.00
6	1	Adult	2029	1	0.0004	0.0370	0.0424	0.001	0.001	0.0000	0.00
7	1	Adult	2030	1	0.0004	0.0370	0.0424	0.001	0.001	0.0000	0.00
8	1	Adult	2031	1	0.0004	0.0370	0.0424	0.001	0.001	0.0000	0.00
9	1	Adult	2032	1	0.0004	0.0370	0.0424	0.001	0.001	0.0000	0.00
10	1	Adult	2033	1	0.0004	0.0370	0.0424	0.001	0.001	0.0000	0.00
11	1	Adult	2034	1	0.0004	0.0370	0.0424	0.001	0.001	0.0000	0.00
12	1	Adult	2035	1	0.0004	0.0370	0.0424	0.001	0.001	0.0000	0.00
13	1	Adult	2036	1	0.0004	0.0370	0.0424	0.001	0.001	0.0000	0.00
14	1	Adult	2037	1	0.0004	0.0370	0.0424	0.001	0.001	0.0000	0.00
15	1	Adult	2038	1	0.0004	0.0370	0.0424	0.001	0.001	0.0000	0.00
16	1	Adult	2039	1	0.0004	0.0370	0.0424	0.001	0.001	0.0000	0.00
17	1	Adult	2040	1	0.0004	0.0370	0.0424	0.001	0.001	0.0000	0.00
18	1	Adult	2041	1	0.0004	0.0370	0.0424	0.001	0.001	0.0000	0.00
19	1	Adult	2042	1	0.0004	0.0370	0.0424	0.001	0.001	0.0000	0.00
20	1	Adult	2043	1	0.0004	0.0370	0.0424	0.001	0.001	0.0000	0.00
21	1	Adult	2044	1	0.0004	0.0370	0.0424	0.001	0.001	0.0000	0.00
22	1	Adult	2045	1	0.0004	0.0370	0.0424	0.001	0.001	0.0000	0.00
23	1	Adult	2046	1	0.0004	0.0370	0.0424	0.001	0.001	0.0000	0.00
24	1	Adult	2047	1	0.0004	0.0370	0.0424	0.001	0.001	0.0000	0.00
25	1	Adult	2048	1	0.0004	0.0370	0.0424	0.001	0.001	0.0000	0.00
26	1	Adult	2049	1	0.0004	0.0370	0.0424	0.001	0.001	0.0000	0.00
27	1	Adult	2050	1	0.0004	0.0370	0.0424	0.001	0.001	0.0000	0.00
28	1	Adult	2051	1	0.0004	0.0370	0.0424	0.001	0.001	0.0000	0.00
29	1	Adult	2052	1	0.0004	0.0370	0.0424	0.001	0.001	0.0000	0.00
30	1	Adult	2053	1	0.0004	0.0370	0.0424	0.001	0.001	0.0000	0.00
Total Increased Cancer Risk								0.03	0.018	0.001	**0.05**

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.0001	0.02	0.02

* Third trimester of pregnancy

Hawthorn Senior Apartments, 118 N. 15th Street, San Jose, CA - E. Santa Clara Street Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
at Construction MEI Receptor, 1.5m receptor height (1st floor)

Emission Year	2023
Receptor Information	Construction MEI receptor
Number of Receptors	1
Receptor Height	1st Floor, 1.5 meters
Receptor Distances	At Construction MEI location
Meteorological Conditions	
BAQMD San Jose Airport Met Data	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Wind Direction	Variable

Construction MEI Cancer Risk Maximum Concentrations

Meteorological	Concentration (µg/m3)		
Data Years	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0004	0.0425	0.0474

Construction MEI PM2.5 Maximum Concentrations

Meteorological	PM2.5 Concentration (µg/m3)		
Data Years	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.0256	0.0236	0.0020

Hawthorn Senior Apartments, 118 N. 15th Street, San Jose, CA - E. Santa Clara Street Cancer Risk & PM2.5
Impacts at Construction MEI - 1.5 meter receptor height (1st floor)
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*	2023	10	0.0004	0.0425	0.0474	0.006	0.003	0.0002	0.01
1	1	0 - 1	2023	10	0.0004	0.0425	0.0474	0.069	0.040	0.0026	0.11
2	1	1 - 2	2024	10	0.0004	0.0425	0.0474	0.069	0.040	0.0026	0.11
3	1	2 - 3	2025	3	0.0004	0.0425	0.0474	0.011	0.006	0.0004	0.02
4	1	3 - 4	2026	3	0.0004	0.0425	0.0474	0.011	0.006	0.0004	0.02
5	1	4 - 5	2027	3	0.0004	0.0425	0.0474	0.011	0.006	0.0004	0.02
6	1	5 - 6	2028	3	0.0004	0.0425	0.0474	0.011	0.006	0.0004	0.02
7	1	6 - 7	2029	3	0.0004	0.0425	0.0474	0.011	0.006	0.0004	0.02
8	1	7 - 8	2030	3	0.0004	0.0425	0.0474	0.011	0.006	0.0004	0.02
9	1	8 - 9	2031	3	0.0004	0.0425	0.0474	0.011	0.006	0.0004	0.02
10	1	9 - 10	2032	3	0.0004	0.0425	0.0474	0.011	0.006	0.0004	0.02
11	1	10 - 11	2033	3	0.0004	0.0425	0.0474	0.011	0.006	0.0004	0.02
12	1	11 - 12	2034	3	0.0004	0.0425	0.0474	0.011	0.006	0.0004	0.02
13	1	12 - 13	2035	3	0.0004	0.0425	0.0474	0.011	0.006	0.0004	0.02
14	1	13 - 14	2036	3	0.0004	0.0425	0.0474	0.011	0.006	0.0004	0.02
15	1	14 - 15	2037	3	0.0004	0.0425	0.0474	0.011	0.006	0.0004	0.02
16	1	15 - 16	2038	3	0.0004	0.0425	0.0474	0.011	0.006	0.0004	0.02
17	1	16-17	2039	1	0.0004	0.0425	0.0474	0.001	0.001	0.0000	0.00
18	1	17-18	2040	1	0.0004	0.0425	0.0474	0.001	0.001	0.0000	0.00
19	1	18-19	2041	1	0.0004	0.0425	0.0474	0.001	0.001	0.0000	0.00
20	1	19-20	2042	1	0.0004	0.0425	0.0474	0.001	0.001	0.0000	0.00
21	1	20-21	2043	1	0.0004	0.0425	0.0474	0.001	0.001	0.0000	0.00
22	1	21-22	2044	1	0.0004	0.0425	0.0474	0.001	0.001	0.0000	0.00
23	1	22-23	2045	1	0.0004	0.0425	0.0474	0.001	0.001	0.0000	0.00
24	1	23-24	2046	1	0.0004	0.0425	0.0474	0.001	0.001	0.0000	0.00
25	1	24-25	2047	1	0.0004	0.0425	0.0474	0.001	0.001	0.0000	0.00
26	1	25-26	2048	1	0.0004	0.0425	0.0474	0.001	0.001	0.0000	0.00
27	1	26-27	2049	1	0.0004	0.0425	0.0474	0.001	0.001	0.0000	0.00
28	1	27-28	2050	1	0.0004	0.0425	0.0474	0.001	0.001	0.0000	0.00
29	1	28-29	2051	1	0.0004	0.0425	0.0474	0.001	0.001	0.0000	0.00
30	1	29-30	2052	1	0.0004	0.0425	0.0474	0.001	0.001	0.0000	0.00
Total Increased Cancer Risk								0.31	0.181	0.012	**0.51**

Maximum Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.0001	0.02	0.03

* Third trimester of pregnancy

Hawthorn Senior Apartments, 118 N. 15th Street, San Jose, CA - E. Santa Clara Street Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
On-Site 1st (1.5m) & 2nd (6.7m) Floor Receptors Heights

Emission Year	2024
Receptor Information	Maximum On-Site Receptor
Number of Receptors	87
Receptor Height	1st (1.5m) & 2nd (6.7m) Floors
Receptor Distances	7 meter grid spacing in residential areas

Meteorological Conditions

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

On-Site Cancer Risk Maximum Concentrations

Meteorological	Concentration (µg/m3)			
Data Years	DPM	Exhaust TOG	Evaporative TOG	
2013-2017	0.0004	0.0417	0.0478	1st Floor
2013-2017	0.0004	0.0370	0.0424	2nd Floor

On-Site PM2.5 Maximum Concentrations

Meteorological	PM2.5 Concentration (µg/m3)			
Data Years	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5	
2013-2017	0.0268	0.0248	0.0020	1st Floor
2013-2017	0.0238	0.0220	0.0018	2nd Floor

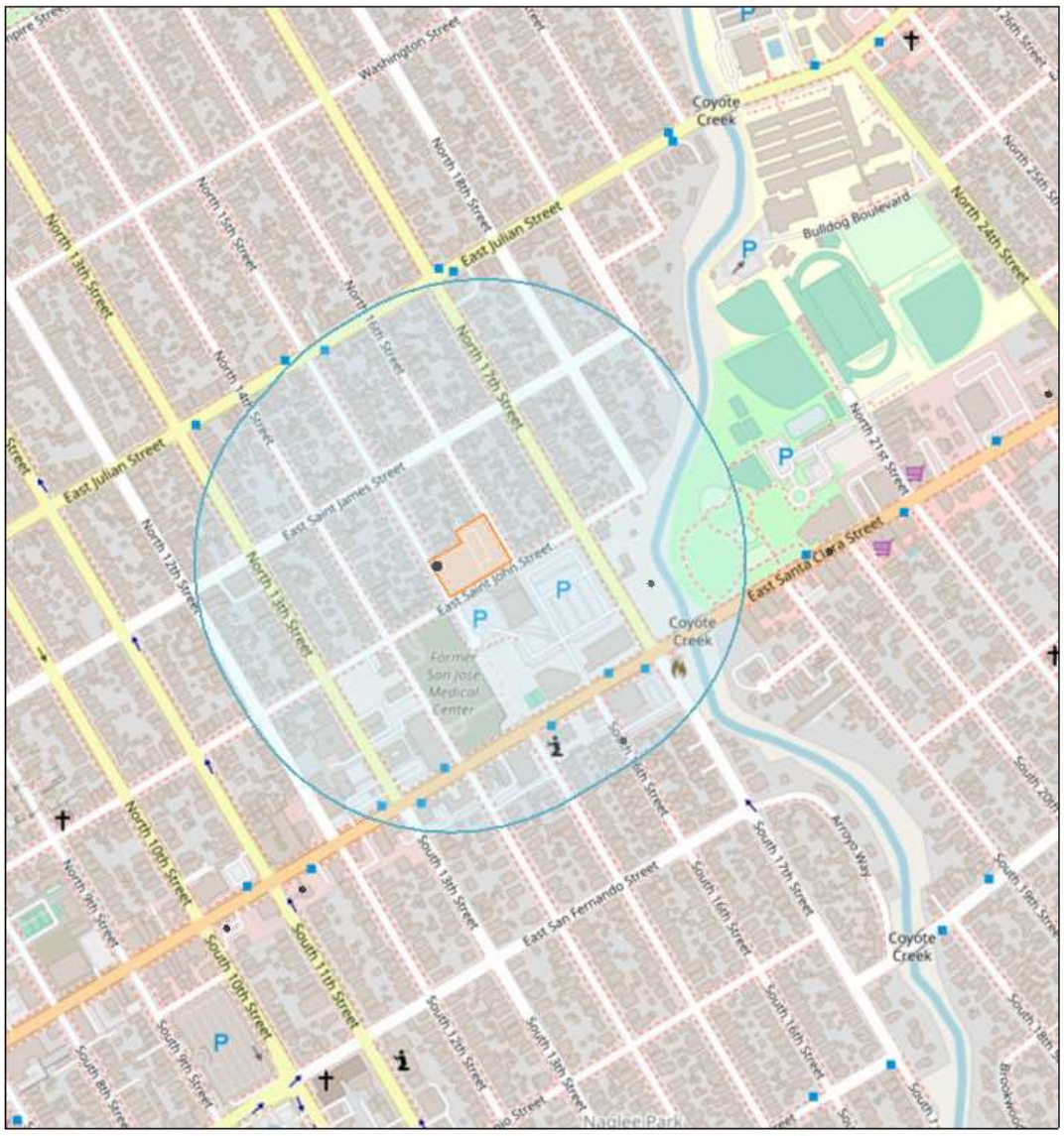
Attachment 5: Community Risk Modeling Information and Calculations

Screening Report

Area of Interest (AOI) Information

Area : 4,225,155.65 ft²

Aug 1 2022 15:59:29 Pacific Daylight Time



• Permitted Stationary Sources

1:9,028

0 0.05 0.1 0.2 mi

0 0.07 0.15 0.3 km

Summary

Name	Count	Area(ft²)	Length(ft)
Permitted Stationary Sources	2	N/A	N/A

Permitted Stationary Sources

#	FacID	FacName	Address	City	Street
1	19802	San Jose Water Company	86 N 17th Street	San Jose	CA
2	23495	Downtown San Jose - Valley Health Clinic	777 E Santa Clara St	San Jose	CA

#	Zip	County	Latitude	Longitude	Details
1	95,112.00	Santa Clara	37.34	-121.87	Generator
2	95,112.00	Santa Clara	37.34	-121.87	Generator

#	NAICS	Sector	Sub_Sector	Industry	ChronicHI
1	221,310.00	Utilities	Utilities	Water Supply and Irrigation Systems	0.0474244
2	621,111.00	Health Care and Social Assistance	Ambulatory Health Care Services	Offices of Physicians (except Mental Health Specialists)	0.0035366

#	PM2_5	Cancer Risk {expression/expr0}	Chronic Hazard Index {expression/expr1}	PM2.5 {expression/expr2}	Count
1	0.2698650	101.608	0.047	0.27	1
2	0.0011128	0.94	0.004	0.001	1

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

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	**8/1/2022**
Contact Name	Casey Divine
Affiliation	Illingworth & Rodkin, Inc.
Phone	707-794-0400 x103
Email	cdivine@illingworthrodkin.com
Project Name	Hawthorn Senior Apartments
Address	118 N. 15th Street
City	San Jose
County	Santa Clara
Type (residential, commercial, mixed use, industrial, etc.)	Residential
Project Size (# of units or building square feet)	103-du
Comments:	

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

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

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

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

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

5. List the stationary source information in blue section only.

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

Table B

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

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

Submit forms, maps, and questions to Matthew Hanson at 415-749-8733, or mhanson@baaqmd.gov

Table B: Google Earth data

Construction MEI

Distance from Receptor (feet) or MEI[1]	Plant No.	Facility Name	Address	Cancer Risk[2]	Hazard Risk[2]	$PM_{2.5}$[2]	Source No.[3]	Type of Source[4]	Fuel Code[5]	Status/Comments	Distance Adjustment Multiplier	Adjusted Cancer Risk Estimate	Adjusted Hazard Risk	Adjusted PM2.5
570	19802	San Jose Water Company	86 N 17th Street	101.61	0.05	0.270		Generator		2020 Dataset	0.09	9.14	0.004	0.02
490	23495	Downtown San Jose - Valley Health Clinic	777 E Santa Clara St	0.94	0.004	0.001		Generator		2020 Dataset	0.12	0.11	0.0005	0.0001

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
620	19802	0.08	8.13	0.004	0.02
515	23495	0.10	0.09	0.0004	0.0001

Footnotes:

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