

***3111 SANTA ROSA AVENUE
APARTMENTS AND STORAGE
PROJECT AIR QUALITY &
GREENHOUSE GAS ASSESSMENT***

Santa Rosa, California

August 11, 2021

Prepared for:

**House Properties
35 Corte Madera Avenue
Mill Valley, CA 94941**

**CC: Randy Figueiredo AIA
Tierney/Figueiredo Architects
817 Russell Avenue, Suite H
Santa Rosa, CA 95403**

Prepared by:

**Zachary Palm,
Casey Divine, and
James A. Reyff**

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

I&R Job #: 21-075

Introduction

The purpose of this report is to address air quality, community health risk, and greenhouse gas (GHG) impacts associated with the proposed residential and storage project located at 3111 Santa Rosa Avenue in Santa Rosa, California. The air quality impacts and GHG emissions would be associated with construction of the new buildings and infrastructure and trips generated by the operation of the project. Air pollutant and GHG emissions associated with the construction and operation of the project were predicted using appropriate computer models. In addition, the potential project health risk impact (including construction and operation) and the impacts of existing toxic air contaminant (TAC) sources affecting the nearby existing and proposed sensitive receptors were evaluated. This analysis addresses those issues following the guidance provided by the Bay Area Air Quality Management District (BAAQMD).¹

Project Description

The 4.51-acre site is located between Highway 101 and Santa Rosa Avenue in Santa Rosa. The site is currently being used as a storage lot, storing various motor vehicles on a flat asphalt parking lot. The proposed project would demolish the current site to construct a three-story, approximately 33,000 square-foot (sf) building containing 48 residential apartment units, an approximately 39,000-sf of self-storage building, a 901-sf leasing office, and a 91,000-sf parking lot. The parking lot will be split into parking spaces for 92 cars around the apartment building and 44 parking spaces around the self-storage building.

Setting

The project is located in the southern portion of Sonoma 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 (PM₁₀), 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 (PM₁₀) and fine particulate matter where particles have a diameter of 2.5 micrometers or less (PM_{2.5}). Elevated concentrations of PM₁₀ and PM_{2.5} are the result of both

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

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

Toxic Air Contaminants

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

Diesel exhaust is the predominant TAC in urban air and is estimated to represent about three-quarters of the cancer risk from TACs (based on the Bay Area average). According to the California Air Resources Board (CARB), diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the CARB, and are listed as carcinogens either under the State's Proposition 65 or under the Federal Hazardous Air Pollutants programs. The most recent Office of Environmental Health Hazard Assessment (OEHHA) risk assessment guidelines were published in February of 2015.² See *Attachment 1* for a detailed description of the community risk modeling methodology used in this assessment.

Sensitive Receptors

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

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

Regulatory Setting

Federal Regulations

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

In the past decade the EPA has established a number of emission standards for on- and non-road heavy-duty diesel engines used in trucks and other equipment. This was done in part because diesel engines are a significant source of nitrogen oxides, or NO_x, and particulate matter (PM₁₀ and PM_{2.5}) and because the EPA has identified diesel particulate matter 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 PM and NO_x emissions from diesel engines up to 95 percent in 2030 when the heavy-duty vehicle fleet is completely replaced with newer heavy-duty vehicles that comply with these emission standards.³

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

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

State Regulations

To address the issue of diesel emissions in the state, CARB developed the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles⁴. 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

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.

significant component of the plan involves application of emission control strategies to existing diesel vehicles and equipment. Many of the measures of the Diesel Risk Reduction Plan have been approved and adopted, including the Federal on-road and non-road diesel engine emission standards for new engines, as well as adoption of regulations for low sulfur fuel in California.

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

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

Bay Area Air Quality Management District (BAAQMD)

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

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

BAAQMD's Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposures to outdoor TACs in the Bay Area.⁵ The

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

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. 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 not within an at-risk community area.

The BAAQMD *California Environmental Quality Act (CEQA) Air Quality Guidelines*⁶ were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process consistent with CEQA requirements including thresholds of significance, mitigation measures, and background air quality information. They also include assessment methodologies for air toxics, odors, and greenhouse gas emissions. In June 2010, the BAAQMD's Board of Directors adopted CEQA thresholds of significance and an update of their *CEQA Guidelines*. In May 2011, the updated BAAQMD *CEQA Air Quality Guidelines* were amended to include a risk and hazards threshold for new receptors and modify procedures for assessing impacts related to risk and hazard impacts.

City of Santa Rosa 2035 General Plan

The Santa Rosa 2035 General Plan includes goals, policies, and actions to reduce exposure of the City's sensitive population to exposure of air pollution, toxic air contaminants, and GHG emissions. The following goals, policies, and actions are applicable to the proposed project:

Climate Change

- LUL-A: Foster a compact rather than a scattered development pattern in order to reduce travel, energy, land, and materials consumption while promoting greenhouse gas emission reductions citywide.
- UD-A-12: Promote green building design and low impact development projects.
- H-G-2: Require, as allowed by CALGreen Tier 1 standards, energy efficiency through site planning and building design by assisting residential developers in identifying energy conservation and efficiency measures appropriate to the Santa Rosa area.

⁶ Bay Area Air Quality Management District, 2011. *CEQA Air Quality Guidelines*. May. (Updated May 2017)

- H-G-5: Continue to require the use of fuel-efficient heating and cooling equipment and other appliances, in accordance with CALGreen Tier 1 standards.
- NS-H-1: Participate in regional efforts to prepare for the impacts of climate change.
- OSC-M-1: Meet local, regional, and state targets for reduction of greenhouse gas emissions through implementation of the Climate Action Plan.

Air Quality

- OSC-J-1: Review all new construction projects and require dust abatement actions as contained in the CEQA Handbook of the Bay Area Air Quality Management District.
- OSC-J-3: Reduce particulate matter emissions from wood burning appliances through implementation of the city’s Wood Burning Appliance code.

Significance Thresholds

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

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	
Greenhouse Gas Emissions			
Land Use Projects – direct and indirect emissions	Compliance with a Qualified GHG Reduction Strategy OR 1,100 metric tons annually or 4.6 metric tons per capita (for 2020) *		
Note: ROG = reactive organic gases, NO _x = nitrogen oxides, PM ₁₀ = course particulate matter or particulates with an aerodynamic diameter of 10 micrometers (µm) or less, PM _{2.5} = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less. GHG = greenhouse gases. *BAAQMD does not have a recommended post-2020 GHG threshold.			

Source: Bay Area Air Quality Management District, 2017

AIR QUALITY IMPACTS AND MITIGATION MEASURES

Impact AIR-1: Conflict with or obstruct implementation of the applicable air quality plan?

BAAQMD is the regional agency responsible for overseeing compliance with State and Federal laws, regulations, and programs within the San Francisco Bay Area Air Basin (SFBAAB). BAAQMD, with assistance from the Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC), prepares and implements specific plans to meet the applicable laws, regulations, and programs. The most recent and comprehensive of which is the *Bay Area 2017 Clean Air Plan*.⁷ The primary goals of the Clean Air Plan are to attain air quality standards, reduce population exposure and protect public health, and reduce GHG emissions and protect the climate. The BAAQMD has also developed CEQA guidelines to assist lead agencies in evaluating the significance of air quality and GHG impacts. In formulating compliance strategies, BAAQMD relies on planned land uses established by local general plans. Land use planning affects vehicle travel, which, in turn, affects region-wide emissions of air pollutants and GHGs.

The 2017 Clean Air Plan, adopted by BAAQMD in April 2017, includes control measures that are intended to reduce air pollutant emissions in the Bay Area either directly or indirectly. Plans must show consistency with the control measures listed within the Clean Air Plan. At the project-level, there are no consistency measures or thresholds. The proposed project would not conflict with the latest Clean Air planning efforts since 1) project would have construction and operational emissions below the BAAQMD thresholds (see Impact 2 below), 2) the project would be considered urban infill, 3) the project would be located near employment centers, 4) the project would be located near transit with regional connections.

Impact AIR-2: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

The Bay Area is considered a non-attainment area for ground-level O₃ and PM_{2.5} under both the Federal Clean Air Act and the California Clean Air Act. The area is also considered non-attainment for PM₁₀ under the California Clean Air Act, but not the federal act. The area has attained both State and Federal ambient air quality standards for carbon monoxide. As part of an effort to attain and maintain ambient air quality standards for O₃, PM_{2.5} and PM₁₀, the BAAQMD has established thresholds of significance for these air pollutants and their precursors. These thresholds are for O₃ precursor pollutants (ROG and NO_x), PM₁₀, and PM_{2.5} and apply to both construction period and operational period impacts.

Construction Period Emissions

The California Emissions Estimator Model (CalEEMod) Version 2020.4.0 was used to estimate emissions from on-site construction activity, construction vehicle trips, and evaporative

⁷ Bay Area Air Quality Management District (BAAQMD), 2017. *Final 2017 Clean Air Plan*.

emissions. The project land use types and size, and anticipated construction schedule were input to CalEEMod. The CARB Emission FACTors 2021 (EMFAC2021) model was used to predict emissions from construction traffic, which includes worker travel, vendor trucks, and haul trucks.⁸ The CalEEMod model output along with construction inputs are included in *Attachment 2* and EMFAC2021 vehicle emissions modeling outputs are included in *Attachment 3*.

CalEEMod Inputs

Land Use Inputs

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

Table 2. Summary of Project Land Use Inputs

Project Land Uses	Size	Units	Square Feet (sf)	Acreage
Apartments Mid Rise	48	Dwelling Unit	33,000	4.51
Unrefrigerated Warehouse-No Rail	39	1,000-sf	39,000	
General Office Building	0.9	1,000-sf	901	
Parking Lot	136	Parking Spaces	91,000	

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. The construction acreage and land use inputs were based on information provided by the applicant.

The construction phase lengths and dates were assumed to be CalEEMod defaults. Within each phase, the quantity of equipment to be used along with the average hours per day and total number of workdays was set to the default CalEEMod inputs. Since different equipment would have different estimates of the working days per phase, the hours per day for each phase was computed by dividing the total number of hours that the equipment would be used by the total number of days in that phase. The construction schedule assumed that the earliest possible start date would be January 2022, project construction would be five-days a week, and the project would be built out over a period of approximately 15 months, or 309 construction workdays. The earliest year of full 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

⁸ See CARB’s EMFAC2021 Emissions Inventory at <https://arb.ca.gov/emfac/emissions-inventory>

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

The latest version of the CalEEMod model is based on the older version of the CARB EMFAC2017 motor vehicle emission factor model. This model has been superseded by the EMFAC2021 model; however, CalEEMod has not been updated to include EMFAC2021. The construction traffic information was combined with EMFAC2021 motor vehicle emissions factors. EMFAC2021 provides aggregate emission rates in grams per mile for each vehicle type. The vehicle mix for this study was based on CalEEMod defaults, where worker trips are assumed to be comprised of light-duty autos (EMFAC category LDA) and light duty trucks (EMFAC category LDT1 and LDT2). Vendor trips are comprised of delivery and large trucks (EMFAC category MHDT and HHDT) and haul trips, including cement trucks, are comprised of large trucks (EMFAC category HHDT). Travel distances are based on CalEEMod default lengths, which are 10.8 miles for worker travel, 7.3 miles for vendor trips and 20 miles for hauling (demolition material export and soil import/export). Since CalEEMod does not address cement trucks, these were treated as vendor travel distances. Each trip was assumed to include an idle time of 5 minutes. Emissions associated with vehicle starts were also included. On road emissions in Sonoma County for the year 2022 was used in these calculations. Table 3 provides the traffic inputs that were combined with the EMFAC2021 emission database to compute vehicle emissions.

Table 3. Construction Traffic Data Used for EMFAC2021 Model Runs

CalEEMod Run/Land Uses and Construction Phase	Trips by Trip Type			Notes
	Total Worker ¹	Total Vendor ¹	Total Haul ²	
Vehicle mix ¹	50% LDA 25% LDT1 25% LDT2	50% MHDT 50% HHDT	100% HHDT	
Trip Length (miles)	10.8	7.3	20.0	CalEEMod default distance with 5-min truck idle time.
Demolition	300	-	-	CalEEMod default worker trips.
Site Preparation	90	-	-	CalEEMod default worker trips.
Grading	120	-	-	CalEEMod default worker trips.
Trenching	50	-	-	CalEEMod default worker trips.
Building Construction	20,470	6,210	648	Estimated.33,000-sf cement. CalEEMod default worker and vendor trips.
Architectural Coating	324	-	-	CalEEMod default worker trips.
Paving	360	-	202	Estimated.91,000-sf asphalt CalEEMod default worker trips.
Notes: ¹ Based on 2022 EMFAC2021 light-duty vehicle fleet mix for Sonoma County. ² Includes demolition and grading trips estimated by CalEEMod based on amount of material to be removed. Cement and asphalt trips estimated based on estimated building and pavement areas.				

Summary of Computed Construction Period Emissions

Average daily emissions were computed by dividing the total construction emissions by the number of active construction workdays (309 days). Table 4 shows average daily construction emissions of ROG, NO_x, PM₁₀ exhaust, and PM_{2.5} exhaust during construction of the project. As indicated in Table 4, predicted construction period emissions would not exceed the BAAQMD significance thresholds during construction.

Table 4. Construction Period Emissions

Year	ROG	NO _x	PM ₁₀ Exhaust	PM _{2.5} Exhaust
Total Construction Emissions (tons)	0.73	2.13	0.11	0.10
Average daily emissions (pounds)¹	4.74	13.78	0.74	0.65
<i>BAAQMD Thresholds (pounds per day)</i>	54 lbs./day	54 lbs./day	82 lbs./day	54 lbs./day
Exceed Threshold?	No	No	No	No

Notes: ¹Assumes 309 workdays.

Construction activities, particularly during site preparation and grading, would temporarily generate fugitive dust in the form of PM₁₀ 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, employees, and customers. Evaporative emissions from architectural coatings and maintenance products (classified as consumer products) are typical emissions from these types of uses. CalEEMod was used to estimate emissions from operation of the proposed project assuming full build-out.

CalEEMod Inputs

Land Uses

The project land uses were 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 2022. 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 trip generation rate provided by the traffic consultant was entered into the model.⁹ The project would produce 321 net daily trips. The Saturday and Sunday trip rates were adjusted by multiplying the ratio of the CalEEMod default rates for Saturday and Sunday trips to the default weekday rate with the project-specific daily weekday trip rate. The default trip types and lengths 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 and off road mobile sources. Since the release of CalEEMod Version 2020.4.0, new emission factors have been produced by CARB. EMFAC2021 became available for use in January 2021. It includes the latest data on California's car and truck fleets and travel activity. Additionally, CARB has recently released EMFAC off-model adjustment factors to account for the Safer Affordable Efficient (SAFE) Vehicle Rule Part one.^{10,11} The CalEEMod vehicle emission factors and fleet mix were updated with the emission rates and fleet mix from EMFAC2021, which were adjusted with the CARB EMFAC off-model adjustment factors. On road emission rates from 2022 Sonoma 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.¹²

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 model has a default rate of 119.98 pounds of CO₂ per megawatt of electricity produced, which is based on Sonoma Clean Power's (SCP) 2019 emissions rate. Sonoma Clean Power is the main energy provider within the Sonoma County area. Depending on the program a customer or business is enrolled in with SCP, the electricity provided by SCP can be 91 percent carbon-free (i.e. CleanStart program) or 100 percent carbon-free (i.e. EverGreen program).

⁹ W-Trans, *Focused Traffic Analysis for the 3111 Santa Rosa Avenue Project*, June 10, 2021.

¹⁰ California Air Resource Board, 2019. *EMFAC Off-Model Adjustment Factors to Account for the SAFE Vehicle Rule Part One*. November. Web: https://ww3.arb.ca.gov/msei/emfac_off_model_adjustment_factors_final_draft.pdf

¹¹ California Air Resource Board, 2020. *EMFAC Off-Model Adjustment Factors for Carbon Dioxide (CO₂) Emissions to Accounts for the SAFE Vehicles Rule Part One and the Final SAFE Rule*. June. Web: https://ww3.arb.ca.gov/msei/emfac_off_model_co2_adjustment_factors_06262020-final.pdf?utm_medium=email&utm_source=govdelivery

¹² See CARB 2021: <https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-modeling-tools-emfac>

Other Inputs

Default model assumptions for emissions associated with solid waste generation use were applied to the project. Water/wastewater use were changed to 100% aerobic conditions to represent wastewater treatment plant conditions. All hearths were assumed to be fueled by natural gas per BAAQMD Regulation 6, Rule 3, which requires that new building construction not install a wood-burning device (effective as of November 1, 2016).¹³

Existing Uses

A CalEEMod model run was not developed to compute emissions from the existing land uses since the existing use of the site is a lot to store various motor vehicles. These uses produce low operational and traffic emissions which would not considerably offset emissions from the proposed project. In addition, traffic consultants did not provide project-specific trip generation rates for the existing land uses. Therefore, the emissions from the existing uses were not considered, nor used to offset proposed project conditions.

Summary of Computed Operational Period Emissions

Annual emissions were predicted using CalEEMod. The daily emissions were estimated assuming 365 days of operation. Table 5 shows average daily emissions of ROG, NO_x, total PM₁₀, and total PM_{2.5} during operation of the project. The operational period emissions would not exceed the BAAQMD significance thresholds.

Table 5. Operational Period Emissions

Scenario	ROG	NO_x	PM₁₀	PM_{2.5}
2024 Project Operational Emissions (<i>tons/year</i>)	0.58 tons	0.28 tons	0.26 tons	0.07 tons
<i>BAAQMD Thresholds (tons /year)</i>	<i>10 tons</i>	<i>10 tons</i>	<i>15 tons</i>	<i>10 tons</i>
<i>Exceed Thresholds?</i>	No	No	No	No
2024 Project Operational Emissions (<i>lbs./day</i>) ¹	3.18 lbs.	1.53 lbs.	1.42 lbs.	0.38 lbs.
<i>BAAQMD Thresholds (lbs./day)</i>	<i>54 lbs.</i>	<i>54 lbs.</i>	<i>82 lbs.</i>	<i>54 lbs.</i>
<i>Exceed Threshold?</i>	No	No	No	No

Notes: ¹ Assumes 365-day operation.

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

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

¹³ Bay Area Air Quality Management District, https://www.baaqmd.gov/~media/dotgov/files/rules/regulation-6-rule-3/documents/20191120_r0603_final-pdf.pdf?la=en

Project construction activity would generate dust and equipment exhaust that would affect nearby sensitive receptors. The project would not include the installation of any emergency generators powered by a diesel engine 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 which includes the project contribution, as well as the risk on the new sensitive receptors introduced by the project.

Community Risk Methodology for Construction and Operation

Community risk impacts were addressed by predicting increased cancer risk, the increase in annual PM_{2.5} concentrations and computing the Hazard Index (HI) for non-cancer health risks. The risk impacts from the project are the combination of risks from construction and operation sources. These sources include on-site construction activity, construction truck hauling, 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,¹⁴ 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 would be present for extended periods of time (i.e., chronic exposures). This includes the existing residences to the northeast and east of the site and other existing residences to the south 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.

Community Health Risk from Project Construction

Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known TAC. These exhaust air pollutant emissions would not be considered to contribute

¹⁴ BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*. December 2016.

substantially to existing or projected air quality violations. Construction exhaust emissions may still pose health risks for sensitive receptors such as surrounding residents (see Impact AIR-2). The primary community risk impact issue associated with construction emissions are cancer risk and exposure to PM_{2.5}. Diesel exhaust poses both a potential health and nuisance impact to nearby receptors. A health risk assessment of the project construction activities was conducted that evaluated potential health effects to nearby sensitive receptors from construction emissions of DPM and PM_{2.5}.¹⁵ This assessment included dispersion modeling to predict the offsite and onsite concentrations resulting from project construction, so that lifetime cancer risks and non-cancer health effects could be evaluated.

Construction Emissions

The CalEEMod and EMFAC2021 models provided total annual PM₁₀ exhaust emissions (assumed to be DPM) for the off-road construction equipment and for exhaust emissions from on-road vehicles, with total emissions from all construction stages as 0.10 tons (204 pounds). The on-road emissions are a result of haul truck travel during demolition and grading activities, worker travel, and vendor deliveries during construction. A trip length of one mile was used to represent vehicle travel while at or near the construction site. It was assumed that these emissions from on-road vehicles traveling at or near the site would occur at the construction site. Fugitive PM_{2.5} dust emissions were calculated by CalEEMod and EMFAC2021 as 0.04 tons (81 pounds) for the overall construction period. The breakdown of yearly emissions is included in *Attachment 4*.

Dispersion Modeling

The U.S. EPA AERMOD dispersion model was used to predict DPM and PM_{2.5} concentrations at sensitive receptors (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.¹⁶ 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.¹⁷ 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 do for a point source (exhaust stack). Therefore, the release height from an area source is used to

¹⁵ DPM is identified by California as a toxic air contaminant due to the potential to cause cancer.

¹⁶ Bay Area Air Quality Management District (BAAQMD), 2012, *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0*. May.

¹⁷ 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>

represent emissions from sources with plume rise, such as construction equipment, and should be based on the height the exhaust plume is expected to achieve, not just the height of the top of the exhaust pipe.

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

AERMOD Inputs and Meteorological Data

The modeling used a five-year data set (2013 - 2017) of hourly meteorological data from the Sonoma County Airport prepared for use with the AERMOD model by BAAQMD. Construction emissions were modeled as occurring daily between 8:00 a.m. to 5:00 p.m., when the majority of construction activity would occur. Annual DPM and PM_{2.5} concentrations from construction activities during the 2022-2023 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), 15 feet (4.5 meters), and 25 feet (7.6 meters) were used to represent the breathing height on the first, second, and third floors of nearby single- and multi-family residences.¹⁸

Summary of Construction Community Risk Impacts

The increased cancer risk calculations were based on applying the BAAQMD recommended age sensitivity factors to the TAC concentrations, as described in *Attachment 1*. Age-sensitivity factors reflect the greater sensitivity of infants and 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 reference exposure level of 5 µg/m³.

The maximum modeled annual DPM and PM_{2.5} concentrations, which include both the DPM and fugitive PM_{2.5} concentrations, were identified at nearby sensitive receptors to find the MEI. Results of this assessment indicated that the construction MEI was located at a residence on the

¹⁸ 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>

first floor (5 feet above ground) to the northeast of the project site. 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 – Generator and Traffic

Stationary equipment that could emit substantial TACs (e.g., emergency generators) are not planned. Operation of the project would have long-term emissions from mobile sources (i.e., traffic). Per BAAQMD recommended risks and methodology, a road with less than 10,000 total vehicles per day is considered a low-impact source of TACs.¹⁹ This project would generate 321 net daily trips²⁰ 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. 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 1.25 years of construction cancer risks. 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, PM_{2.5} concentration, and HI from construction activities at the MEI location would not exceed their respective BAAQMD single-source significance thresholds.

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

Source		Cancer Risk (per million)	Annual PM _{2.5} (µg/m ³)	Hazard Index
Project Construction	Unmitigated	7.36 (infant)	0.06	0.01
BAAQMD Single-Source Threshold		10	0.3	1.0
<i>Exceed Threshold?</i>	Unmitigated	<i>No</i>	<i>No</i>	<i>No</i>

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

²⁰ W-Trans, *Focused Traffic Analysis for the 3111 Santa Rosa Avenue Project*, June 10, 2021.

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

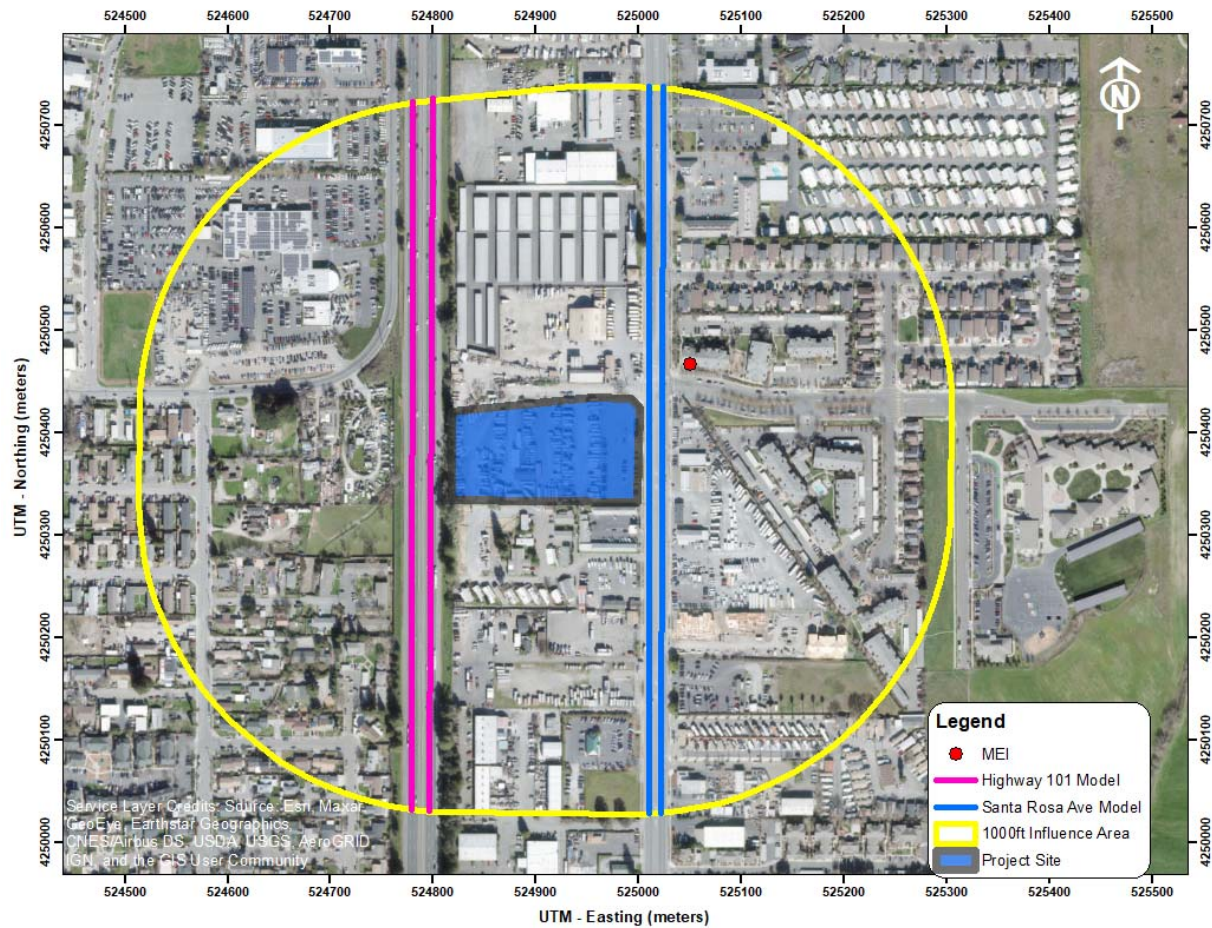


Cumulative Community Risks of all TAC Sources at the Off-site Project MEI

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 a project site (i.e., influence area). These sources include railroads, freeways or highways, busy surface streets, and stationary sources identified by BAAQMD.

A review of the project area indicated that traffic on U.S. Highway 101 and Santa Rosa Avenue would exceed 10,000 vehicles per day. Other nearby streets are assumed to have less than 10,000 vehicles per day. A review of BAAQMD’s stationary source map website identified no 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 Tables 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



Highways – Highway 101

The project MEI is located near Highway 101. A refined analysis of the impacts of TACs and PM_{2.5} to the MEI receptor is necessary to evaluate potential cancer risks and PM_{2.5} concentrations from Highway 101. A review of the traffic information reported by Caltrans indicates that Highway 101 traffic includes 153,000 vehicles per day (based on an annual average)²¹ that are about 5.1 percent trucks, of which 3.1 percent are considered diesel heavy duty trucks and 2.0 percent are medium duty trucks.²²

Local Roadways – Santa Rosa Avenue

A refined analysis of potential health impacts from vehicle traffic on Santa Rosa Avenue was conducted. The refined analysis involved predicting emissions for the traffic volume and mix of vehicle types on the roadway near the project site and using an atmospheric dispersion model to predict exposure to TACs. The associated cancer risks are then computed based on the modeled

²¹ Caltrans. 2021. *2019 Traffic Volumes California State Highways*.

²² Caltrans. 2021. *2019 Annual Average Daily Truck Traffic on the California State Highway System*.

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 Highway 101 and Santa Rosa Avenue using the Caltrans version of the CARB EMFAC2017 emissions model, known as CT-EMFAC2017. CT-EMFAC2017 provides emission factors for mobile source criteria pollutants and TACs, including DPM. Emission processes modeled include running exhaust for DPM, PM_{2.5} and total organic compounds (TOG), running evaporative losses for TOG, and tire and brake wear and fugitive road dust for PM_{2.5}. All PM_{2.5} emissions from all vehicles were used, rather than just the PM_{2.5} fraction from diesel powered vehicles, because all vehicle types (i.e., gasoline and diesel powered) produce PM_{2.5}. Additionally, PM_{2.5} emissions from vehicle tire and brake wear from re-entrained roadway dust were included in these emissions. DPM emissions are projected to decrease in the future and are reflected in the CT-EMFAC2017 emissions data. Inputs to the model include region (Sonoma County), type of road (freeway and major/collector), traffic mix assigned by CT-EMFAC2017 for the county, adjusted for the local truck mix on Highway 101 and truck percentage for non-state highways in Santa Clara County (4.32 percent)²³ for Santa Rosa Avenue, year of analysis (2024 – operational year), and season (annual).

To estimate TAC and PM_{2.5} emissions over the 30-year exposure period used for calculating the increased cancer risks for sensitive receptors at the MEI and project site, the CT-EMFAC2017 model was used to develop vehicle emission factors for the year 2024 (operational 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 2024 emissions were conservatively assumed as being representative of future conditions over the time period that cancer risks are evaluated since, as discussed above, overall vehicle emissions, and in particular diesel truck emissions, will decrease in the future.

Average daily traffic (ADT) volumes and truck percentages were based on Caltrans data for Highway 101. Traffic volumes were assumed to increase 1 percent per year for a total of 160,650 vehicles. Hourly traffic distributions specific to these segments of Highway 101 were obtained from Caltrans Performance Measurement System (PeMS). PeMS data is collected in real-time from nearly 40,000 individual detectors spanning the freeway system across all major metropolitan areas of California.²⁴ The fraction of traffic volume each hour was calculated and applied to the 2024 average daily traffic volumes estimate to estimate hourly traffic emission rates for Highway 101.

²³ 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>

²⁴ <https://dot.ca.gov/programs/traffic-operations/mpr/pems-source>

Based on traffic data from the Caltrans PeMS, traffic speeds during the daytime and nighttime periods were identified. From 7:00 p.m. until 6:00 a.m., an average speed of 65 miles per hour (mph) was assumed for all vehicles. From 6:00 a.m. until 7:00 p.m., an average speed of 55 mph was assumed for all vehicles.

The ADT for Santa Rosa Avenue was calculated based on traffic data provided by the City of Santa Rosa's website.²⁵ The estimated ADT on Santa Rosa Avenue was 23,830 vehicles. Average hourly traffic distributions for Sonoma 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. An average travel speed of 40 mph on Santa Rosa Avenue was used for all hours of the day based on posted speed limit signs on the roadway.

This analysis involved the development of DPM, organic TACs, and PM_{2.5} emissions for future traffic on Highway 101 and Santa Rosa Avenue, and using these emissions with an air quality dispersion model to calculate TAC and PM_{2.5} concentrations at the project MEI receptor locations. Maximum increased lifetime cancer risks and annual PM_{2.5} concentrations for the receptors were then computed using modeled TAC and PM_{2.5} concentrations and BAAQMD methods and exposure parameters described in *Attachment 1*.

Dispersion Modeling

Dispersion modeling of TAC and PM_{2.5} emissions was conducted using the U.S. EPA AERMOD dispersion model, which is recommended by the BAAQMD for this type of analysis.²⁷ TAC and PM_{2.5} emissions from traffic on Highway 101 and Santa Rosa Avenue within about 1,000 feet of the project site were evaluated with the model. Emissions from vehicle traffic were modeled in AERMOD using a series of volume sources along a line (line volume sources), with line segments used to represent northbound and southbound travel lanes on Highway 101 and Santa Rosa Avenue. The same meteorological data and off-site sensitive receptors used in the previous construction dispersion modeling were used in the highway and roadway modeling. Other inputs to the model included road geometry, hourly traffic emissions, and receptor locations and heights. Annual TAC and PM_{2.5} concentrations for 2024 from traffic on Highway 101 and Santa Rosa Avenue were calculated using the model. Concentrations were calculated at the project MEI with receptor heights of 5 feet (1.5 meters) to represent the breathing heights on the first floor of the nearby residence.

Computed Cancer and Non-Cancer Health Impacts

The cancer risk, PM_{2.5} concentration, and HI impacts from Highway 101 and Santa Rosa Avenue on the project MEI are shown in Table 7. Figure 2 shows the roadway links used for the

²⁵ City of Santa Rosa, Prepared by AimTD LLC, *Santa Rosa Avenue – Southside to Yolanda 02-2019*, February 19, 2019. Web: <https://www.srcity.org/DocumentCenter/Index/914>

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 EMFAC2021 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

modeling and receptor locations where concentrations were calculated. Details of the emission calculations, dispersion modeling and cancer risk calculations for the receptors with the maximum cancer risk from Highway 101 and Santa Rosa Avenue 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 2018* geographic information system (GIS) map website.²⁸ This mapping tool identifies the location of nearby stationary sources and their estimated risk and hazard impacts. No nearby sources were identified using this tool.

Summary of Cumulative Risks at Off-Site Project MEIs

Both the project and cumulative community risk impacts at the sensitive receptors most affected by construction (i.e., the MEI) are reported in Table 7. Without mitigation, the project’s community risk from project construction activities would not exceed the maximum increased cancer risk, annual PM_{2.5} concentration, and hazard risk value single-source thresholds. In addition, the combined unmitigated cancer risk, PM_{2.5} concentration, and HI values would not exceed their respective cumulative thresholds.

Table 7. Impacts from Combined Sources at Off-Site MEI

Source		Cancer Risk (per million)	Annual PM _{2.5} (µg/m ³)	Hazard Index
Project Impacts				
Project Construction	Unmitigated	7.36 (infant)	0.06	0.01
BAAQMD Single-Source Threshold		10	0.3	1.0
<i>Exceed Threshold?</i>	Unmitigated	<i>No</i>	<i>No</i>	<i>No</i>
Cumulative Impacts				
Highway 101, ADT 160,650		8.72	0.21	<0.01
Santa Rosa Avenue, ADT 23,830		10.80	0.37	<0.01
Cumulative Total	Unmitigated	26.88	0.64	<0.03
BAAQMD Cumulative Source Threshold		100	0.8	10.0
<i>Exceed Threshold?</i>	Unmitigated	<i>No</i>	<i>No</i>	<i>No</i>

²⁸ BAAQMD, Web:
<https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=2387ae674013413f987b1071715daa65>

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

In addition to evaluating health impact from project construction, a health risk assessment was completed to assess the impact existing TAC sources would have on the new proposed sensitive receptors (residents) that that project would introduce. The same TAC sources identified above were used in this health risk assessment.²⁹

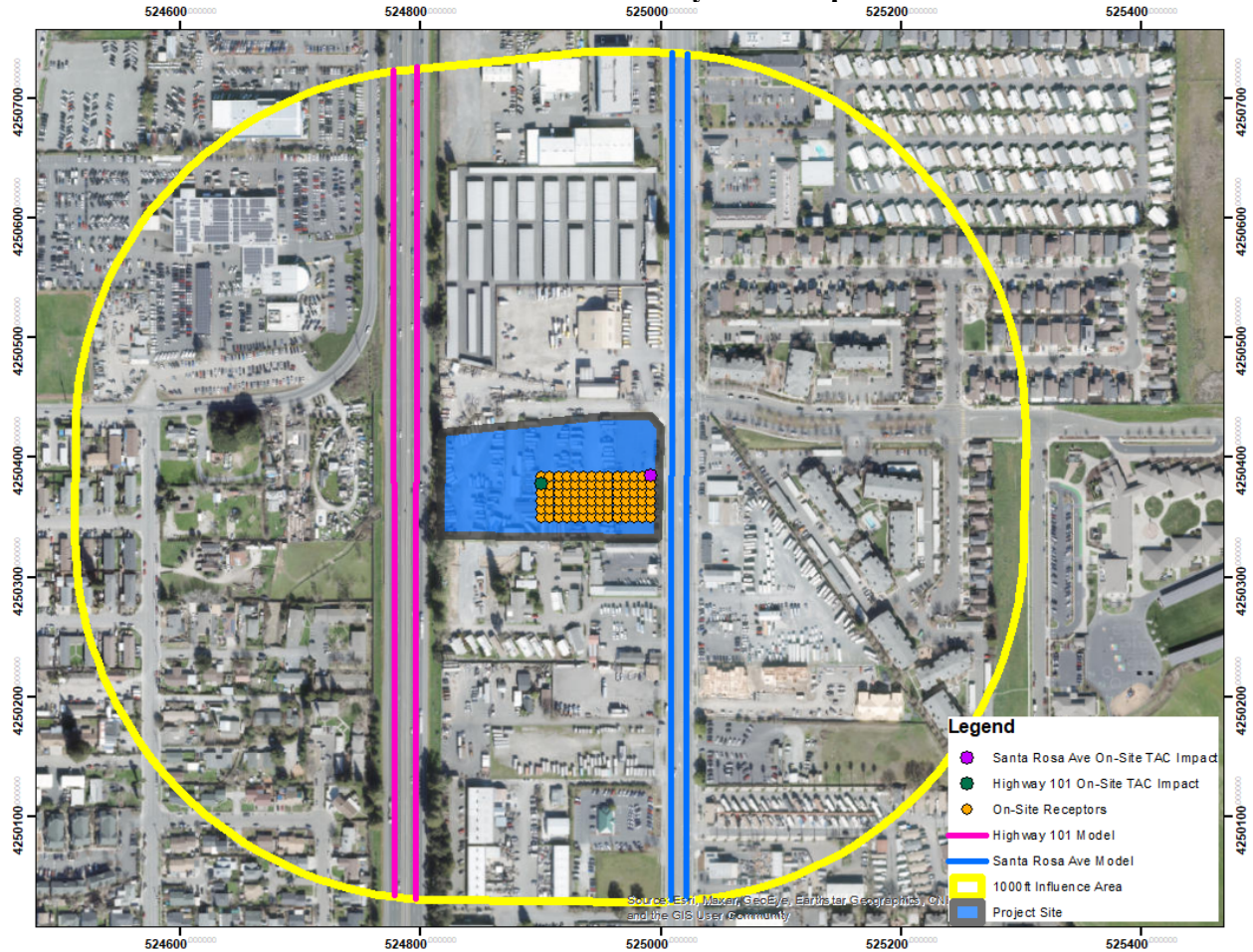
Nearby Highways and Roadways – Highway 101 and Santa Rosa Avenue

The highway and roadway analysis for the new project residents was conducted in the same manner as described above for the off-site MEI. The project set of receptors were placed throughout the project area and were spaced every 23 feet (7 meters). Highway and roadway impacts were modeled at receptor heights of 5 feet (1.5 meters), 15 feet (4.5 meters), and 25 feet (7.6 meters) representing sensitive receptors on the first, second, and third floors of the residential portion of the project site. The portions of Highway 101 and Santa Rosa Avenue included in the modeling are shown in Figure 3 along with the project site and receptor locations where impacts were modeled.

Maximum increased cancer risks were calculated for the residents at the project site using the maximum modeled TAC concentrations. A 30-year exposure period was used in calculating cancer risks assuming the residents would include third trimester pregnancy and infants/children and were assumed to be in the new housing area for 24 hours per day for 350 days per year. The maximum impacts from Highway 101 occurred at a first-floor receptor along the western boundary of the proposed building closest to the highway. The maximum impacts from Santa Rosa Avenue occurred at a first-floor receptor at the northeast corner of the proposed building closest to the roadway. Cancer risks associated with Highway 101 and Santa Rosa Avenue are greatest closest to each respective roadway. The highway and roadway community risk impacts at the project site are shown in Table 8. Risk values were computed using modeled DPM and PM_{2.5} concentrations and BAAQMD recommended methods and exposure parameters described in *Attachment 1*. 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.

Figure 3. Project Site, On-Site Residential Receptors, Roadway Segments Evaluated, and Locations of Maximum Roadway TAC Impacts



Cumulative Community Health Risk at Project Site

Community risk impacts from the combined sources upon the project site are reported in Table 8. The TAC sources are compared against the BAAQMD single-source threshold and then combined and compared against the BAAQMD cumulative-source threshold. As shown, the maximum cancer risk, and annual PM_{2.5} concentrations exceed the BAAQMD single-source threshold. The annual PM_{2.5} concentrations also exceed the BAAQMD cumulative-source threshold. The HI from the nearby sources do not exceed their 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} (µg/m ³)	Hazard Index
Highway 101, ADT 160,650	Unmitigated	17.31	0.65	<0.01
	Mitigated	7.40	0.19	<0.01
Santa Rosa Avenue, ADT 23,830	Unmitigated	5.82	0.43	<0.01
	Mitigated	2.92	0.13	<0.01
BAAQMD Single-Source Threshold		>10.0	>0.3	>1.0
<i>Exceed Threshold?</i>	<i>Unmitigated</i>	<i>Yes</i>	<i>Yes</i>	<i>No</i>
	<i>Mitigated</i>	<i>No</i>	<i>No</i>	<i>No</i>
Cumulative Total	Unmitigated	23.13	1.08	<0.02
	Mitigated	10.32	0.32	<0.02
BAAQMD Cumulative Source Threshold		>100	>0.8	>10.0
<i>Exceed Threshold?</i>	<i>Unmitigated</i>	<i>No</i>	<i>Yes</i>	<i>No</i>
	<i>Mitigated</i>	<i>No</i>	<i>No</i>	<i>No</i>

Recommended Design Features to Reduce Project Receptor Exposure

Filtration in ventilation systems at the project site would be recommended to reduce the level of harmful pollutants to below the significant thresholds. The significant exposure for new project receptors is judged by two effects: (1) increased cancer risk, and (2) annual PM_{2.5} concentration. Exposure to maximum cancer risk and annual PM_{2.5} concentrations from Highway 101 and Santa Rosa Avenue are above the BAAQMD single source thresholds, with annual PM_{2.5} concentrations also exceeding the BAAQMD cumulative source threshold. Cancer risk is mostly the result of exposure to diesel particulate matter, although, gasoline vehicle exhaust contributes to this effect. Annual PM_{2.5} concentrations are based on the exposure to PM_{2.5} resulting from emissions attributable to truck and auto exhaust, the wearing of brakes and tires and re-entrainment of roadway dust from vehicles traveling over pavement. The modeled PM_{2.5} exposure to future residents drives the mitigation. Reducing particulate matter exposure would reduce both annual PM_{2.5} exposures and cancer risk.

The project shall include the following measures to minimize long-term increased cancer risk and annual PM_{2.5} exposure for new project occupants:

1. Install air filtration for the entire residential building. Air filtration devices shall be rated MERV13 or higher. To ensure adequate health protection to sensitive receptors (i.e., residents), this ventilation system, whether mechanical or passive, shall filter all fresh air that would be circulated into the dwelling units.
2. The ventilation system shall be designed to keep the building at positive pressure when doors and windows are closed to reduce the intrusion of unfiltered outside air into the building
3. As part of implementing this measure, an ongoing maintenance plan for the buildings' heating, ventilation, and air conditioning (HVAC) air filtration system shall be required that includes regular filter replacement.

4. Ensure that the use agreement and other property documents: (1) require cleaning, maintenance, and monitoring of the affected buildings for air flow leaks, (2) include assurance that new owners or tenants are provided information on the ventilation system, and (3) include provisions that fees associated with owning or leasing a unit(s) in the building include funds for cleaning, maintenance, monitoring, and replacements of the filters, as needed.

Effectiveness of Recommended Design Features

A properly installed and operated ventilation system with MERV13 would achieve an 80-percent reduction for small particulates.³⁰ The overall effectiveness calculations take into account the amount of time spent outdoors and away from home. Assuming that the filtration system is 80-percent effective and the individual is being exposed to 21 hours of indoor filtered air and three hours of outdoor unfiltered air, then the overall effectiveness of a MERV13 filtration system would be about 70-percent for PM_{2.5} exposure. For Highway 101, this would reduce the maximum annual PM_{2.5} concentration to 0.19 µg/m³ and the cancer risk to 7.4 per million. For Santa Rosa Avenue, this would reduce the maximum annual PM_{2.5} concentration to 0.13 µg/m³ and the cancer risk to 2.92 per million. The combined maximum annual PM_{2.5} concentration would be reduced to 0.32 µg/m³. With this recommended design feature, impacts from Highway 101 and Santa Rosa Avenue would be below their respective single- and cumulative-source thresholds.

Impact AIR-4: Create objectionable odors affecting a substantial number of people?

The project would generate localized emissions of diesel exhaust during construction equipment operation and truck activity. These emissions may be noticeable from time to time by adjacent receptors. However, they would be localized and are not likely to adversely affect people off-site by resulting in confirmed odor complaints. The project would not include any sources of significant odors that would cause complaints from surrounding uses.

³⁰ Bay Area Air Quality Management District (2016). Appendix B: Best Practices to Reduce Exposure to Local Air Pollution, *Planning Healthy Places A Guidebook for Addressing Local Sources of Air Pollutants in Community Planning* (p. 38). http://www.baaqmd.gov/~media/files/planning-and-research/planning-healthy-places/php_may20_2016-pdf.pdf?la=en

GREENHOUSE GAS EMISSIONS

Setting

Gases that trap heat in the atmosphere, GHGs, regulate the earth's temperature. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate. The most common GHGs are carbon dioxide (CO₂) and water vapor but there are also several others, most importantly methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). These are released into the earth's atmosphere through a variety of natural processes and human activities. Sources of GHGs are generally as follows:

- CO₂, CH₄, and N₂O are byproducts of fossil fuel combustion.
- N₂O is associated with agricultural operations such as fertilization of crops.
- CH₄ is commonly created by off-gassing from agricultural practices (e.g., keeping livestock) and landfill operations.
- Chlorofluorocarbons (CFCs) were widely used as refrigerants, propellants, and cleaning solvents but their production has been stopped by international treaty.
- HFCs are now used as a substitute for CFCs in refrigeration and cooling.
- PFCs and sulfur hexafluoride emissions are commonly created by industries such as aluminum production and semi-conductor manufacturing.

Each GHG has its own potency and effect upon the earth's energy balance. This is expressed in terms of a global warming potential (GWP), with CO₂ being assigned a value of 1 and sulfur hexafluoride being several orders of magnitude stronger. In GHG emission inventories, the weight of each gas is multiplied by its GWP and is measured in units of CO₂ equivalents (CO₂e).

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

Recent Regulatory Actions for GHG Emissions

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

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

GHG emissions to 1990 levels by 2020, and (3) reduce California's GHG emissions by 80 percent below 1990 levels by 2050.

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

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

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

As directed by AB 32, CARB has also approved a statewide GHG emissions limit. On December 6, 2007, CARB staff resolved an amount of 427 million metric tons (MMT) of CO₂e as the total statewide GHG 1990 emissions level and 2020 emissions limit. The limit is a cumulative statewide limit, not a sector- or facility-specific limit. CARB updated the future 2020 BAU annual emissions forecast, in light of the economic downturn, to 545 MMT of CO₂e. Two GHG emissions reduction measures currently enacted that were not previously included in the 2008 Scoping Plan baseline inventory were included, further reducing the baseline inventory to 507 MMT of CO₂e. Thus, an estimated reduction of 80 MMT of CO₂e is necessary to reduce statewide emissions to meet the AB 32 target by 2020.

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

In April 2015, Governor Brown signed EO B-30-15, which extended the goals of AB 32, setting a greenhouse gas emissions target at 40 percent of 1990 levels by 2030. On September 8, 2016, Governor Brown signed Senate Bill (SB) 32, which legislatively established the GHG reduction target of 40 percent of 1990 levels by 2030. In November 2017, CARB issued *California's 2017 Climate Change Scoping Plan*.³¹ While the State is on track to exceed the AB 32 scoping plan 2020 targets, this plan is an update to reflect the enacted SB 32 reduction target.

³¹ California Air Resource Board, 2017. *California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Targets*. November. Web: https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping_plan_2017.pdf

SB 32 was passed in 2016, which codified a 2030 GHG emissions reduction target of 40 percent below 1990 levels. CARB is currently working on a second update to the Scoping Plan to reflect the 2030 target set by Executive Order B-30-15 and codified by SB 32. The proposed Scoping Plan Update was published on January 20, 2017 as directed by SB 32 companion legislation AB 197. The mid-term 2030 target is considered critical by CARB on the path to obtaining an even deeper GHG emissions target of 80 percent below 1990 levels by 2050, as directed in Executive Order S-3-05. The Scoping Plan outlines the suite of policy measures, regulations, planning efforts, and investments in clean technologies and infrastructure, providing a blueprint to continue driving down GHG emissions and obtain the statewide goals.

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

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

In the updated Scoping Plan, CARB recommends statewide targets of no more than 6 metric tons (MT) CO₂e per capita (statewide) by 2030 and no more than 2 metric tons CO₂e per capita by 2050. The statewide per capita targets account for all emissions sectors in the State, statewide population forecasts, and the statewide reductions necessary to achieve the 2030 statewide target under SB 32 and the longer-term State emissions reduction goal of 80 percent below 1990 levels by 2050.

Executive Order B-55-18 – Carbon Neutrality

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

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

California enacted legislation (SB 375) to expand the efforts of AB 32 by controlling indirect GHG emissions caused by urban sprawl. SB 375 provides incentives for local governments and applicants to implement new conscientiously planned growth patterns. This includes incentives for creating attractive, walkable, and sustainable communities and revitalizing existing communities. The legislation also allows applicants to bypass certain environmental reviews under CEQA if they build projects consistent with the new sustainable community strategies. Development of more alternative transportation options that would reduce vehicle trips and miles traveled, along with traffic congestion, would be encouraged. SB 375 enhances CARB's ability to reach the AB 32 goals by directing the agency in developing regional GHG emission reduction targets to be achieved from the transportation sector for 2020 and 2035. CARB works with the metropolitan planning organizations (e.g. Association of Bay Area Governments [ABAG] and Metropolitan Transportation Commission [MTC]) to align their regional transportation, housing, and land use plans to reduce vehicle miles traveled and demonstrate the region's ability to attain its GHG reduction targets. A similar process is used to reduce transportation emissions of ozone precursor pollutants in the Bay Area.

Senate Bill 350 - Renewable Portfolio Standards

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

Senate Bill 100 – Current Renewable Portfolio Standards

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

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

The California Green Building Standards Code (CALGreen Code) is part of the California Building Standards Code under Title 24, Part 11.³² The CALGreen Code encourages sustainable construction standards that involve planning/design, energy efficiency, water efficiency resource efficiency, and environmental quality. These green building standard codes are mandatory

³² See: <https://www.dgs.ca.gov/BSC/Resources/Page-Content/Building-Standards-Commission-Resources-List-Folder/CALGreen#:~:text=CALGreen%20is%20the%20first%2Din,to%201990%20levels%20by%202020.>

statewide and are applicable to residential and non-residential developments. The most recent CALGreen Code (2019 California Building Standard Code) was effective as of January 1, 2020.

The California Building Energy Efficiency Standards (California Energy Code) is under Title 24, Part 6 and is overseen by the California Energy Commission (CEC). This code includes design requirements to conserve energy in new residential and non-residential developments, while being cost effective for homeowners. This Energy Code is enforced and verified by cities during the planning and building permit process. The current energy efficiency standards (2019 Energy Code) replaced the 2016 Energy Code as of January 1, 2020. Under the 2019 standards, single-family homes are predicted to be 53 percent more efficient than homes built under the 2016 standard due more stringent energy-efficiency standards and mandatory installation of solar photovoltaic systems. For nonresidential developments, it is predicted that these buildings will use 30 percent less energy due to lightening upgrades.³³

Federal and Statewide GHG Emissions

The U.S. EPA reported that in 2018, total gross nationwide GHG emissions were 6,676.6 million metric tons (MMT) carbon dioxide equivalent (CO_{2e}).³⁴ These emissions were lower than peak levels of 7,416 MMT that were emitted in 2007. CARB updates the statewide GHG emission inventory on an annual basis where the latest inventory includes 2000 through 2017 emissions.³⁵ In 2017, GHG emissions from statewide emitting activities were 424 MMT. The 2017 emissions have decreased by 14 percent since peak levels in 2004 and are 7 MMT below the 1990 emissions level and the State's 2020 GHG limit. Per capita GHG emissions in California have dropped from a 2001 peak of 14.1 MT per person to 10.7 MT per person in 2017. The most recent Bay Area emission inventory was computed for the year 2011.³⁶ The Bay Area GHG emission were 87 MMT. As a point of comparison, statewide emissions were about 444 MMT in 2011

Regulatory Agency

Santa Rosa 2035 General Plan: Greenhouse Gas Appendix

The following greenhouse gas emission reduction goals and policies from the Santa Rosa General Plan 2035 are applicable to the proposed project.

³³ See: https://www.energy.ca.gov/sites/default/files/2020-03/Title_24_2019_Building_Standards_FAQ_ada.pdf

³⁴ United States Environmental Protection Agency, 2020. *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2018*. April. Web: <https://www.epa.gov/sites/production/files/2020-04/documents/us-ghg-inventory-2020-main-text.pdf>

³⁵ CARB. 2019. *2019 Edition, California Greenhouse Gas Emission Inventory: 2000 – 2017*. Web: https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2017/ghg_inventory_trends_00-17.pdf

³⁶ BAAQMD. 2015. *Bay Area Emissions Inventory Summary Report: Greenhouse Gases Base Year 2011*. January. Web: http://www.baaqmd.gov/~media/files/planning-and-research/emission-inventory/by2011_ghgsummary.pdf accessed Nov. 26, 2019.

Land Use and Livability

LUL-G-1 Develop the following areas as mixed-use centers (see General Plan Land Use diagram): South of Hearn Avenue, at Dutton Meadow Avenue, West of Corporate Center Parkway, at Northpoint Parkway, Piner Road at Marlow Road, and Petaluma Hill Road, at Yolanda Avenue.

Open Space and Conservation

OSC-J Take appropriate actions to help Santa Rosa and the larger Bay Area region achieve and maintain all ambient air quality standards.

OSC-J-1 Review all new construction projects and require dust abatement actions as contained in the CEQA Handbook of the Bay Area Air Quality Management District.

OSC-J-3 Reduce particulate matter emissions from wood burning appliances through implementation of the city's Wood Burning Appliance code.

OSC-M Reduce Greenhouse Gas Emissions.

OSC-M-1 Meet local, regional, and state targets for reduction of greenhouse gas emissions through implementation of the Climate Action Plan.

City of Santa Rosa Climate Action Plan

Adopted by the City of Santa Rosa on June 5, 2012, the Climate Action Plan³⁷ (CAP) is a document that presents measures that will reduce local GHG measures that will meet state, regional, and local reduction targets. The CAP focuses on three target years: 2015, 2020, and 2035. The 2015 year was to determine if the City could meet the reduction target of 25% below 1990 levels by 2015. The 2020 year is included for consistency with AB 32 targets, while a 2035 GHG emission forecast was developed to be consistent with the 2035 General Plan. The City includes several reduction measures that apply to a variety of sectors within the CAP to help sources of GHGs reduce their emissions in a multitude of ways.

The City's CAP follows both the State CEQA Guidelines and BAAQMD's guidelines by incorporating the standard elements of a Qualified GHG Reduction Strategy. Standard elements include measures and performance standards which demonstrates with that when implemented on a project-by-project basis, the measures would collectively achieve specified emissions levels. The GHG reduction measures included in the CAP demonstrate the City's ability to reach its GHG reduction targets.

The Santa Rosa CAP demonstrates that it would meet the anticipated State 2030 GHG emissions reductions targets. If a project can demonstrate consistency with the Santa Rosa CAP, its impacts related to GHG emission by year 2030 would be considered less than significant and fully

³⁷ Climate Action Plan City of Santa Rosa; June 5, 2012. <https://srcity.org/DocumentCenter/View/10762/Climate-Action-Plan-PDF?bidId=>

consistent with State GHG emissions reduction requirements, with no need to quantify project-specific emission. This is consistent with BAAQMD guidelines related to the analysis of projects under the 2020 GHG emissions reduction targets, as applied to the updated 2030 targets.

Additionally, the CAP includes the New Development Checklist (Appendix E in the CAP) to ensure that all new development projects are compliant with the City's CAP measures. If a new development complies with the CAP, then the new development would be found to have a less-than-significant impact for GHG emissions.

Declaration of a Climate Emergency and Immediate Emergency Mobilization to Restore a Safe Climate

On January 14, 2020, the Santa Rosa City Council adopted a resolution endorsing the declaration of a climate emergency and immediate emergency mobilization to restore a safe climate (Resolution No. Res-2020-002). The City joins a nationwide call for a just transition away from fossil fuels and joins efforts to mobilize efforts to enact policies that reduce GHG emissions. City will contribute to the development of a countywide 2030 Climate Emergency Mobilization Strategy that focuses on identifying key local actions, including a ten-year Emergency Policy Package to prioritize a short list of the most impactful local policies that will drive changes and identify key areas for state level advocacy.

BAAQMD GHG Significance Thresholds

The BAAQMD's CEQA Air Quality Guidelines do not use quantified thresholds for projects that are in a jurisdiction with a qualified GHG reductions plan (i.e., a Climate Action Plan). The plan has to address emissions associated with the period that the project would operate (e.g., beyond year 2020). For quantified emissions, the guidelines recommended a GHG threshold of 1,100 metric tons or 4.6 metric tons (MT) per capita. These thresholds were developed based on meeting the 2020 GHG targets set in the scoping plan that addressed AB 32. Development of the project would occur beyond 2020, so a threshold that addresses a future target is appropriate.

BAAQMD has not published quantified thresholds post 2020; therefore, the City of Santa Rosa has elected to rely on the compliance with the City's CAP Checklist measures to determine significance for GHG emissions. The City's CAP Checklist is included in *Attachment 6*.

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

GHG emissions associated with development of the proposed project would occur over the short-term from construction activities, consisting primarily of emissions from equipment exhaust and worker and vendor trips. There would also be long-term operational emissions associated with vehicular traffic within the project vicinity, energy and water usage, and solid waste disposal. Emissions for the proposed project are discussed below and were analyzed using the methodology recommended in the BAAQMD CEQA Air Quality Guidelines and the City's Climate Action Plan.

CalEEMod Modeling

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

Service Population Emissions

The project service population efficiency rate is based on the number of future residents and full-time employees. According to the project applicant, there would be approximately 90 tenants and 5 employees. Total service population was estimated at 95 to calculate the per capita emissions.

Construction GHG Emissions

GHG emissions associated with construction were computed at 472 MT of CO_{2e} for the total construction period. These are the emissions from on-site operation of construction equipment, vendor and hauling truck trips, and worker trips. Neither the City nor BAAQMD have an adopted threshold of significance for construction-related GHG emissions, though BAAQMD recommends quantifying emissions and disclosing that GHG emissions would occur during construction. BAAQMD also encourages the incorporation of best management practices to reduce GHG emissions during construction where feasible and applicable.

Operational GHG Emissions

The CalEEMod model, along with the project vehicle trip generation rates, was used to estimate daily emissions associated with operation of the fully-developed site under the proposed project. As shown in Table 9, annual GHG emissions resulting from operation of the proposed project are predicted to be 398 metric tons (MT) of CO_{2e} in 2024, 357 MT of CO_{2e} in 2030, and 332 MT of CO_{2e} in 2035. The service population emission for the years 2024, 2030, 2035 are predicted to be 4.2, 3.8, and 3.5 MT/CO_{2e}/year/service population, respectively.

The project is subject to the City of Santa Rosa's CAP to meet AB 32 requirements. The implementation of *Mitigation Measure GHG-1*, which requires the project to use the CAP checklist, would demonstrate the project's consistency with the City's CAP.

Table 9. Annual Project GHG Emissions (CO_{2e}) in Metric Tons

Source Category	Proposed Project in 2024	Proposed Project in 2030	Proposed Project in 2035
Area	0.60	0.60	0.60
Energy Consumption	50.02	50.02	50.02
Mobile	306.13	265.04	239.54
Solid Waste Generation	29.96	29.96	29.96
Water Usage	11.64	11.64	11.64
Total (MT CO _{2e} /year)	398.35	357.26	331.76
Service Population Emissions (MT CO _{2e} /year/service population)	4.2	3.8	3.5

Mitigation Measure GHG-1: Santa Rosa’s CAP Appendix E New Development Checklist or other qualified GHG program in effect, shall be submitted along with any application for the project, demonstrating compliance with all mandatory requirements of the Santa Rosa’s CAP Appendix E New Development Checklist, except where the item is not applicable or where a suitable substitution is provided.

Impact GHG-2: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The proposed project would not conflict or otherwise interfere with the statewide GHG reduction measures identified in CARB’s Scoping Plan nor would the project conflict with SB 100 goals. For example, proposed buildings would be constructed in conformance with CALGreen and the Title 24 Building Code, which requires high-efficiency water fixtures, water-efficient irrigation systems, and compliance with current energy efficacy standards.

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 and GHG emissions. The operational outputs for 2030 and 2035 uses are also included in this attachment. Also included are any modeling assumptions.

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

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

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

Attachment 6 is the New Development Checklist contained in the City's Climate Action Plan.

Attachment 1: Health Risk Calculation Methodology

A health risk assessment (HRA) for exposure to Toxic Air Contaminants (TACs) requires the application of a risk characterization model to the results from the air dispersion model to estimate potential health risk at each sensitive receptor location. The State of California Office of Environmental Health Hazard Assessment (OEHHA) and California Air Resources Board (CARB) develop recommended methods for conducting health risk assessments. The most recent OEHHA risk assessment guidelines were published in February of 2015.³⁸ These guidelines incorporate substantial changes designed to provide for enhanced protection of children, as required by State law, compared to previous published risk assessment guidelines. CARB has provided additional guidance on implementing OEHHA's recommended methods.³⁹ This HRA used the 2015 OEHHA risk assessment guidelines and CARB guidance. The BAAQMD has adopted recommended procedures for applying the newest OEHHA guidelines as part of Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants.⁴⁰ Exposure parameters from the OEHHA guidelines and the recent BAAQMD HRA Guidelines were used in this evaluation.

Cancer Risk

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

The current OEHHA guidance recommends that cancer risk be calculated by age groups to account for different breathing rates and sensitivity to TACs. Specifically, they recommend evaluating risks for the third trimester of pregnancy to age zero, ages zero to less than two (infant exposure), ages two to less than 16 (child exposure), and ages 16 to 70 (adult exposure). However, CARB and the BAAQMD recommend the use of a residential exposure duration of 30 years for sources with long-term emissions (e.g., roadways). For workers, assumed to be adults, a 25-year exposure period is recommended by the BAAQMD. For school children a 9-year exposure period is recommended by the BAAQMD.

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,

³⁸ OEHHA, 2015. *Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. Office of Environmental Health Hazard Assessment. February.

³⁹ CARB, 2015. *Risk Management Guidance for Stationary Sources of Air Toxics*. July 23.

⁴⁰ BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*. December 2016.

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 for moderate intensity.

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:

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

Where:

CPF = Cancer potency factor (mg/kg-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)

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

Where:

C_{air} = concentration in air (µg/m³)

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 →	3 rd Trimester	0<2	2 < 16	16 - 30
DPM Cancer Potency Factor (mg/kg-day) ⁻¹		1.10E+00	1.10E+00	1.10E+00	1.10E+00
Daily Breathing Rate (L/kg-day) 80 th Percentile Rate		273	758	572	261
Daily Breathing Rate (L/kg-day) 95 th Percentile Rate		361	1,090	745	335
8-hour Breathing Rate (L/kg-8 hours) 95 th 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*

* Exposure Frequency can change dependent on the type of receptors (i.e. residential, worker, school, daycare). For worker exposures (adult), the exposure duration and frequency are 25 years 250 days/year and FAH is not applicable.

Non-Cancer Hazards

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

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

Annual PM_{2.5} Concentrations

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

Attachment 2: CalEEMod Modeling Inputs and Outputs

Air Quality/Noise Construction Information Data Request

Project Name: 3111 Santa Rosa Ave

See Equipment Type TAB for type, horsepower and load factor

Project Size 48 Dwelling Units 4.51 total project acres disturbed

33,000 s.f. residential

s.f. retail

901 s.f. office/commercial

39,000 s.f. other, specify: Self-Storage

s.f. parking garage _____ spaces

91,000 s.f. parking lot 92 cars + 44 storage spaces

Construction Hours 8 am to 5 pm

Complete ALL Portions in Yellow

Pile Driving? Y/N?

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

IF YES (if BOTH separate values) -->

Kilowatts/Horsepower: _____

Fuel Type: _____

Location in project (Plans Desired if Available):

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

Quantity	Description	HP	Load Factor	Hours/day	Total Work Days	Avg. Hours per day	HP Annual Hours	Comments
Demolition		Start Date:	1/3/2022	Total phase:	20			Overall Import/Export Volumes
		End Date:	1/28/2022					Demolition Volume
1	Concrete/Industrial Saws	81	0.73	8	20	8	9461	Square footage of buildings to be demolished
3	Excavators	158	0.38	8	20	8	28819	(or total tons to be hauled)
2	Rubber-Tired Dozers	247	0.4	8	20	8	31616	_____ square feet or
	Tractors/Loaders/Backhoes	97	0.37			0	0	_____ Hauling volume (tons)
	Other Equipment?							Any pavement demolished and hauled? _____ tons
Site Preparation		Start Date:	1/29/2022	Total phase:	5			
		End Date:	2/4/2022					
	Graders	187	0.41			0	0	
3	Rubber-Tired Dozers	247	0.4	8	5	8	11856	
4	Tractors/Loaders/Backhoes	97	0.37	8	5	8	5742	
	Other Equipment?							
Grading / Excavation		Start Date:	2/5/2022	Total phase:	8			Soil Hauling Volume
		End Date:	2/16/2022					Export volume = _____ cubic yards?
1	Excavators	158	0.38	8	8	8	3843	Import volume = _____ cubic yards?
1	Graders	187	0.41	8	8	8	4907	
1	Rubber-Tired Dozers	247	0.4	8	8	8	6323	
	Concrete/Industrial Saws	81	0.73			0	0	
3	Tractors/Loaders/Backhoes	97	0.37	8	8	8	6891	
	Other Equipment?							
Trenching/Foundation		Start Date:	2/17/2022	Total phase:	10			
		End Date:	3/2/2022					
1	Tractor/Loader/Backhoe	97	0.37	8	10	8	2871	
1	Excavators	158	0.38	8	10	8	4803	
	Other Equipment?							
Building - Exterior		Start Date:	2/17/2022	Total phase:	230			Cement Trucks? _____ Total Round-Trips
		End Date:	1/4/2023					Electric? (Y/N) _____ Otherwise assumed diesel
1	Cranes	231	0.29	7	230	7	107854	Liquid Propane (LPG)? (Y/N) _____ Otherwise Assumed diesel
3	Forklifts	89	0.2	8	230	8	98256	Or temporary line power? (Y/N) _____
1	Generator Sets	84	0.74	8	230	8	114374	
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:	1/31/2023	Total phase:	18			
		End Date:	2/23/2023					
1	Air Compressors	78	0.48	6	18	6	4044	
	Aerial Lift	62	0.31			0	0	
	Other Equipment?							
Paving		Start Date:	1/5/2023	Total phase:	18			
		Start Date:	1/30/2023					Asphalt? _____ cubic yards or _____ round trips?
2	Cement and Mortar Mixers	9	0.56	6	18	6	1089	
1	Pavers	130	0.42	8	18	8	7862	
2	Paving Equipment	132	0.36	6	18	6	10264	
2	Rollers	80	0.38	6	18	6	6566	
1	Tractors/Loaders/Backhoes	97	0.37	8	18	8	5168	
	Other Equipment?							
Additional Phases		Start Date:		Total phase:				
		Start Date:						
						#DIV/0!	0	
						#DIV/0!	0	
						#DIV/0!	0	
						#DIV/0!	0	

Equipment types listed in "Equipment Types" worksheet tab.

Equipment listed in this sheet is to provide an example of inputs
 It is assumed that water trucks would be used during grading
 Add or subtract phases and equipment, as appropriate
 Modify horsepower or load factor, as appropriate

Complete one sheet for each project component

Construction Criteria Air Pollutants						
<i>Unmitigated</i>	ROG	NOX	PM10 Exhaust	PM2.5 Exhaust	CO2e	
Year	Tons				MT	
Construction Equipment						
2022 & 2023	0.67	1.90	0.10	0.09	290.64	
EMFAC						
2022 & 2023	0.06	0.23	0.01	0.01	180.94	
Total Construction Emissions by Year						
2022 & 2023	0.73	2.13	0.11	0.10	471.59	
Total Construction Emissions						
Tons	0.73	2.13	0.11	0.10	471.59	
Pounds/Workdays	Average Daily Emissions				Workdays	
2022 & 2023	4.74	13.78	0.74	0.65		309
Threshold - lbs/day	54.0	54.0	82.0	54.0		
Total Construction Emissions						
Pounds	4.74	13.78	0.74	0.65	0.00	
Threshold - lbs/day	54.0	54.0	82.0	54.0		
Operational Criteria Air Pollutants						
<i>Unmitigated</i>	ROG	NOX	Total PM10	Total PM2.5		
Year	Tons					
Total	0.58	0.28	0.26	0.07		
Existing Use Emissions						
Total	0.00	0.00	0.00	0.00		
Net Annual Operational Emissions						
Tons/year	0.58	0.28	0.26	0.07		
Threshold - Tons/year	10.0	10.0	15.0	10.0		
Average Daily Emissions						
Pounds Per Day	3.18	1.53	1.42	0.38		
Threshold - lbs/day	54.0	54.0	82.0	54.0		
Category	CO2e					
	Project	Existing	Project 2030	Existing	Project 2035	Existing
Area	0.60	0.00	0.60	0.00	0.60	0.00
Energy	50.02	0.00	50.02	0.00	50.02	0.00
Mobile	306.13	0.00	265.04	0.00	239.54	0.00
Waste	29.96	0.00	29.96	0.00	29.96	0.00
Water	11.64	0.00	11.64	0.00	11.64	0.00
TOTAL	398.35	0.00	357.26	0.00	331.76	0.00
Net GHG Emissions		398.35		357.26		331.76
Service Population	95.00					
Per Capita Emissions		4.19		3.76		3.49

Land Use	Traffic Consultant Trip Gen				CalEEMod Default		
	Size	Daily Trips	New Trips	Weekday Trip Gen	Weekday	Sat	Sun
Apartments Mid Rise	48	261	261	5.44	5.44	4.91	4.09
					<i>Rev</i>	4.91	4.09
Unrefrigerated Warehouse	40	60	60	1.51	1.74	1.74	1.74
					<i>Rev</i>	1.51	1.51

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	0.90	1000sqft	0.00	901.00	0
Unrefrigerated Warehouse-No Rail	39.00	1000sqft	0.00	39,000.00	0
Parking Lot	136.00	Space	0.00	91,000.00	0
Apartments Mid Rise	48.00	Dwelling Unit	4.51	33,000.00	137

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	75
Climate Zone	4			Operational Year	2024
Utility Company	Sonoma Clean Power				
CO2 Intensity (lb/MW hr)	119.98	CH4 Intensity (lb/MW hr)	0.033	N2O Intensity (lb/MW hr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Self-storage = unrefrigerated warehouse-no rail. Unit amounts, acreage, and square footage provided by applicant.

Construction Phase - CalEEMod defaults assumed. No information provided by applicant.

Off-road Equipment - CalEEMod defaults assumed for construction equipment

Off-road Equipment - CalEEMod defaults assumed for construction equipment

Off-road Equipment - CalEEMod defaults assumed for construction equipment

Off-road Equipment - CalEEMod defaults assumed for construction equipment

Off-road Equipment - CalEEMod defaults assumed for construction equipment

Off-road Equipment - CalEEMod defaults assumed for construction equipment

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Off-road Equipment - Assumed 1 piece of equipment each for trenching.

Trips and VMT - All trips entered into EMFAC2021

Vehicle Trips - Trip rates updated from information provided by applicant.

Vehicle Emission Factors - Emission Factors updated from EMFAC2021 for Sonoma County in 2024

Woodstoves - No woodstoves or fireplaces

Water And Wastewater - 100% aerobic

Construction Off-road Equipment Mitigation - All equipment t4i

Fleet Mix - Fleet Mix updated from EMFAC2021 for Sonoma County in 2024

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	12.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim

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tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
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
tblFireplaces	FireplaceDayYear	11.14	0.00
tblFireplaces	FireplaceHourDay	3.50	0.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	7.20	0.00
tblFireplaces	NumberNoFireplace	1.92	0.00
tblFireplaces	NumberWood	8.16	0.00
tblFleetMix	HHD	6.5680e-003	0.02
tblFleetMix	HHD	6.5680e-003	0.02
tblFleetMix	HHD	6.5680e-003	0.02
tblFleetMix	HHD	6.5680e-003	0.02
tblFleetMix	LDA	0.54	0.49
tblFleetMix	LDA	0.54	0.49
tblFleetMix	LDA	0.54	0.49
tblFleetMix	LDA	0.54	0.49
tblFleetMix	LDT1	0.06	0.05
tblFleetMix	LDT1	0.06	0.05
tblFleetMix	LDT1	0.06	0.05
tblFleetMix	LDT1	0.06	0.05
tblFleetMix	LDT2	0.17	0.21
tblFleetMix	LDT2	0.17	0.21
tblFleetMix	LDT2	0.17	0.21

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tblFleetMix	LDT2	0.17	0.21
tblFleetMix	LHD1	0.04	0.05
tblFleetMix	LHD1	0.04	0.05
tblFleetMix	LHD1	0.04	0.05
tblFleetMix	LHD1	0.04	0.05
tblFleetMix	LHD2	8.8770e-003	0.01
tblFleetMix	LHD2	8.8770e-003	0.01
tblFleetMix	LHD2	8.8770e-003	0.01
tblFleetMix	LHD2	8.8770e-003	0.01
tblFleetMix	MCY	0.03	4.4150e-003
tblFleetMix	MCY	0.03	4.4150e-003
tblFleetMix	MCY	0.03	4.4150e-003
tblFleetMix	MCY	0.03	4.4150e-003
tblFleetMix	MDV	0.13	0.14
tblFleetMix	MDV	0.13	0.14
tblFleetMix	MDV	0.13	0.14
tblFleetMix	MDV	0.13	0.14
tblFleetMix	MH	4.3470e-003	1.2400e-003
tblFleetMix	MH	4.3470e-003	1.2400e-003
tblFleetMix	MH	4.3470e-003	1.2400e-003
tblFleetMix	MH	4.3470e-003	1.2400e-003
tblFleetMix	MHD	0.01	0.02
tblFleetMix	MHD	0.01	0.02
tblFleetMix	MHD	0.01	0.02
tblFleetMix	MHD	0.01	0.02
tblFleetMix	OBUS	1.0930e-003	1.6700e-003
tblFleetMix	OBUS	1.0930e-003	1.6700e-003
tblFleetMix	OBUS	1.0930e-003	1.6700e-003
tblFleetMix	OBUS	1.0930e-003	1.6700e-003

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tblFleetMix	SBUS	1.5460e-003	1.0680e-003
tblFleetMix	SBUS	1.5460e-003	1.0680e-003
tblFleetMix	SBUS	1.5460e-003	1.0680e-003
tblFleetMix	SBUS	1.5460e-003	1.0680e-003
tblFleetMix	UBUS	2.9700e-004	1.0930e-003
tblFleetMix	UBUS	2.9700e-004	1.0930e-003
tblFleetMix	UBUS	2.9700e-004	1.0930e-003
tblFleetMix	UBUS	2.9700e-004	1.0930e-003
tblLandUse	LandUseSquareFeet	900.00	901.00
tblLandUse	LandUseSquareFeet	54,400.00	91,000.00
tblLandUse	LandUseSquareFeet	48,000.00	33,000.00
tblLandUse	LotAcreage	0.02	0.00
tblLandUse	LotAcreage	0.90	0.00
tblLandUse	LotAcreage	1.22	0.00
tblLandUse	LotAcreage	1.26	4.51
tblTripsAndVMT	VendorTripNumber	27.00	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	89.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00
tblVehicleEF	HHD	0.02	0.18
tblVehicleEF	HHD	0.04	0.06
tblVehicleEF	HHD	5.38	4.65
tblVehicleEF	HHD	0.44	0.59
tblVehicleEF	HHD	0.02	1.4200e-003
tblVehicleEF	HHD	907.14	764.98

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tblVehicleEF	HHD	1,446.45	1,689.08
tblVehicleEF	HHD	0.17	0.05
tblVehicleEF	HHD	0.14	0.12
tblVehicleEF	HHD	0.23	0.27
tblVehicleEF	HHD	2.4000e-005	3.4000e-005
tblVehicleEF	HHD	4.84	3.95
tblVehicleEF	HHD	2.86	2.17
tblVehicleEF	HHD	2.79	2.75
tblVehicleEF	HHD	3.0250e-003	3.0650e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	3.0000e-006	2.0000e-006
tblVehicleEF	HHD	2.8950e-003	2.9270e-003
tblVehicleEF	HHD	0.02	0.03
tblVehicleEF	HHD	8.4910e-003	8.4740e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	3.0000e-006	2.0000e-006
tblVehicleEF	HHD	1.1000e-005	5.2000e-004
tblVehicleEF	HHD	5.7100e-004	1.4800e-004
tblVehicleEF	HHD	0.37	0.30
tblVehicleEF	HHD	6.0000e-006	5.2000e-004
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	3.6900e-004	1.3560e-003
tblVehicleEF	HHD	2.0000e-006	0.00
tblVehicleEF	HHD	8.4670e-003	6.7510e-003
tblVehicleEF	HHD	0.01	0.02
tblVehicleEF	HHD	2.0000e-006	1.0000e-006
tblVehicleEF	HHD	1.1000e-005	5.2000e-004

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tblVehicleEF	HHD	5.7100e-004	1.4800e-004
tblVehicleEF	HHD	0.42	0.51
tblVehicleEF	HHD	6.0000e-006	5.2000e-004
tblVehicleEF	HHD	0.07	0.09
tblVehicleEF	HHD	3.6900e-004	1.3560e-003
tblVehicleEF	HHD	2.0000e-006	0.00
tblVehicleEF	LDA	2.2540e-003	2.5930e-003
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.59	0.76
tblVehicleEF	LDA	2.22	3.37
tblVehicleEF	LDA	244.65	256.66
tblVehicleEF	LDA	51.03	67.23
tblVehicleEF	LDA	4.6180e-003	5.0140e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.18	0.26
tblVehicleEF	LDA	0.04	8.4520e-003
tblVehicleEF	LDA	1.5340e-003	1.3470e-003
tblVehicleEF	LDA	1.7650e-003	2.0370e-003
tblVehicleEF	LDA	0.02	2.9580e-003
tblVehicleEF	LDA	1.4150e-003	1.2420e-003
tblVehicleEF	LDA	1.6230e-003	1.8730e-003
tblVehicleEF	LDA	0.04	0.33
tblVehicleEF	LDA	0.10	0.10
tblVehicleEF	LDA	0.03	0.33
tblVehicleEF	LDA	8.8880e-003	0.01
tblVehicleEF	LDA	0.03	0.25
tblVehicleEF	LDA	0.22	0.35
tblVehicleEF	LDA	2.4200e-003	2.5370e-003

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tblVehicleEF	LDA	5.0500e-004	6.6500e-004
tblVehicleEF	LDA	0.04	0.33
tblVehicleEF	LDA	0.10	0.10
tblVehicleEF	LDA	0.03	0.33
tblVehicleEF	LDA	0.01	0.02
tblVehicleEF	LDA	0.03	0.25
tblVehicleEF	LDA	0.24	0.38
tblVehicleEF	LDT1	6.1950e-003	9.2600e-003
tblVehicleEF	LDT1	0.08	0.14
tblVehicleEF	LDT1	1.24	1.97
tblVehicleEF	LDT1	2.56	7.47
tblVehicleEF	LDT1	300.23	335.44
tblVehicleEF	LDT1	64.23	93.02
tblVehicleEF	LDT1	8.4610e-003	0.01
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.11	0.19
tblVehicleEF	LDT1	0.29	0.50
tblVehicleEF	LDT1	0.04	0.01
tblVehicleEF	LDT1	2.1490e-003	2.4830e-003
tblVehicleEF	LDT1	2.5560e-003	3.6720e-003
tblVehicleEF	LDT1	0.02	3.7750e-003
tblVehicleEF	LDT1	1.9800e-003	2.2880e-003
tblVehicleEF	LDT1	2.3510e-003	3.3760e-003
tblVehicleEF	LDT1	0.12	0.88
tblVehicleEF	LDT1	0.26	0.24
tblVehicleEF	LDT1	0.09	0.88
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.14	0.72
tblVehicleEF	LDT1	0.42	0.76

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tblVehicleEF	LDT1	2.9710e-003	3.3160e-003
tblVehicleEF	LDT1	6.3600e-004	9.2000e-004
tblVehicleEF	LDT1	0.12	0.88
tblVehicleEF	LDT1	0.26	0.24
tblVehicleEF	LDT1	0.09	0.88
tblVehicleEF	LDT1	0.04	0.06
tblVehicleEF	LDT1	0.14	0.72
tblVehicleEF	LDT1	0.46	0.84
tblVehicleEF	LDT2	3.9110e-003	3.3880e-003
tblVehicleEF	LDT2	0.07	0.09
tblVehicleEF	LDT2	0.87	0.95
tblVehicleEF	LDT2	2.88	4.20
tblVehicleEF	LDT2	317.01	344.53
tblVehicleEF	LDT2	67.96	89.75
tblVehicleEF	LDT2	6.8600e-003	6.9940e-003
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.08	0.09
tblVehicleEF	LDT2	0.29	0.38
tblVehicleEF	LDT2	0.04	0.01
tblVehicleEF	LDT2	1.5530e-003	1.4500e-003
tblVehicleEF	LDT2	1.8180e-003	2.2130e-003
tblVehicleEF	LDT2	0.02	3.5780e-003
tblVehicleEF	LDT2	1.4300e-003	1.3340e-003
tblVehicleEF	LDT2	1.6720e-003	2.0350e-003
tblVehicleEF	LDT2	0.07	0.35
tblVehicleEF	LDT2	0.16	0.10
tblVehicleEF	LDT2	0.06	0.35
tblVehicleEF	LDT2	0.02	0.01
tblVehicleEF	LDT2	0.08	0.27

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tblVehicleEF	LDT2	0.34	0.44
tblVehicleEF	LDT2	3.1360e-003	3.4050e-003
tblVehicleEF	LDT2	6.7200e-004	8.8700e-004
tblVehicleEF	LDT2	0.07	0.35
tblVehicleEF	LDT2	0.16	0.10
tblVehicleEF	LDT2	0.06	0.35
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.08	0.27
tblVehicleEF	LDT2	0.38	0.48
tblVehicleEF	LHD1	4.0660e-003	4.3970e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.16	0.17
tblVehicleEF	LHD1	1.20	1.14
tblVehicleEF	LHD1	0.95	1.69
tblVehicleEF	LHD1	9.58	9.38
tblVehicleEF	LHD1	760.21	774.13
tblVehicleEF	LHD1	9.34	14.01
tblVehicleEF	LHD1	9.7900e-004	8.9800e-004
tblVehicleEF	LHD1	0.06	0.06
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.10	0.09
tblVehicleEF	LHD1	1.65	1.39
tblVehicleEF	LHD1	0.26	0.36
tblVehicleEF	LHD1	1.1410e-003	1.0330e-003
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	2.5300e-004	2.4100e-004

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tblVehicleEF	LHD1	1.0920e-003	9.8800e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5570e-003	2.5000e-003
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	2.3300e-004	2.2100e-004
tblVehicleEF	LHD1	2.1680e-003	0.13
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.0570e-003	0.13
tblVehicleEF	LHD1	0.14	0.15
tblVehicleEF	LHD1	0.33	0.19
tblVehicleEF	LHD1	0.07	0.10
tblVehicleEF	LHD1	9.2000e-005	9.1000e-005
tblVehicleEF	LHD1	7.3840e-003	7.5210e-003
tblVehicleEF	LHD1	9.3000e-005	1.3800e-004
tblVehicleEF	LHD1	2.1680e-003	0.13
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.0570e-003	0.13
tblVehicleEF	LHD1	0.18	0.18
tblVehicleEF	LHD1	0.33	0.19
tblVehicleEF	LHD1	0.08	0.11
tblVehicleEF	LHD2	2.8720e-003	2.9280e-003
tblVehicleEF	LHD2	7.8900e-003	8.1060e-003
tblVehicleEF	LHD2	8.0290e-003	0.01
tblVehicleEF	LHD2	0.13	0.13
tblVehicleEF	LHD2	0.77	0.65
tblVehicleEF	LHD2	0.53	1.04
tblVehicleEF	LHD2	14.87	14.53

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tblVehicleEF	LHD2	771.37	842.13
tblVehicleEF	LHD2	6.79	8.61
tblVehicleEF	LHD2	1.9370e-003	1.8660e-003
tblVehicleEF	LHD2	0.08	0.09
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	1.39	1.21
tblVehicleEF	LHD2	0.17	0.22
tblVehicleEF	LHD2	1.5220e-003	1.4750e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.02	0.03
tblVehicleEF	LHD2	1.0800e-004	8.7000e-005
tblVehicleEF	LHD2	1.4560e-003	1.4110e-003
tblVehicleEF	LHD2	0.04	0.03
tblVehicleEF	LHD2	2.7270e-003	2.7030e-003
tblVehicleEF	LHD2	0.02	0.03
tblVehicleEF	LHD2	9.9000e-005	8.0000e-005
tblVehicleEF	LHD2	9.0300e-004	0.05
tblVehicleEF	LHD2	0.04	0.01
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	4.8900e-004	0.05
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.11	0.08
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	1.4200e-004	1.3900e-004
tblVehicleEF	LHD2	7.4310e-003	8.1000e-003
tblVehicleEF	LHD2	6.7000e-005	8.5000e-005
tblVehicleEF	LHD2	9.0300e-004	0.05

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tblVehicleEF	LHD2	0.04	0.01
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	4.8900e-004	0.05
tblVehicleEF	LHD2	0.15	0.16
tblVehicleEF	LHD2	0.11	0.08
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	MCY	0.36	0.20
tblVehicleEF	MCY	0.27	0.22
tblVehicleEF	MCY	21.46	15.97
tblVehicleEF	MCY	9.19	8.76
tblVehicleEF	MCY	217.66	192.12
tblVehicleEF	MCY	63.40	56.26
tblVehicleEF	MCY	0.07	0.04
tblVehicleEF	MCY	0.02	0.01
tblVehicleEF	MCY	1.19	0.68
tblVehicleEF	MCY	0.28	0.18
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	2.1330e-003	1.9930e-003
tblVehicleEF	MCY	3.2060e-003	3.7350e-003
tblVehicleEF	MCY	5.0400e-003	4.2000e-003
tblVehicleEF	MCY	1.9970e-003	1.8700e-003
tblVehicleEF	MCY	3.0250e-003	3.5240e-003
tblVehicleEF	MCY	0.91	4.90
tblVehicleEF	MCY	0.88	3.55
tblVehicleEF	MCY	0.48	4.90
tblVehicleEF	MCY	2.49	1.39
tblVehicleEF	MCY	0.78	3.91
tblVehicleEF	MCY	2.08	1.69
tblVehicleEF	MCY	2.1540e-003	1.8990e-003

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tblVehicleEF	MCY	6.2700e-004	5.5600e-004
tblVehicleEF	MCY	0.91	0.15
tblVehicleEF	MCY	0.88	3.55
tblVehicleEF	MCY	0.48	0.15
tblVehicleEF	MCY	3.05	1.64
tblVehicleEF	MCY	0.78	3.91
tblVehicleEF	MCY	2.26	1.83
tblVehicleEF	MDV	4.5840e-003	4.6000e-003
tblVehicleEF	MDV	0.09	0.12
tblVehicleEF	MDV	0.93	1.11
tblVehicleEF	MDV	3.33	4.72
tblVehicleEF	MDV	390.40	419.98
tblVehicleEF	MDV	83.06	108.54
tblVehicleEF	MDV	9.2130e-003	0.01
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.10	0.12
tblVehicleEF	MDV	0.37	0.51
tblVehicleEF	MDV	0.04	0.01
tblVehicleEF	MDV	1.6360e-003	1.5890e-003
tblVehicleEF	MDV	1.9350e-003	2.3660e-003
tblVehicleEF	MDV	0.02	3.6720e-003
tblVehicleEF	MDV	1.5110e-003	1.4680e-003
tblVehicleEF	MDV	1.7800e-003	2.1750e-003
tblVehicleEF	MDV	0.09	0.46
tblVehicleEF	MDV	0.19	0.12
tblVehicleEF	MDV	0.08	0.46
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.09	0.36
tblVehicleEF	MDV	0.44	0.62

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tblVehicleEF	MDV	3.8580e-003	4.1480e-003
tblVehicleEF	MDV	8.2200e-004	1.0730e-003
tblVehicleEF	MDV	0.09	0.46
tblVehicleEF	MDV	0.19	0.12
tblVehicleEF	MDV	0.08	0.46
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.09	0.36
tblVehicleEF	MDV	0.48	0.68
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	1.41	1.46
tblVehicleEF	MH	2.09	2.40
tblVehicleEF	MH	1,530.18	1,636.44
tblVehicleEF	MH	17.84	21.01
tblVehicleEF	MH	0.07	0.08
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	1.90	2.00
tblVehicleEF	MH	0.24	0.28
tblVehicleEF	MH	0.13	0.04
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.04	0.05
tblVehicleEF	MH	2.5700e-004	2.9500e-004
tblVehicleEF	MH	0.06	0.02
tblVehicleEF	MH	3.3160e-003	3.3600e-003
tblVehicleEF	MH	0.04	0.04
tblVehicleEF	MH	2.3600e-004	2.7200e-004
tblVehicleEF	MH	0.73	34.52
tblVehicleEF	MH	0.07	9.05
tblVehicleEF	MH	0.26	34.52

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tblVehicleEF	MH	0.09	0.10
tblVehicleEF	MH	0.02	0.22
tblVehicleEF	MH	0.10	0.11
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	1.7700e-004	2.0800e-004
tblVehicleEF	MH	0.73	34.52
tblVehicleEF	MH	0.07	9.05
tblVehicleEF	MH	0.26	34.52
tblVehicleEF	MH	0.12	0.13
tblVehicleEF	MH	0.02	0.22
tblVehicleEF	MH	0.10	0.12
tblVehicleEF	MHD	2.3920e-003	0.01
tblVehicleEF	MHD	1.7580e-003	7.8790e-003
tblVehicleEF	MHD	6.8540e-003	8.5060e-003
tblVehicleEF	MHD	0.33	0.68
tblVehicleEF	MHD	0.25	0.36
tblVehicleEF	MHD	0.87	1.07
tblVehicleEF	MHD	69.69	163.33
tblVehicleEF	MHD	1,042.49	1,214.46
tblVehicleEF	MHD	6.53	8.25
tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	0.15	0.16
tblVehicleEF	MHD	4.6810e-003	5.5400e-003
tblVehicleEF	MHD	0.40	0.89
tblVehicleEF	MHD	1.57	1.06
tblVehicleEF	MHD	1.83	1.47
tblVehicleEF	MHD	3.4700e-004	2.1920e-003
tblVehicleEF	MHD	0.13	0.05
tblVehicleEF	MHD	7.8910e-003	0.01

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tblVehicleEF	MHD	8.9000e-005	1.1500e-004
tblVehicleEF	MHD	3.3200e-004	2.0970e-003
tblVehicleEF	MHD	0.06	0.02
tblVehicleEF	MHD	7.5450e-003	0.01
tblVehicleEF	MHD	8.2000e-005	1.0500e-004
tblVehicleEF	MHD	3.6600e-004	0.03
tblVehicleEF	MHD	0.02	6.7300e-003
tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	1.8500e-004	0.03
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	0.02	0.06
tblVehicleEF	MHD	0.04	0.05
tblVehicleEF	MHD	6.6000e-004	1.5280e-003
tblVehicleEF	MHD	9.9040e-003	0.01
tblVehicleEF	MHD	6.5000e-005	8.2000e-005
tblVehicleEF	MHD	3.6600e-004	0.03
tblVehicleEF	MHD	0.02	6.7300e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	1.8500e-004	0.03
tblVehicleEF	MHD	0.02	0.05
tblVehicleEF	MHD	0.02	0.06
tblVehicleEF	MHD	0.04	0.05
tblVehicleEF	OBUS	7.2230e-003	8.1960e-003
tblVehicleEF	OBUS	5.0090e-003	0.01
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.63	0.58
tblVehicleEF	OBUS	0.60	0.81
tblVehicleEF	OBUS	2.20	2.73
tblVehicleEF	OBUS	99.59	88.64

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tblVehicleEF	OBUS	1,342.68	1,521.11
tblVehicleEF	OBUS	16.40	20.31
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.14	0.14
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.41	0.37
tblVehicleEF	OBUS	1.51	1.18
tblVehicleEF	OBUS	1.07	0.86
tblVehicleEF	OBUS	1.3400e-004	4.8400e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	7.9000e-003	0.02
tblVehicleEF	OBUS	1.7700e-004	2.1800e-004
tblVehicleEF	OBUS	1.2800e-004	4.6300e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	7.5450e-003	0.02
tblVehicleEF	OBUS	1.6300e-004	2.0000e-004
tblVehicleEF	OBUS	1.4070e-003	0.10
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	6.0200e-004	0.10
tblVehicleEF	OBUS	0.03	0.07
tblVehicleEF	OBUS	0.07	0.11
tblVehicleEF	OBUS	0.10	0.13
tblVehicleEF	OBUS	9.4600e-004	8.4200e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	1.6200e-004	2.0100e-004
tblVehicleEF	OBUS	1.4070e-003	0.10
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.06	0.06

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tblVehicleEF	OBUS	6.0200e-004	0.10
tblVehicleEF	OBUS	0.04	0.09
tblVehicleEF	OBUS	0.07	0.11
tblVehicleEF	OBUS	0.11	0.14
tblVehicleEF	SBUS	0.03	0.09
tblVehicleEF	SBUS	4.2900e-003	0.20
tblVehicleEF	SBUS	2.6150e-003	2.4670e-003
tblVehicleEF	SBUS	1.54	1.14
tblVehicleEF	SBUS	0.32	0.91
tblVehicleEF	SBUS	0.38	0.34
tblVehicleEF	SBUS	335.73	182.05
tblVehicleEF	SBUS	1,073.56	1,086.55
tblVehicleEF	SBUS	2.23	2.11
tblVehicleEF	SBUS	0.05	0.03
tblVehicleEF	SBUS	0.15	0.15
tblVehicleEF	SBUS	2.6560e-003	2.6520e-003
tblVehicleEF	SBUS	3.17	1.38
tblVehicleEF	SBUS	4.20	2.63
tblVehicleEF	SBUS	1.02	0.44
tblVehicleEF	SBUS	2.6880e-003	1.1780e-003
tblVehicleEF	SBUS	0.74	0.04
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	2.8000e-005	2.2000e-005
tblVehicleEF	SBUS	2.5720e-003	1.1250e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.8250e-003	2.7570e-003
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	2.5000e-005	2.0000e-005

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tblVehicleEF	SBUS	2.2700e-004	0.01
tblVehicleEF	SBUS	2.3150e-003	3.4230e-003
tblVehicleEF	SBUS	0.15	0.11
tblVehicleEF	SBUS	1.0500e-004	0.01
tblVehicleEF	SBUS	0.07	0.05
tblVehicleEF	SBUS	5.2190e-003	6.0400e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	3.1850e-003	1.5740e-003
tblVehicleEF	SBUS	0.01	9.7280e-003
tblVehicleEF	SBUS	2.2000e-005	2.1000e-005
tblVehicleEF	SBUS	2.2700e-004	0.01
tblVehicleEF	SBUS	2.3150e-003	3.4230e-003
tblVehicleEF	SBUS	0.21	0.23
tblVehicleEF	SBUS	1.0500e-004	0.01
tblVehicleEF	SBUS	0.08	0.25
tblVehicleEF	SBUS	5.2190e-003	6.0400e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	UBUS	2.91	0.59
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	22.44	9.62
tblVehicleEF	UBUS	0.84	2.65
tblVehicleEF	UBUS	1,754.72	1,284.51
tblVehicleEF	UBUS	8.50	20.82
tblVehicleEF	UBUS	0.30	0.18
tblVehicleEF	UBUS	6.7320e-003	0.03
tblVehicleEF	UBUS	0.61	0.31
tblVehicleEF	UBUS	0.08	0.21
tblVehicleEF	UBUS	0.08	0.11
tblVehicleEF	UBUS	0.03	0.03

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tblVehicleEF	UBUS	4.3900e-003	2.5940e-003
tblVehicleEF	UBUS	7.7000e-005	1.2800e-004
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	7.7720e-003	6.3860e-003
tblVehicleEF	UBUS	4.1940e-003	2.4690e-003
tblVehicleEF	UBUS	7.1000e-005	1.1800e-004
tblVehicleEF	UBUS	2.5800e-004	0.04
tblVehicleEF	UBUS	3.7890e-003	0.02
tblVehicleEF	UBUS	1.5300e-004	0.04
tblVehicleEF	UBUS	0.04	0.03
tblVehicleEF	UBUS	9.5700e-004	0.04
tblVehicleEF	UBUS	0.05	0.10
tblVehicleEF	UBUS	8.1380e-003	6.7480e-003
tblVehicleEF	UBUS	8.4000e-005	2.0600e-004
tblVehicleEF	UBUS	2.5800e-004	0.04
tblVehicleEF	UBUS	3.7890e-003	0.02
tblVehicleEF	UBUS	1.5300e-004	0.04
tblVehicleEF	UBUS	2.97	0.63
tblVehicleEF	UBUS	9.5700e-004	0.04
tblVehicleEF	UBUS	0.05	0.10
tblVehicleTrips	ST_TR	2.21	0.00
tblVehicleTrips	ST_TR	1.74	1.51
tblVehicleTrips	SU_TR	0.70	0.00
tblVehicleTrips	SU_TR	1.74	1.51
tblVehicleTrips	WD_TR	9.74	0.00
tblVehicleTrips	WD_TR	1.74	1.51
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00

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tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	NumberCatalytic	0.96	0.00
tblWoodstoves	NumberNoncatalytic	0.96	0.00
tblWoodstoves	WoodstoveDayYear	14.12	0.00
tblWoodstoves	WoodstoveWoodMass	582.40	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1937	1.7376	1.9395	3.0200e-003	0.0775	0.0924	0.1699	0.0390	0.0869	0.1259	0.0000	259.6986	259.6986	0.0615	0.0000	261.2352
2023	0.4776	0.1626	0.2212	3.4000e-004	0.0000	8.2000e-003	8.2000e-003	0.0000	7.7100e-003	7.7100e-003	0.0000	29.2227	29.2227	7.4200e-003	0.0000	29.4082
Maximum	0.4776	1.7376	1.9395	3.0200e-003	0.0775	0.0924	0.1699	0.0390	0.0869	0.1259	0.0000	259.6986	259.6986	0.0615	0.0000	261.2352

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Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0592	1.2647	2.0591	3.0200e-003	0.0349	9.3100e-003	0.0442	0.0175	9.3100e-003	0.0268	0.0000	259.6983	259.6983	0.0615	0.0000	261.2349
2023	0.4654	0.1424	0.2370	3.4000e-004	0.0000	8.0000e-004	8.0000e-004	0.0000	8.0000e-004	8.0000e-004	0.0000	29.2226	29.2226	7.4200e-003	0.0000	29.4082
Maximum	0.4654	1.2647	2.0591	3.0200e-003	0.0349	9.3100e-003	0.0442	0.0175	9.3100e-003	0.0268	0.0000	259.6983	259.6983	0.0615	0.0000	261.2349

	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
Percent Reduction	21.84	25.95	-6.26	0.00	55.00	89.95	74.74	55.01	89.32	79.31	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	1-3-2022	4-2-2022	0.6184	0.3398
2	4-3-2022	7-2-2022	0.4334	0.3260
3	7-3-2022	10-2-2022	0.4381	0.3295
4	10-3-2022	1-2-2023	0.4374	0.3295
5	1-3-2023	4-2-2023	0.6108	0.5799
		Highest	0.6184	0.5799

2.2 Overall Operational
Unmitigated Operational

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	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	0.3474	4.1200e-003	0.3579	2.0000e-005		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003	0.0000	0.5853	0.5853	5.7000e-004	0.0000	0.5995
Energy	2.9700e-003	0.0258	0.0140	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	49.5115	49.5115	6.0900e-003	1.2100e-003	50.0243
Mobile	0.2271	0.2506	1.2851	3.2200e-003	0.2541	3.4600e-003	0.2576	0.0638	3.2600e-003	0.0671	0.0000	300.1662	300.1662	0.0147	0.0188	306.1263
Waste						0.0000	0.0000		0.0000	0.0000	12.0942	0.0000	12.0942	0.7148	0.0000	29.9629
Water						0.0000	0.0000		0.0000	0.0000	4.3539	4.0181	8.3720	0.0161	9.6000e-003	11.6358
Total	0.5775	0.2806	1.6570	3.4000e-003	0.2541	7.4900e-003	0.2616	0.0638	7.2900e-003	0.0711	16.4481	354.2811	370.7293	0.7522	0.0296	398.3487

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3474	4.1200e-003	0.3579	2.0000e-005		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003	0.0000	0.5853	0.5853	5.7000e-004	0.0000	0.5995
Energy	2.9700e-003	0.0258	0.0140	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	49.5115	49.5115	6.0900e-003	1.2100e-003	50.0243
Mobile	0.2271	0.2506	1.2851	3.2200e-003	0.2541	3.4600e-003	0.2576	0.0638	3.2600e-003	0.0671	0.0000	300.1662	300.1662	0.0147	0.0188	306.1263
Waste						0.0000	0.0000		0.0000	0.0000	12.0942	0.0000	12.0942	0.7148	0.0000	29.9629
Water						0.0000	0.0000		0.0000	0.0000	4.3539	4.0181	8.3720	0.0161	9.6000e-003	11.6358

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Total	0.5775	0.2806	1.6570	3.4000e-003	0.2541	7.4900e-003	0.2616	0.0638	7.2900e-003	0.0711	16.4481	354.2811	370.7293	0.7522	0.0296	398.3487
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	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
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/3/2022	1/28/2022	5	20	
2	Site Preparation	Site Preparation	1/29/2022	2/4/2022	5	5	
3	Grading	Grading	2/5/2022	2/16/2022	5	8	
4	Trenching	Trenching	2/17/2022	3/2/2022	5	10	
5	Building Construction	Building Construction	3/3/2022	1/18/2023	5	230	
6	Paving	Paving	1/19/2023	2/13/2023	5	18	
7	Architectural Coating	Architectural Coating	2/14/2023	3/9/2023	5	18	

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 8

Acres of Paving: 0

Residential Indoor: 66,825; Residential Outdoor: 22,275; Non-Residential Indoor: 59,852; Non-Residential Outdoor: 19,951; Striped Parking Area:

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

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Demolition	Rubber Tired Dozers	2	8.00	247	0.40
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	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
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
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	8	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

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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	0.0489	1.0393	1.6477	2.3700e-003		8.2800e-003	8.2800e-003		8.2800e-003	8.2800e-003	0.0000	203.2919	203.2919	0.0447	0.0000	204.4086
Total	0.0489	1.0393	1.6477	2.3700e-003		8.2800e-003	8.2800e-003		8.2800e-003	8.2800e-003	0.0000	203.2919	203.2919	0.0447	0.0000	204.4086

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

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.2200e-003	0.0718	0.0952	1.4000e-004		3.6400e-003	3.6400e-003		3.4500e-003	3.4500e-003	0.0000	12.1840	12.1840	2.6500e-003	0.0000	12.2503
Total	8.2200e-003	0.0718	0.0952	1.4000e-004		3.6400e-003	3.6400e-003		3.4500e-003	3.4500e-003	0.0000	12.1840	12.1840	2.6500e-003	0.0000	12.2503

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

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.9300e-003	0.0623	0.0987	1.4000e-004		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	12.1840	12.1840	2.6500e-003	0.0000	12.2503
Total	2.9300e-003	0.0623	0.0987	1.4000e-004		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	12.1840	12.1840	2.6500e-003	0.0000	12.2503

Mitigated Construction Off-Site

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

3.7 Paving - 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
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Category	tons/yr									MT/yr						
	Off-Road	8.2600e-003	0.0791	0.1097	1.7000e-004		3.9200e-003	3.9200e-003		3.6200e-003	3.6200e-003	0.0000	14.7407	14.7407	4.6300e-003	0.0000
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	8.2600e-003	0.0791	0.1097	1.7000e-004		3.9200e-003	3.9200e-003		3.6200e-003	3.6200e-003	0.0000	14.7407	14.7407	4.6300e-003	0.0000	14.8565

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
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Category	tons/yr									MT/yr						
	Off-Road	2.6200e-003	0.0706	0.1218	1.7000e-004		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004	0.0000	14.7407	14.7407	4.6300e-003	0.0000
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	2.6200e-003	0.0706	0.1218	1.7000e-004		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004	0.0000	14.7407	14.7407	4.6300e-003	0.0000	14.8565

Mitigated Construction Off-Site

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

3.8 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category	tons/yr										MT/yr					
	Archit. Coating	0.4593					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7200e-003	0.0117	0.0163	3.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004	0.0000	2.2979	2.2979	1.4000e-004	0.0000	2.3014
Total	0.4611	0.0117	0.0163	3.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004	0.0000	2.2979	2.2979	1.4000e-004	0.0000	2.3014

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

Category	tons/yr									MT/yr						
	Archit. Coating	0.4593					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.9000e-004	9.5400e-003	0.0165	3.0000e-005		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	2.2979	2.2979	1.4000e-004	0.0000	2.3014
Total	0.4598	9.5400e-003	0.0165	3.0000e-005		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	2.2979	2.2979	1.4000e-004	0.0000	2.3014

Mitigated Construction Off-Site

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2271	0.2506	1.2851	3.2200e-003	0.2541	3.4600e-003	0.2576	0.0638	3.2600e-003	0.0671	0.0000	300.1662	300.1662	0.0147	0.0188	306.1263
Unmitigated	0.2271	0.2506	1.2851	3.2200e-003	0.2541	3.4600e-003	0.2576	0.0638	3.2600e-003	0.0671	0.0000	300.1662	300.1662	0.0147	0.0188	306.1263

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	261.12	235.68	196.32	573,311	573,311
General Office Building	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	58.89	58.89	58.89	171,930	171,930
Total	320.01	294.57	255.21	745,241	745,241

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.486165	0.045865	0.214340	0.141752	0.048048	0.013010	0.021353	0.019982	0.001670	0.001093	0.004415	0.001068	0.001240

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

General Office Building	0.486165	0.045865	0.214340	0.141752	0.048048	0.013010	0.021353	0.019982	0.001670	0.001093	0.004415	0.001068	0.001240
Parking Lot	0.486165	0.045865	0.214340	0.141752	0.048048	0.013010	0.021353	0.019982	0.001670	0.001093	0.004415	0.001068	0.001240
Unrefrigerated Warehouse-No Rail	0.486165	0.045865	0.214340	0.141752	0.048048	0.013010	0.021353	0.019982	0.001670	0.001093	0.004415	0.001068	0.001240

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	20.1040	20.1040	5.5300e-003	6.7000e-004	20.4419
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	20.1040	20.1040	5.5300e-003	6.7000e-004	20.4419
NaturalGas Mitigated	2.9700e-003	0.0258	0.0140	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	29.4076	29.4076	5.6000e-004	5.4000e-004	29.5823
NaturalGas Unmitigated	2.9700e-003	0.0258	0.0140	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	29.4076	29.4076	5.6000e-004	5.4000e-004	29.5823

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

Land Use	kBTU/yr	tons/yr								MT/yr							
Apartments Mid Rise	402321	2.1700e-003	0.0185	7.8900e-003	1.2000e-004		1.5000e-003	1.5000e-003		1.5000e-003	1.5000e-003	0.0000	21.4694	21.4694	4.1000e-004	3.9000e-004	21.5969
General Office Building	14596.2	8.0000e-005	7.2000e-004	6.0000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.7789	0.7789	1.0000e-005	1.0000e-005	0.7835
Parking Lot	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
Unrefrigerated Warehouse-No	134160	7.2000e-004	6.5800e-003	5.5200e-003	4.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	7.1593	7.1593	1.4000e-004	1.3000e-004	7.2018
Total		2.9700e-003	0.0258	0.0140	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	29.4076	29.4076	5.6000e-004	5.3000e-004	29.5823

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr								MT/yr							
Apartments Mid Rise	402321	2.1700e-003	0.0185	7.8900e-003	1.2000e-004		1.5000e-003	1.5000e-003		1.5000e-003	1.5000e-003	0.0000	21.4694	21.4694	4.1000e-004	3.9000e-004	21.5969
General Office Building	14596.2	8.0000e-005	7.2000e-004	6.0000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.7789	0.7789	1.0000e-005	1.0000e-005	0.7835
Parking Lot	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
Unrefrigerated Warehouse-No	134160	7.2000e-004	6.5800e-003	5.5200e-003	4.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	7.1593	7.1593	1.4000e-004	1.3000e-004	7.2018
Total		2.9700e-003	0.0258	0.0140	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	29.4076	29.4076	5.6000e-004	5.3000e-004	29.5823

5.3 Energy by Land Use - Electricity

Unmitigated

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

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	185589	10.1001	2.7800e-003	3.4000e-004	10.2699
General Office Building	15470.2	0.8419	2.3000e-004	3.0000e-005	0.8561
Parking Lot	31850	1.7333	4.8000e-004	6.0000e-005	1.7625
Unrefrigerated Warehouse-No	136500	7.4286	2.0400e-003	2.5000e-004	7.5535
Total		20.1040	5.5300e-003	6.8000e-004	20.4419

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	185589	10.1001	2.7800e-003	3.4000e-004	10.2699
General Office Building	15470.2	0.8419	2.3000e-004	3.0000e-005	0.8561
Parking Lot	31850	1.7333	4.8000e-004	6.0000e-005	1.7625
Unrefrigerated Warehouse-No	136500	7.4286	2.0400e-003	2.5000e-004	7.5535
Total		20.1040	5.5300e-003	6.8000e-004	20.4419

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

Landscaping	0.0109	4.1200e-003	0.3579	2.0000e-005		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003	0.0000	0.5853	0.5853	5.7000e-004	0.0000	0.5995
Total	0.3474	4.1200e-003	0.3579	2.0000e-005		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003	0.0000	0.5853	0.5853	5.7000e-004	0.0000	0.5995

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	0.0459					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2906					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	0.0109	4.1200e-003	0.3579	2.0000e-005		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003	0.0000	0.5853	0.5853	5.7000e-004	0.0000	0.5995
Total	0.3474	4.1200e-003	0.3579	2.0000e-005		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003	0.0000	0.5853	0.5853	5.7000e-004	0.0000	0.5995

7.0 Water Detail

7.1 Mitigation Measures Water

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

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	8.3720	0.0161	9.6000e-003	11.6358
Unmitigated	8.3720	0.0161	9.6000e-003	11.6358

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	3.12739 / 1.97162	2.4030	4.1600e-003	2.4500e-003	3.2370
General Office Building	0.15996 / 0.0980402	0.1224	2.1000e-004	1.3000e-004	0.1650
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No	9.01875 / 0	5.8467	0.0117	7.0300e-003	8.2337
Total		8.3720	0.0161	9.6100e-003	11.6358

Mitigated

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

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	3.12739 / 1.97162	2.4030	4.1600e-003	2.4500e-003	3.2370
General Office Building	0.15996 / 0.0980402	0.1224	2.1000e-004	1.3000e-004	0.1650
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No	9.01875 / 0	5.8467	0.0117	7.0300e-003	8.2337
Total		8.3720	0.0161	9.6100e-003	11.6358

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	12.0942	0.7148	0.0000	29.9629
Unmitigated	12.0942	0.7148	0.0000	29.9629

8.2 Waste by Land Use

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

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	22.08	4.4820	0.2649	0.0000	11.1041
General Office Building	0.84	0.1705	0.0101	0.0000	0.4224
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No	36.66	7.4417	0.4398	0.0000	18.4364
Total		12.0942	0.7148	0.0000	29.9629

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	22.08	4.4820	0.2649	0.0000	11.1041
General Office Building	0.84	0.1705	0.0101	0.0000	0.4224
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No	36.66	7.4417	0.4398	0.0000	18.4364

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

Total		12.0942	0.7148	0.0000	29.9629
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9.0 Operational Offroad

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

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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11.0 Vegetation

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

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	0.90	1000sqft	0.00	901.00	0
Unrefrigerated Warehouse-No Rail	39.00	1000sqft	0.00	39,000.00	0
Parking Lot	136.00	Space	0.00	91,000.00	0
Apartments Mid Rise	48.00	Dwelling Unit	4.51	33,000.00	137

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	75
Climate Zone	4			Operational Year	2030
Utility Company	Sonoma Clean Power				
CO2 Intensity (lb/MW hr)	119.98	CH4 Intensity (lb/MW hr)	0.033	N2O Intensity (lb/MW hr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Self-storage = unrefrigerated warehouse-no rail. Unit amounts, acreage, and square footage provided by applicant.

Construction Phase - CalEEMod defaults assumed. No information provided by applicant.

Off-road Equipment - CalEEMod defaults assumed for construction equipment

Off-road Equipment - CalEEMod defaults assumed for construction equipment

Off-road Equipment - CalEEMod defaults assumed for construction equipment

Off-road Equipment - CalEEMod defaults assumed for construction equipment

Off-road Equipment - CalEEMod defaults assumed for construction equipment

Off-road Equipment - CalEEMod defaults assumed for construction equipment

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

Off-road Equipment - Assumed 1 piece of equipment each for trenching.

Trips and VMT - All trips entered into EMFAC2021

Vehicle Trips - Trip rates updated from information provided by applicant.

Vehicle Emission Factors - Emission Factors updated from EMFAC2021 for Sonoma County in 2030

Woodstoves - No woodstoves or fireplaces

Water And Wastewater - 100% aerobic

Construction Off-road Equipment Mitigation - All equipment t4i

Fleet Mix - Fleet Mix updated from EMFAC2021 for Sonoma County in 2030

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	12.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not 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
tblFireplaces	FireplaceDayYear	11.14	0.00
tblFireplaces	FireplaceHourDay	3.50	0.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	7.20	0.00
tblFireplaces	NumberNoFireplace	1.92	0.00
tblFireplaces	NumberWood	8.16	0.00
tblFleetMix	HHD	6.6660e-003	0.02
tblFleetMix	HHD	6.6660e-003	0.02
tblFleetMix	HHD	6.6660e-003	0.02
tblFleetMix	HHD	6.6660e-003	0.02
tblFleetMix	LDA	0.58	0.52
tblFleetMix	LDA	0.58	0.52
tblFleetMix	LDA	0.58	0.52
tblFleetMix	LDA	0.58	0.52
tblFleetMix	LDT1	0.05	0.03
tblFleetMix	LDT1	0.05	0.03
tblFleetMix	LDT1	0.05	0.03
tblFleetMix	LDT1	0.05	0.03
tblFleetMix	LDT2	0.16	0.21
tblFleetMix	LDT2	0.16	0.21
tblFleetMix	LDT2	0.16	0.21

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

tblFleetMix	LDT2	0.16	0.21
tblFleetMix	LHD1	0.03	0.04
tblFleetMix	LHD1	0.03	0.04
tblFleetMix	LHD1	0.03	0.04
tblFleetMix	LHD1	0.03	0.04
tblFleetMix	LHD2	7.4690e-003	0.01
tblFleetMix	LHD2	7.4690e-003	0.01
tblFleetMix	LHD2	7.4690e-003	0.01
tblFleetMix	LHD2	7.4690e-003	0.01
tblFleetMix	MCY	0.03	3.8050e-003
tblFleetMix	MCY	0.03	3.8050e-003
tblFleetMix	MCY	0.03	3.8050e-003
tblFleetMix	MCY	0.03	3.8050e-003
tblFleetMix	MDV	0.11	0.13
tblFleetMix	MDV	0.11	0.13
tblFleetMix	MDV	0.11	0.13
tblFleetMix	MDV	0.11	0.13
tblFleetMix	MH	3.2790e-003	9.1400e-004
tblFleetMix	MH	3.2790e-003	9.1400e-004
tblFleetMix	MH	3.2790e-003	9.1400e-004
tblFleetMix	MH	3.2790e-003	9.1400e-004
tblFleetMix	MHD	0.02	0.02
tblFleetMix	MHD	0.02	0.02
tblFleetMix	MHD	0.02	0.02
tblFleetMix	MHD	0.02	0.02
tblFleetMix	OBUS	1.0800e-003	1.4760e-003
tblFleetMix	OBUS	1.0800e-003	1.4760e-003
tblFleetMix	OBUS	1.0800e-003	1.4760e-003
tblFleetMix	OBUS	1.0800e-003	1.4760e-003

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tblFleetMix	SBUS	1.4780e-003	1.0940e-003
tblFleetMix	SBUS	1.4780e-003	1.0940e-003
tblFleetMix	SBUS	1.4780e-003	1.0940e-003
tblFleetMix	SBUS	1.4780e-003	1.0940e-003
tblFleetMix	UBUS	2.7300e-004	1.1070e-003
tblFleetMix	UBUS	2.7300e-004	1.1070e-003
tblFleetMix	UBUS	2.7300e-004	1.1070e-003
tblFleetMix	UBUS	2.7300e-004	1.1070e-003
tblLandUse	LandUseSquareFeet	900.00	901.00
tblLandUse	LandUseSquareFeet	54,400.00	91,000.00
tblLandUse	LandUseSquareFeet	48,000.00	33,000.00
tblLandUse	LotAcreage	0.02	0.00
tblLandUse	LotAcreage	0.90	0.00
tblLandUse	LotAcreage	1.22	0.00
tblLandUse	LotAcreage	1.26	4.51
tblTripsAndVMT	VendorTripNumber	27.00	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	89.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00
tblVehicleEF	HHD	0.02	0.16
tblVehicleEF	HHD	0.05	0.05
tblVehicleEF	HHD	5.32	4.50
tblVehicleEF	HHD	0.44	0.50
tblVehicleEF	HHD	8.8140e-003	1.0180e-003
tblVehicleEF	HHD	799.72	667.01

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tblVehicleEF	HHD	1,274.41	1,456.96
tblVehicleEF	HHD	0.10	0.01
tblVehicleEF	HHD	0.13	0.11
tblVehicleEF	HHD	0.20	0.23
tblVehicleEF	HHD	4.53	3.58
tblVehicleEF	HHD	2.56	1.63
tblVehicleEF	HHD	2.87	2.64
tblVehicleEF	HHD	2.1180e-003	1.9490e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	2.0270e-003	1.8590e-003
tblVehicleEF	HHD	0.02	0.03
tblVehicleEF	HHD	8.4640e-003	8.4790e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	3.0000e-006	5.3000e-005
tblVehicleEF	HHD	1.6400e-004	1.5000e-005
tblVehicleEF	HHD	0.36	0.28
tblVehicleEF	HHD	2.0000e-006	5.3000e-005
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	8.7000e-005	1.3400e-004
tblVehicleEF	HHD	2.0000e-006	0.00
tblVehicleEF	HHD	7.4340e-003	5.8090e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	3.0000e-006	5.3000e-005
tblVehicleEF	HHD	1.6400e-004	1.5000e-005

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tblVehicleEF	HHD	0.41	0.47
tblVehicleEF	HHD	2.0000e-006	5.3000e-005
tblVehicleEF	HHD	0.08	0.07
tblVehicleEF	HHD	8.7000e-005	1.3400e-004
tblVehicleEF	HHD	2.0000e-006	0.00
tblVehicleEF	LDA	1.2000e-003	1.4860e-003
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.44	0.54
tblVehicleEF	LDA	1.80	2.36
tblVehicleEF	LDA	207.56	223.71
tblVehicleEF	LDA	43.11	58.17
tblVehicleEF	LDA	3.5250e-003	3.5720e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.13	0.20
tblVehicleEF	LDA	0.04	8.2560e-003
tblVehicleEF	LDA	1.0620e-003	9.3000e-004
tblVehicleEF	LDA	1.3450e-003	1.5720e-003
tblVehicleEF	LDA	0.02	2.8900e-003
tblVehicleEF	LDA	9.7700e-004	8.5600e-004
tblVehicleEF	LDA	1.2370e-003	1.4450e-003
tblVehicleEF	LDA	0.03	0.27
tblVehicleEF	LDA	0.07	0.07
tblVehicleEF	LDA	0.02	0.27
tblVehicleEF	LDA	4.2500e-003	5.3610e-003
tblVehicleEF	LDA	0.02	0.20
tblVehicleEF	LDA	0.13	0.23
tblVehicleEF	LDA	2.0530e-003	2.2110e-003
tblVehicleEF	LDA	4.2700e-004	5.7500e-004

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tblVehicleEF	LDA	0.03	0.27
tblVehicleEF	LDA	0.07	0.07
tblVehicleEF	LDA	0.02	0.27
tblVehicleEF	LDA	6.1670e-003	7.8090e-003
tblVehicleEF	LDA	0.02	0.20
tblVehicleEF	LDA	0.15	0.25
tblVehicleEF	LDT1	2.6560e-003	5.0380e-003
tblVehicleEF	LDT1	0.05	0.10
tblVehicleEF	LDT1	0.68	1.23
tblVehicleEF	LDT1	1.99	4.98
tblVehicleEF	LDT1	254.02	305.46
tblVehicleEF	LDT1	54.09	82.23
tblVehicleEF	LDT1	4.8290e-003	8.0630e-003
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.05	0.10
tblVehicleEF	LDT1	0.19	0.36
tblVehicleEF	LDT1	0.04	0.01
tblVehicleEF	LDT1	1.2820e-003	1.6080e-003
tblVehicleEF	LDT1	1.6790e-003	2.6360e-003
tblVehicleEF	LDT1	0.02	3.7400e-003
tblVehicleEF	LDT1	1.1790e-003	1.4790e-003
tblVehicleEF	LDT1	1.5440e-003	2.4240e-003
tblVehicleEF	LDT1	0.07	0.71
tblVehicleEF	LDT1	0.16	0.18
tblVehicleEF	LDT1	0.06	0.71
tblVehicleEF	LDT1	0.01	0.02
tblVehicleEF	LDT1	0.09	0.54
tblVehicleEF	LDT1	0.22	0.50
tblVehicleEF	LDT1	2.5140e-003	3.0200e-003

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tblVehicleEF	LDT1	5.3500e-004	8.1300e-004
tblVehicleEF	LDT1	0.07	0.71
tblVehicleEF	LDT1	0.16	0.18
tblVehicleEF	LDT1	0.06	0.71
tblVehicleEF	LDT1	0.02	0.03
tblVehicleEF	LDT1	0.09	0.54
tblVehicleEF	LDT1	0.24	0.55
tblVehicleEF	LDT2	2.1940e-003	2.1910e-003
tblVehicleEF	LDT2	0.05	0.07
tblVehicleEF	LDT2	0.61	0.71
tblVehicleEF	LDT2	2.40	3.13
tblVehicleEF	LDT2	260.16	307.92
tblVehicleEF	LDT2	55.69	79.30
tblVehicleEF	LDT2	4.6490e-003	5.0580e-003
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.04	0.05
tblVehicleEF	LDT2	0.19	0.28
tblVehicleEF	LDT2	0.04	0.01
tblVehicleEF	LDT2	1.1500e-003	1.0890e-003
tblVehicleEF	LDT2	1.4250e-003	1.7720e-003
tblVehicleEF	LDT2	0.02	3.5570e-003
tblVehicleEF	LDT2	1.0590e-003	1.0020e-003
tblVehicleEF	LDT2	1.3100e-003	1.6290e-003
tblVehicleEF	LDT2	0.06	0.31
tblVehicleEF	LDT2	0.12	0.08
tblVehicleEF	LDT2	0.05	0.31
tblVehicleEF	LDT2	8.6940e-003	8.3290e-003
tblVehicleEF	LDT2	0.07	0.23
tblVehicleEF	LDT2	0.22	0.31

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tblVehicleEF	LDT2	2.5730e-003	3.0440e-003
tblVehicleEF	LDT2	5.5100e-004	7.8400e-004
tblVehicleEF	LDT2	0.06	0.31
tblVehicleEF	LDT2	0.12	0.08
tblVehicleEF	LDT2	0.05	0.31
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.07	0.23
tblVehicleEF	LDT2	0.24	0.34
tblVehicleEF	LHD1	3.7420e-003	4.0020e-003
tblVehicleEF	LHD1	7.9950e-003	7.5020e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.16	0.17
tblVehicleEF	LHD1	0.79	0.78
tblVehicleEF	LHD1	0.86	1.72
tblVehicleEF	LHD1	9.02	8.78
tblVehicleEF	LHD1	706.55	705.59
tblVehicleEF	LHD1	8.92	13.80
tblVehicleEF	LHD1	9.1700e-004	8.2600e-004
tblVehicleEF	LHD1	0.05	0.05
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.08	0.07
tblVehicleEF	LHD1	0.95	0.87
tblVehicleEF	LHD1	0.22	0.32
tblVehicleEF	LHD1	1.1020e-003	9.4800e-004
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	9.8070e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	2.2300e-004	1.7500e-004
tblVehicleEF	LHD1	1.0540e-003	9.0700e-004

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tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5420e-003	2.4520e-003
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	2.0500e-004	1.6100e-004
tblVehicleEF	LHD1	1.8450e-003	0.11
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	9.4800e-004	0.11
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.36	0.16
tblVehicleEF	LHD1	0.05	0.08
tblVehicleEF	LHD1	8.7000e-005	8.5000e-005
tblVehicleEF	LHD1	6.8670e-003	6.8570e-003
tblVehicleEF	LHD1	8.8000e-005	1.3600e-004
tblVehicleEF	LHD1	1.8450e-003	0.11
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	9.4800e-004	0.11
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.36	0.16
tblVehicleEF	LHD1	0.06	0.09
tblVehicleEF	LHD2	2.5350e-003	2.5990e-003
tblVehicleEF	LHD2	6.3230e-003	6.0210e-003
tblVehicleEF	LHD2	5.7120e-003	9.2620e-003
tblVehicleEF	LHD2	0.13	0.13
tblVehicleEF	LHD2	0.63	0.50
tblVehicleEF	LHD2	0.46	0.99
tblVehicleEF	LHD2	14.12	14.23
tblVehicleEF	LHD2	710.65	775.46

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tblVehicleEF	LHD2	6.14	7.99
tblVehicleEF	LHD2	1.8570e-003	1.8460e-003
tblVehicleEF	LHD2	0.07	0.08
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.10	0.11
tblVehicleEF	LHD2	0.86	0.89
tblVehicleEF	LHD2	0.14	0.19
tblVehicleEF	LHD2	1.5620e-003	1.5200e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.02	0.03
tblVehicleEF	LHD2	9.2000e-005	5.5000e-005
tblVehicleEF	LHD2	1.4950e-003	1.4550e-003
tblVehicleEF	LHD2	0.04	0.03
tblVehicleEF	LHD2	2.7310e-003	2.6810e-003
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	8.5000e-005	5.1000e-005
tblVehicleEF	LHD2	7.2900e-004	0.05
tblVehicleEF	LHD2	0.03	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	4.3600e-004	0.05
tblVehicleEF	LHD2	0.12	0.11
tblVehicleEF	LHD2	0.08	0.07
tblVehicleEF	LHD2	0.03	0.04
tblVehicleEF	LHD2	1.3500e-004	1.3600e-004
tblVehicleEF	LHD2	6.8450e-003	7.4530e-003
tblVehicleEF	LHD2	6.1000e-005	7.9000e-005
tblVehicleEF	LHD2	7.2900e-004	0.05
tblVehicleEF	LHD2	0.03	0.01

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tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	4.3600e-004	0.05
tblVehicleEF	LHD2	0.13	0.13
tblVehicleEF	LHD2	0.08	0.07
tblVehicleEF	LHD2	0.03	0.05
tblVehicleEF	MCY	0.35	0.17
tblVehicleEF	MCY	0.26	0.19
tblVehicleEF	MCY	19.65	13.63
tblVehicleEF	MCY	9.37	8.60
tblVehicleEF	MCY	216.84	188.90
tblVehicleEF	MCY	61.60	50.69
tblVehicleEF	MCY	0.07	0.04
tblVehicleEF	MCY	0.02	8.3200e-003
tblVehicleEF	MCY	1.18	0.60
tblVehicleEF	MCY	0.27	0.14
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	2.2560e-003	2.0090e-003
tblVehicleEF	MCY	2.8450e-003	3.3550e-003
tblVehicleEF	MCY	5.0400e-003	4.2000e-003
tblVehicleEF	MCY	2.1060e-003	1.8780e-003
tblVehicleEF	MCY	2.6700e-003	3.1500e-003
tblVehicleEF	MCY	0.88	4.99
tblVehicleEF	MCY	0.79	3.56
tblVehicleEF	MCY	0.45	4.99
tblVehicleEF	MCY	2.37	1.14
tblVehicleEF	MCY	0.60	3.99
tblVehicleEF	MCY	2.00	1.45
tblVehicleEF	MCY	2.1460e-003	1.8670e-003
tblVehicleEF	MCY	6.1000e-004	5.0100e-004

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tblVehicleEF	MCY	0.88	0.13
tblVehicleEF	MCY	0.79	3.56
tblVehicleEF	MCY	0.45	0.13
tblVehicleEF	MCY	2.95	1.37
tblVehicleEF	MCY	0.60	3.99
tblVehicleEF	MCY	2.17	1.58
tblVehicleEF	MDV	2.3680e-003	2.6230e-003
tblVehicleEF	MDV	0.05	0.08
tblVehicleEF	MDV	0.62	0.77
tblVehicleEF	MDV	2.55	3.42
tblVehicleEF	MDV	318.76	372.69
tblVehicleEF	MDV	67.66	95.79
tblVehicleEF	MDV	6.1680e-003	6.5790e-003
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.05	0.06
tblVehicleEF	MDV	0.23	0.34
tblVehicleEF	MDV	0.04	0.01
tblVehicleEF	MDV	1.1690e-003	1.1420e-003
tblVehicleEF	MDV	1.4710e-003	1.8440e-003
tblVehicleEF	MDV	0.02	3.6150e-003
tblVehicleEF	MDV	1.0780e-003	1.0530e-003
tblVehicleEF	MDV	1.3520e-003	1.6960e-003
tblVehicleEF	MDV	0.07	0.40
tblVehicleEF	MDV	0.15	0.10
tblVehicleEF	MDV	0.07	0.40
tblVehicleEF	MDV	9.6960e-003	0.01
tblVehicleEF	MDV	0.08	0.30
tblVehicleEF	MDV	0.26	0.40
tblVehicleEF	MDV	3.1500e-003	3.6820e-003

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tblVehicleEF	MDV	6.7000e-004	9.4700e-004
tblVehicleEF	MDV	0.07	0.40
tblVehicleEF	MDV	0.15	0.10
tblVehicleEF	MDV	0.07	0.40
tblVehicleEF	MDV	0.01	0.02
tblVehicleEF	MDV	0.08	0.30
tblVehicleEF	MDV	0.29	0.43
tblVehicleEF	MH	6.5260e-003	7.6380e-003
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.46	0.52
tblVehicleEF	MH	1.64	1.85
tblVehicleEF	MH	1,387.36	1,603.71
tblVehicleEF	MH	15.21	18.39
tblVehicleEF	MH	0.06	0.08
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.56	1.83
tblVehicleEF	MH	0.24	0.30
tblVehicleEF	MH	0.13	0.04
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.03	0.04
tblVehicleEF	MH	1.9100e-004	2.0800e-004
tblVehicleEF	MH	0.06	0.02
tblVehicleEF	MH	3.3360e-003	3.3960e-003
tblVehicleEF	MH	0.03	0.04
tblVehicleEF	MH	1.7600e-004	1.9100e-004
tblVehicleEF	MH	0.45	25.26
tblVehicleEF	MH	0.04	6.00
tblVehicleEF	MH	0.18	25.26
tblVehicleEF	MH	0.06	0.07

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tblVehicleEF	MH	9.4360e-003	0.15
tblVehicleEF	MH	0.08	0.09
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	1.5100e-004	1.8200e-004
tblVehicleEF	MH	0.45	25.26
tblVehicleEF	MH	0.04	6.00
tblVehicleEF	MH	0.18	25.26
tblVehicleEF	MH	0.07	0.09
tblVehicleEF	MH	9.4360e-003	0.15
tblVehicleEF	MH	0.08	0.10
tblVehicleEF	MHD	2.2510e-003	0.01
tblVehicleEF	MHD	9.3200e-004	7.5480e-003
tblVehicleEF	MHD	5.1670e-003	5.6670e-003
tblVehicleEF	MHD	0.33	0.63
tblVehicleEF	MHD	0.15	0.15
tblVehicleEF	MHD	0.58	0.64
tblVehicleEF	MHD	63.79	151.67
tblVehicleEF	MHD	948.94	1,064.95
tblVehicleEF	MHD	5.12	5.75
tblVehicleEF	MHD	9.5220e-003	0.02
tblVehicleEF	MHD	0.13	0.14
tblVehicleEF	MHD	4.3630e-003	3.9190e-003
tblVehicleEF	MHD	0.34	0.77
tblVehicleEF	MHD	1.53	0.62
tblVehicleEF	MHD	1.88	1.32
tblVehicleEF	MHD	1.5400e-004	6.5200e-004
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	7.6150e-003	5.5090e-003
tblVehicleEF	MHD	6.5000e-005	7.0000e-005

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tblVehicleEF	MHD	1.4700e-004	6.2300e-004
tblVehicleEF	MHD	0.06	0.02
tblVehicleEF	MHD	7.2820e-003	5.2650e-003
tblVehicleEF	MHD	6.0000e-005	6.4000e-005
tblVehicleEF	MHD	2.1800e-004	0.02
tblVehicleEF	MHD	0.01	3.5590e-003
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	1.2500e-004	0.02
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	6.0400e-004	1.4070e-003
tblVehicleEF	MHD	9.0150e-003	0.01
tblVehicleEF	MHD	5.1000e-005	5.7000e-005
tblVehicleEF	MHD	2.1800e-004	0.02
tblVehicleEF	MHD	0.01	3.5590e-003
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	1.2500e-004	0.02
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	OBUS	6.8350e-003	7.8960e-003
tblVehicleEF	OBUS	2.7460e-003	0.01
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.72	0.67
tblVehicleEF	OBUS	0.35	0.49
tblVehicleEF	OBUS	1.76	2.16
tblVehicleEF	OBUS	110.91	102.09
tblVehicleEF	OBUS	1,190.08	1,369.24

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tblVehicleEF	OBUS	13.53	16.41
tblVehicleEF	OBUS	0.02	0.01
tblVehicleEF	OBUS	0.13	0.15
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	0.50	0.37
tblVehicleEF	OBUS	1.54	1.03
tblVehicleEF	OBUS	1.21	0.88
tblVehicleEF	OBUS	1.6700e-004	3.9200e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	8.4550e-003	0.02
tblVehicleEF	OBUS	1.6400e-004	1.8800e-004
tblVehicleEF	OBUS	1.6000e-004	3.7500e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	8.0770e-003	0.02
tblVehicleEF	OBUS	1.5100e-004	1.7300e-004
tblVehicleEF	OBUS	1.3560e-003	0.10
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	6.0100e-004	0.10
tblVehicleEF	OBUS	0.02	0.05
tblVehicleEF	OBUS	0.07	0.11
tblVehicleEF	OBUS	0.08	0.11
tblVehicleEF	OBUS	1.0520e-003	9.6700e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	1.3400e-004	1.6200e-004
tblVehicleEF	OBUS	1.3560e-003	0.10
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.07	0.07
tblVehicleEF	OBUS	6.0100e-004	0.10

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tblVehicleEF	OBUS	0.03	0.07
tblVehicleEF	OBUS	0.07	0.11
tblVehicleEF	OBUS	0.09	0.12
tblVehicleEF	SBUS	0.04	0.09
tblVehicleEF	SBUS	3.7660e-003	0.18
tblVehicleEF	SBUS	3.2710e-003	2.6840e-003
tblVehicleEF	SBUS	1.84	1.19
tblVehicleEF	SBUS	0.30	0.82
tblVehicleEF	SBUS	0.46	0.35
tblVehicleEF	SBUS	325.82	172.93
tblVehicleEF	SBUS	1,016.49	1,011.56
tblVehicleEF	SBUS	2.64	2.14
tblVehicleEF	SBUS	0.05	0.02
tblVehicleEF	SBUS	0.14	0.13
tblVehicleEF	SBUS	3.4900e-003	3.0390e-003
tblVehicleEF	SBUS	2.68	1.13
tblVehicleEF	SBUS	3.29	1.75
tblVehicleEF	SBUS	1.25	0.47
tblVehicleEF	SBUS	1.8010e-003	7.4900e-004
tblVehicleEF	SBUS	0.74	0.04
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.6000e-005	2.4000e-005
tblVehicleEF	SBUS	1.7230e-003	7.1400e-004
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.7960e-003	2.7360e-003
tblVehicleEF	SBUS	0.02	9.8800e-003
tblVehicleEF	SBUS	3.3000e-005	2.2000e-005
tblVehicleEF	SBUS	4.1400e-004	0.02

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tblVehicleEF	SBUS	4.2990e-003	5.6150e-003
tblVehicleEF	SBUS	0.18	0.11
tblVehicleEF	SBUS	2.0100e-004	0.02
tblVehicleEF	SBUS	0.06	0.04
tblVehicleEF	SBUS	9.3040e-003	0.02
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.0940e-003	1.4800e-003
tblVehicleEF	SBUS	9.6770e-003	9.0480e-003
tblVehicleEF	SBUS	2.6000e-005	2.1000e-005
tblVehicleEF	SBUS	4.1400e-004	0.02
tblVehicleEF	SBUS	4.2990e-003	5.6150e-003
tblVehicleEF	SBUS	0.25	0.23
tblVehicleEF	SBUS	2.0100e-004	0.02
tblVehicleEF	SBUS	0.07	0.23
tblVehicleEF	SBUS	9.3040e-003	0.02
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	UBUS	1.71	0.64
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	12.99	7.76
tblVehicleEF	UBUS	0.84	2.45
tblVehicleEF	UBUS	1,646.36	1,027.95
tblVehicleEF	UBUS	7.79	19.10
tblVehicleEF	UBUS	0.27	0.13
tblVehicleEF	UBUS	6.8450e-003	0.02
tblVehicleEF	UBUS	0.67	0.20
tblVehicleEF	UBUS	0.08	0.17
tblVehicleEF	UBUS	0.08	0.13
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	4.8850e-003	3.3910e-003

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tblVehicleEF	UBUS	8.8000e-005	1.2900e-004
tblVehicleEF	UBUS	0.03	0.05
tblVehicleEF	UBUS	7.7720e-003	0.01
tblVehicleEF	UBUS	4.6670e-003	3.2310e-003
tblVehicleEF	UBUS	8.1000e-005	1.1900e-004
tblVehicleEF	UBUS	2.4900e-004	0.03
tblVehicleEF	UBUS	3.6220e-003	9.4370e-003
tblVehicleEF	UBUS	1.4800e-004	0.03
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	8.6800e-004	0.03
tblVehicleEF	UBUS	0.05	0.08
tblVehicleEF	UBUS	0.01	7.6070e-003
tblVehicleEF	UBUS	7.7000e-005	1.8900e-004
tblVehicleEF	UBUS	2.4900e-004	0.03
tblVehicleEF	UBUS	3.6220e-003	9.4370e-003
tblVehicleEF	UBUS	1.4800e-004	0.03
tblVehicleEF	UBUS	1.75	0.69
tblVehicleEF	UBUS	8.6800e-004	0.03
tblVehicleEF	UBUS	0.05	0.09
tblVehicleTrips	ST_TR	2.21	0.00
tblVehicleTrips	ST_TR	1.74	1.51
tblVehicleTrips	SU_TR	0.70	0.00
tblVehicleTrips	SU_TR	1.74	1.51
tblVehicleTrips	WD_TR	9.74	0.00
tblVehicleTrips	WD_TR	1.74	1.51
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00

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tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	NumberCatalytic	0.96	0.00
tblWoodstoves	NumberNoncatalytic	0.96	0.00
tblWoodstoves	WoodstoveDayYear	14.12	0.00
tblWoodstoves	WoodstoveWoodMass	582.40	0.00

2.0 Emissions Summary

**2.2 Overall Operational
Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3473	4.1100e-003	0.3571	2.0000e-005		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003	0.0000	0.5853	0.5853	5.6000e-004	0.0000	0.5994
Energy	2.9700e-003	0.0258	0.0140	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	49.5115	49.5115	6.0900e-003	1.2100e-003	50.0243
Mobile	0.1686	0.1625	0.9074	2.7900e-003	0.2532	2.3700e-003	0.2556	0.0635	2.2300e-003	0.0657	0.0000	260.2619	260.2619	0.0104	0.0152	265.0429
Waste						0.0000	0.0000		0.0000	0.0000	12.0942	0.0000	12.0942	0.7148	0.0000	29.9629
Water						0.0000	0.0000		0.0000	0.0000	4.3539	4.0181	8.3720	0.0161	9.6000e-003	11.6358

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

Total	0.5188	0.1925	1.2785	2.9700e-003	0.2532	6.4000e-003	0.2596	0.0635	6.2600e-003	0.0697	16.4481	314.3768	330.8250	0.7479	0.0260	357.2652
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Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3473	4.1100e-003	0.3571	2.0000e-005		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003	0.0000	0.5853	0.5853	5.6000e-004	0.0000	0.5994
Energy	2.9700e-003	0.0258	0.0140	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	49.5115	49.5115	6.0900e-003	1.2100e-003	50.0243
Mobile	0.1686	0.1625	0.9074	2.7900e-003	0.2532	2.3700e-003	0.2556	0.0635	2.2300e-003	0.0657	0.0000	260.2619	260.2619	0.0104	0.0152	265.0429
Waste						0.0000	0.0000		0.0000	0.0000	12.0942	0.0000	12.0942	0.7148	0.0000	29.9629
Water						0.0000	0.0000		0.0000	0.0000	4.3539	4.0181	8.3720	0.0161	9.6000e-003	11.6358
Total	0.5188	0.1925	1.2785	2.9700e-003	0.2532	6.4000e-003	0.2596	0.0635	6.2600e-003	0.0697	16.4481	314.3768	330.8250	0.7479	0.0260	357.2652

	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
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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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	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	0.1686	0.1625	0.9074	2.7900e-003	0.2532	2.3700e-003	0.2556	0.0635	2.2300e-003	0.0657	0.0000	260.2619	260.2619	0.0104	0.0152	265.0429
Unmitigated	0.1686	0.1625	0.9074	2.7900e-003	0.2532	2.3700e-003	0.2556	0.0635	2.2300e-003	0.0657	0.0000	260.2619	260.2619	0.0104	0.0152	265.0429

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	261.12	235.68	196.32	573,311	573,311
General Office Building	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	58.89	58.89	58.89	171,930	171,930
Total	320.01	294.57	255.21	745,241	745,241

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.518249	0.034481	0.214924	0.132556	0.038169	0.010517	0.021562	0.021147	0.001476	0.001107	0.003805	0.001094	0.000914
General Office Building	0.518249	0.034481	0.214924	0.132556	0.038169	0.010517	0.021562	0.021147	0.001476	0.001107	0.003805	0.001094	0.000914
Parking Lot	0.518249	0.034481	0.214924	0.132556	0.038169	0.010517	0.021562	0.021147	0.001476	0.001107	0.003805	0.001094	0.000914
Unrefrigerated Warehouse-No Rail	0.518249	0.034481	0.214924	0.132556	0.038169	0.010517	0.021562	0.021147	0.001476	0.001107	0.003805	0.001094	0.000914

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5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	20.1040	20.1040	5.5300e-003	6.7000e-004	20.4419
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	20.1040	20.1040	5.5300e-003	6.7000e-004	20.4419
NaturalGas Mitigated	2.9700e-003	0.0258	0.0140	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	29.4076	29.4076	5.6000e-004	5.4000e-004	29.5823
NaturalGas Unmitigated	2.9700e-003	0.0258	0.0140	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	29.4076	29.4076	5.6000e-004	5.4000e-004	29.5823

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	402321	2.1700e-003	0.0185	7.8900e-003	1.2000e-004		1.5000e-003	1.5000e-003		1.5000e-003	1.5000e-003	0.0000	21.4694	21.4694	4.1000e-004	3.9000e-004	21.5969

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General Office Building	14596.2	8.0000e-005	7.2000e-004	6.0000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.7789	0.7789	1.0000e-005	1.0000e-005	0.7835
Parking Lot	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
Unrefrigerated Warehouse-No	134160	7.2000e-004	6.5800e-003	5.5200e-003	4.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	7.1593	7.1593	1.4000e-004	1.3000e-004	7.2018
Total		2.9700e-003	0.0258	0.0140	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	29.4076	29.4076	5.6000e-004	5.3000e-004	29.5823

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	402321	2.1700e-003	0.0185	7.8900e-003	1.2000e-004		1.5000e-003	1.5000e-003		1.5000e-003	1.5000e-003	0.0000	21.4694	21.4694	4.1000e-004	3.9000e-004	21.5969
General Office Building	14596.2	8.0000e-005	7.2000e-004	6.0000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.7789	0.7789	1.0000e-005	1.0000e-005	0.7835
Parking Lot	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
Unrefrigerated Warehouse-No	134160	7.2000e-004	6.5800e-003	5.5200e-003	4.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	7.1593	7.1593	1.4000e-004	1.3000e-004	7.2018
Total		2.9700e-003	0.0258	0.0140	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	29.4076	29.4076	5.6000e-004	5.3000e-004	29.5823

5.3 Energy by Land Use - Electricity

Unmitigated

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	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	185589	10.1001	2.7800e-003	3.4000e-004	10.2699
General Office Building	15470.2	0.8419	2.3000e-004	3.0000e-005	0.8561
Parking Lot	31850	1.7333	4.8000e-004	6.0000e-005	1.7625
Unrefrigerated Warehouse-No	136500	7.4286	2.0400e-003	2.5000e-004	7.5535
Total		20.1040	5.5300e-003	6.8000e-004	20.4419

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	185589	10.1001	2.7800e-003	3.4000e-004	10.2699
General Office Building	15470.2	0.8419	2.3000e-004	3.0000e-005	0.8561
Parking Lot	31850	1.7333	4.8000e-004	6.0000e-005	1.7625
Unrefrigerated Warehouse-No	136500	7.4286	2.0400e-003	2.5000e-004	7.5535
Total		20.1040	5.5300e-003	6.8000e-004	20.4419

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6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3473	4.1100e-003	0.3571	2.0000e-005		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003	0.0000	0.5853	0.5853	5.6000e-004	0.0000	0.5994
Unmitigated	0.3473	4.1100e-003	0.3571	2.0000e-005		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003	0.0000	0.5853	0.5853	5.6000e-004	0.0000	0.5994

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	0.0459					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2906					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	0.0108	4.1100e-003	0.3571	2.0000e-005		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003	0.0000	0.5853	0.5853	5.6000e-004	0.0000	0.5994

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Total	0.3473	4.1100e-003	0.3571	2.0000e-005		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003	0.0000	0.5853	0.5853	5.6000e-004	0.0000	0.5994
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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	0.0459					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2906					0.0000	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	0.0000
Landscaping	0.0108	4.1100e-003	0.3571	2.0000e-005		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003	0.0000	0.5853	0.5853	5.6000e-004	0.0000	0.5994	
Total	0.3473	4.1100e-003	0.3571	2.0000e-005		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003	0.0000	0.5853	0.5853	5.6000e-004	0.0000	0.5994	

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
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Category	MT/yr			
Mitigated	8.3720	0.0161	9.6000e-003	11.6358
Unmitigated	8.3720	0.0161	9.6000e-003	11.6358

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	3.12739 / 1.97162	2.4030	4.1600e-003	2.4500e-003	3.2370
General Office Building	0.15996 / 0.0980402	0.1224	2.1000e-004	1.3000e-004	0.1650
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No	9.01875 / 0	5.8467	0.0117	7.0300e-003	8.2337
Total		8.3720	0.0161	9.6100e-003	11.6358

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
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Land Use	Mgal	MT/yr			
Apartments Mid Rise	3.12739 / 1.97162	2.4030	4.1600e-003	2.4500e-003	3.2370
General Office Building	0.15996 / 0.0980402	0.1224	2.1000e-004	1.3000e-004	0.1650
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No	9.01875 / 0	5.8467	0.0117	7.0300e-003	8.2337
Total		8.3720	0.0161	9.6100e-003	11.6358

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	12.0942	0.7148	0.0000	29.9629
Unmitigated	12.0942	0.7148	0.0000	29.9629

8.2 Waste by Land Use

Unmitigated

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	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	22.08	4.4820	0.2649	0.0000	11.1041
General Office Building	0.84	0.1705	0.0101	0.0000	0.4224
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No	36.66	7.4417	0.4398	0.0000	18.4364
Total		12.0942	0.7148	0.0000	29.9629

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	22.08	4.4820	0.2649	0.0000	11.1041
General Office Building	0.84	0.1705	0.0101	0.0000	0.4224
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No	36.66	7.4417	0.4398	0.0000	18.4364
Total		12.0942	0.7148	0.0000	29.9629

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9.0 Operational Offroad

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

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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11.0 Vegetation

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	0.90	1000sqft	0.00	901.00	0
Unrefrigerated Warehouse-No Rail	39.00	1000sqft	0.00	39,000.00	0
Parking Lot	136.00	Space	0.00	91,000.00	0
Apartments Mid Rise	48.00	Dwelling Unit	4.51	33,000.00	137

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	75
Climate Zone	4			Operational Year	2035
Utility Company	Sonoma Clean Power				
CO2 Intensity (lb/MW hr)	119.98	CH4 Intensity (lb/MW hr)	0.033	N2O Intensity (lb/MW hr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Self-storage = unrefrigerated warehouse-no rail. Unit amounts, acreage, and square footage provided by applicant.

Construction Phase - CalEEMod defaults assumed. No information provided by applicant.

Off-road Equipment - CalEEMod defaults assumed for construction equipment

Off-road Equipment - CalEEMod defaults assumed for construction equipment

Off-road Equipment - CalEEMod defaults assumed for construction equipment

Off-road Equipment - CalEEMod defaults assumed for construction equipment

Off-road Equipment - CalEEMod defaults assumed for construction equipment

Off-road Equipment - CalEEMod defaults assumed for construction equipment

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Off-road Equipment - Assumed 1 piece of equipment each for trenching.

Trips and VMT - All trips entered into EMFAC2021

Vehicle Trips - Trip rates updated from information provided by applicant. Apartments mid rise trips are office + apartments, then 0 for office.

Vehicle Emission Factors - Emission Factors updated from EMFAC2021 for Sonoma County in 2035

Woodstoves - No woodstoves or fireplaces

Water And Wastewater - 100% aerobic

Construction Off-road Equipment Mitigation - All equipment t4i

Fleet Mix - Fleet Mix updated from EMFAC2021 for Sonoma County in 2035

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	12.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim

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tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
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
tblFireplaces	FireplaceDayYear	11.14	0.00
tblFireplaces	FireplaceHourDay	3.50	0.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	7.20	0.00
tblFireplaces	NumberNoFireplace	1.92	0.00
tblFireplaces	NumberWood	8.16	0.00
tblFleetMix	HHD	6.4810e-003	0.02
tblFleetMix	HHD	6.4810e-003	0.02
tblFleetMix	HHD	6.4810e-003	0.02
tblFleetMix	HHD	6.4810e-003	0.02
tblFleetMix	LDA	0.60	0.53
tblFleetMix	LDA	0.60	0.53
tblFleetMix	LDA	0.60	0.53
tblFleetMix	LDA	0.60	0.53
tblFleetMix	LDT1	0.05	0.03
tblFleetMix	LDT1	0.05	0.03
tblFleetMix	LDT1	0.05	0.03
tblFleetMix	LDT1	0.05	0.03
tblFleetMix	LDT2	0.16	0.21
tblFleetMix	LDT2	0.16	0.21
tblFleetMix	LDT2	0.16	0.21

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tblFleetMix	LDT2	0.16	0.21
tblFleetMix	LHD1	0.02	0.03
tblFleetMix	LHD1	0.02	0.03
tblFleetMix	LHD1	0.02	0.03
tblFleetMix	LHD1	0.02	0.03
tblFleetMix	LHD2	6.6240e-003	9.1000e-003
tblFleetMix	LHD2	6.6240e-003	9.1000e-003
tblFleetMix	LHD2	6.6240e-003	9.1000e-003
tblFleetMix	LHD2	6.6240e-003	9.1000e-003
tblFleetMix	MCY	0.03	3.5170e-003
tblFleetMix	MCY	0.03	3.5170e-003
tblFleetMix	MCY	0.03	3.5170e-003
tblFleetMix	MCY	0.03	3.5170e-003
tblFleetMix	MDV	0.11	0.13
tblFleetMix	MDV	0.11	0.13
tblFleetMix	MDV	0.11	0.13
tblFleetMix	MDV	0.11	0.13
tblFleetMix	MH	2.7940e-003	7.5700e-004
tblFleetMix	MH	2.7940e-003	7.5700e-004
tblFleetMix	MH	2.7940e-003	7.5700e-004
tblFleetMix	MH	2.7940e-003	7.5700e-004
tblFleetMix	MHD	0.02	0.02
tblFleetMix	MHD	0.02	0.02
tblFleetMix	MHD	0.02	0.02
tblFleetMix	MHD	0.02	0.02
tblFleetMix	OBUS	1.0430e-003	1.3990e-003
tblFleetMix	OBUS	1.0430e-003	1.3990e-003
tblFleetMix	OBUS	1.0430e-003	1.3990e-003
tblFleetMix	OBUS	1.0430e-003	1.3990e-003

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tblFleetMix	SBUS	1.3560e-003	1.1090e-003
tblFleetMix	SBUS	1.3560e-003	1.1090e-003
tblFleetMix	SBUS	1.3560e-003	1.1090e-003
tblFleetMix	SBUS	1.3560e-003	1.1090e-003
tblFleetMix	UBUS	2.5700e-004	1.1260e-003
tblFleetMix	UBUS	2.5700e-004	1.1260e-003
tblFleetMix	UBUS	2.5700e-004	1.1260e-003
tblFleetMix	UBUS	2.5700e-004	1.1260e-003
tblLandUse	LandUseSquareFeet	900.00	901.00
tblLandUse	LandUseSquareFeet	54,400.00	91,000.00
tblLandUse	LandUseSquareFeet	48,000.00	33,000.00
tblLandUse	LotAcreage	0.02	0.00
tblLandUse	LotAcreage	0.90	0.00
tblLandUse	LotAcreage	1.22	0.00
tblLandUse	LotAcreage	1.26	4.51
tblTripsAndVMT	VendorTripNumber	27.00	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	89.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00
tblVehicleEF	HHD	0.02	0.13
tblVehicleEF	HHD	0.05	0.03
tblVehicleEF	HHD	5.36	4.24
tblVehicleEF	HHD	0.45	0.42
tblVehicleEF	HHD	8.0200e-003	9.5300e-004
tblVehicleEF	HHD	743.32	590.55

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tblVehicleEF	HHD	1,182.18	1,242.05
tblVehicleEF	HHD	0.07	8.4460e-003
tblVehicleEF	HHD	0.12	0.10
tblVehicleEF	HHD	0.19	0.20
tblVehicleEF	HHD	4.45	3.27
tblVehicleEF	HHD	2.47	1.31
tblVehicleEF	HHD	2.89	2.37
tblVehicleEF	HHD	1.8120e-003	1.4920e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	1.7340e-003	1.4220e-003
tblVehicleEF	HHD	0.02	0.03
tblVehicleEF	HHD	8.4500e-003	8.4850e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	3.0000e-006	1.2000e-005
tblVehicleEF	HHD	1.3100e-004	3.0000e-006
tblVehicleEF	HHD	0.36	0.27
tblVehicleEF	HHD	2.0000e-006	1.2000e-005
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	7.1000e-005	2.5000e-005
tblVehicleEF	HHD	2.0000e-006	0.00
tblVehicleEF	HHD	6.8930e-003	5.1290e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	1.0000e-006	0.00
tblVehicleEF	HHD	3.0000e-006	1.2000e-005
tblVehicleEF	HHD	1.3100e-004	3.0000e-006

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tblVehicleEF	HHD	0.41	0.42
tblVehicleEF	HHD	2.0000e-006	1.2000e-005
tblVehicleEF	HHD	0.08	0.05
tblVehicleEF	HHD	7.1000e-005	2.5000e-005
tblVehicleEF	HHD	2.0000e-006	0.00
tblVehicleEF	LDA	8.5000e-004	1.1400e-003
tblVehicleEF	LDA	0.02	0.04
tblVehicleEF	LDA	0.39	0.47
tblVehicleEF	LDA	1.60	1.92
tblVehicleEF	LDA	191.46	209.32
tblVehicleEF	LDA	39.33	53.61
tblVehicleEF	LDA	3.2550e-003	3.1360e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.12	0.17
tblVehicleEF	LDA	0.04	8.2340e-003
tblVehicleEF	LDA	7.6900e-004	6.7400e-004
tblVehicleEF	LDA	1.0020e-003	1.1700e-003
tblVehicleEF	LDA	0.02	2.8820e-003
tblVehicleEF	LDA	7.0800e-004	6.2000e-004
tblVehicleEF	LDA	9.2200e-004	1.0760e-003
tblVehicleEF	LDA	0.02	0.24
tblVehicleEF	LDA	0.06	0.05
tblVehicleEF	LDA	0.02	0.24
tblVehicleEF	LDA	2.7690e-003	3.7940e-003
tblVehicleEF	LDA	0.02	0.18
tblVehicleEF	LDA	0.10	0.17
tblVehicleEF	LDA	1.8940e-003	2.0690e-003
tblVehicleEF	LDA	3.8900e-004	5.3000e-004

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tblVehicleEF	LDA	0.02	0.24
tblVehicleEF	LDA	0.06	0.05
tblVehicleEF	LDA	0.02	0.24
tblVehicleEF	LDA	4.0160e-003	5.5310e-003
tblVehicleEF	LDA	0.02	0.18
tblVehicleEF	LDA	0.11	0.19
tblVehicleEF	LDT1	1.3790e-003	2.8690e-003
tblVehicleEF	LDT1	0.03	0.07
tblVehicleEF	LDT1	0.48	0.83
tblVehicleEF	LDT1	1.75	3.35
tblVehicleEF	LDT1	231.72	283.50
tblVehicleEF	LDT1	48.66	74.14
tblVehicleEF	LDT1	3.5630e-003	5.3840e-003
tblVehicleEF	LDT1	0.02	0.03
tblVehicleEF	LDT1	0.03	0.06
tblVehicleEF	LDT1	0.15	0.28
tblVehicleEF	LDT1	0.04	0.01
tblVehicleEF	LDT1	8.6400e-004	1.0630e-003
tblVehicleEF	LDT1	1.1670e-003	1.8430e-003
tblVehicleEF	LDT1	0.02	3.6940e-003
tblVehicleEF	LDT1	7.9400e-004	9.7700e-004
tblVehicleEF	LDT1	1.0730e-003	1.6950e-003
tblVehicleEF	LDT1	0.04	0.61
tblVehicleEF	LDT1	0.10	0.13
tblVehicleEF	LDT1	0.04	0.61
tblVehicleEF	LDT1	5.1630e-003	0.01
tblVehicleEF	LDT1	0.06	0.45
tblVehicleEF	LDT1	0.14	0.34
tblVehicleEF	LDT1	2.2930e-003	2.8030e-003

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tblVehicleEF	LDT1	4.8100e-004	7.3300e-004
tblVehicleEF	LDT1	0.04	0.61
tblVehicleEF	LDT1	0.10	0.13
tblVehicleEF	LDT1	0.04	0.61
tblVehicleEF	LDT1	7.5330e-003	0.02
tblVehicleEF	LDT1	0.06	0.45
tblVehicleEF	LDT1	0.15	0.37
tblVehicleEF	LDT2	1.4430e-003	1.7000e-003
tblVehicleEF	LDT2	0.04	0.05
tblVehicleEF	LDT2	0.51	0.62
tblVehicleEF	LDT2	2.15	2.60
tblVehicleEF	LDT2	233.29	289.39
tblVehicleEF	LDT2	49.22	73.49
tblVehicleEF	LDT2	3.7920e-003	4.2310e-003
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.15	0.24
tblVehicleEF	LDT2	0.04	0.01
tblVehicleEF	LDT2	8.4100e-004	7.9700e-004
tblVehicleEF	LDT2	1.0550e-003	1.3230e-003
tblVehicleEF	LDT2	0.02	3.5570e-003
tblVehicleEF	LDT2	7.7500e-004	7.3300e-004
tblVehicleEF	LDT2	9.7000e-004	1.2170e-003
tblVehicleEF	LDT2	0.04	0.29
tblVehicleEF	LDT2	0.08	0.06
tblVehicleEF	LDT2	0.04	0.29
tblVehicleEF	LDT2	5.3280e-003	6.0020e-003
tblVehicleEF	LDT2	0.05	0.22
tblVehicleEF	LDT2	0.15	0.24

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tblVehicleEF	LDT2	2.3080e-003	2.8610e-003
tblVehicleEF	LDT2	4.8700e-004	7.2700e-004
tblVehicleEF	LDT2	0.04	0.29
tblVehicleEF	LDT2	0.08	0.06
tblVehicleEF	LDT2	0.04	0.29
tblVehicleEF	LDT2	7.7280e-003	8.7420e-003
tblVehicleEF	LDT2	0.05	0.22
tblVehicleEF	LDT2	0.17	0.26
tblVehicleEF	LHD1	3.5230e-003	3.5150e-003
tblVehicleEF	LHD1	5.4200e-003	4.4160e-003
tblVehicleEF	LHD1	8.2370e-003	0.01
tblVehicleEF	LHD1	0.16	0.15
tblVehicleEF	LHD1	0.53	0.51
tblVehicleEF	LHD1	0.80	1.63
tblVehicleEF	LHD1	8.48	7.83
tblVehicleEF	LHD1	669.00	603.53
tblVehicleEF	LHD1	8.61	12.77
tblVehicleEF	LHD1	8.4900e-004	7.2000e-004
tblVehicleEF	LHD1	0.04	0.04
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.06	0.06
tblVehicleEF	LHD1	0.52	0.53
tblVehicleEF	LHD1	0.19	0.27
tblVehicleEF	LHD1	1.0710e-003	8.3800e-004
tblVehicleEF	LHD1	0.08	0.07
tblVehicleEF	LHD1	0.01	9.5250e-003
tblVehicleEF	LHD1	9.9390e-003	0.01
tblVehicleEF	LHD1	1.7400e-004	9.8000e-005
tblVehicleEF	LHD1	1.0250e-003	8.0200e-004

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tblVehicleEF	LHD1	0.03	0.02
tblVehicleEF	LHD1	2.5280e-003	2.3810e-003
tblVehicleEF	LHD1	9.4700e-003	0.01
tblVehicleEF	LHD1	1.6000e-004	9.0000e-005
tblVehicleEF	LHD1	1.3540e-003	0.09
tblVehicleEF	LHD1	0.06	0.02
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	7.6800e-004	0.09
tblVehicleEF	LHD1	0.08	0.07
tblVehicleEF	LHD1	0.15	0.13
tblVehicleEF	LHD1	0.04	0.07
tblVehicleEF	LHD1	8.2000e-005	7.6000e-005
tblVehicleEF	LHD1	6.5070e-003	5.8680e-003
tblVehicleEF	LHD1	8.5000e-005	1.2600e-004
tblVehicleEF	LHD1	1.3540e-003	0.09
tblVehicleEF	LHD1	0.06	0.02
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	7.6800e-004	0.09
tblVehicleEF	LHD1	0.10	0.08
tblVehicleEF	LHD1	0.15	0.13
tblVehicleEF	LHD1	0.04	0.08
tblVehicleEF	LHD2	2.2760e-003	2.3430e-003
tblVehicleEF	LHD2	5.6040e-003	4.7530e-003
tblVehicleEF	LHD2	4.2270e-003	7.9700e-003
tblVehicleEF	LHD2	0.13	0.13
tblVehicleEF	LHD2	0.56	0.41
tblVehicleEF	LHD2	0.42	0.97
tblVehicleEF	LHD2	13.44	14.04
tblVehicleEF	LHD2	668.10	674.41

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tblVehicleEF	LHD2	5.68	7.56
tblVehicleEF	LHD2	1.7800e-003	1.8360e-003
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	9.9670e-003	0.01
tblVehicleEF	LHD2	0.09	0.10
tblVehicleEF	LHD2	0.57	0.67
tblVehicleEF	LHD2	0.12	0.17
tblVehicleEF	LHD2	1.5410e-003	1.5110e-003
tblVehicleEF	LHD2	0.09	0.08
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	8.7000e-005	3.8000e-005
tblVehicleEF	LHD2	1.4750e-003	1.4460e-003
tblVehicleEF	LHD2	0.04	0.03
tblVehicleEF	LHD2	2.7330e-003	2.6150e-003
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	8.0000e-005	3.5000e-005
tblVehicleEF	LHD2	6.1100e-004	0.06
tblVehicleEF	LHD2	0.02	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.8400e-004	0.06
tblVehicleEF	LHD2	0.11	0.09
tblVehicleEF	LHD2	0.06	0.08
tblVehicleEF	LHD2	0.02	0.04
tblVehicleEF	LHD2	1.2800e-004	1.3400e-004
tblVehicleEF	LHD2	6.4350e-003	6.4790e-003
tblVehicleEF	LHD2	5.6000e-005	7.5000e-005
tblVehicleEF	LHD2	6.1100e-004	0.06
tblVehicleEF	LHD2	0.02	0.01

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tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	3.8400e-004	0.06
tblVehicleEF	LHD2	0.12	0.11
tblVehicleEF	LHD2	0.06	0.08
tblVehicleEF	LHD2	0.02	0.04
tblVehicleEF	MCY	0.34	0.16
tblVehicleEF	MCY	0.25	0.18
tblVehicleEF	MCY	18.86	12.31
tblVehicleEF	MCY	9.49	8.51
tblVehicleEF	MCY	216.48	187.49
tblVehicleEF	MCY	60.49	46.98
tblVehicleEF	MCY	0.07	0.04
tblVehicleEF	MCY	0.02	7.1760e-003
tblVehicleEF	MCY	1.17	0.55
tblVehicleEF	MCY	0.27	0.12
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	2.3340e-003	2.0740e-003
tblVehicleEF	MCY	2.7620e-003	3.2550e-003
tblVehicleEF	MCY	5.0400e-003	4.2000e-003
tblVehicleEF	MCY	2.1770e-003	1.9360e-003
tblVehicleEF	MCY	2.5830e-003	3.0470e-003
tblVehicleEF	MCY	0.86	4.77
tblVehicleEF	MCY	0.74	3.55
tblVehicleEF	MCY	0.43	4.77
tblVehicleEF	MCY	2.33	1.01
tblVehicleEF	MCY	0.50	3.99
tblVehicleEF	MCY	1.96	1.31
tblVehicleEF	MCY	2.1420e-003	1.8540e-003
tblVehicleEF	MCY	5.9900e-004	4.6400e-004

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tblVehicleEF	MCY	0.86	0.12
tblVehicleEF	MCY	0.74	3.55
tblVehicleEF	MCY	0.43	0.12
tblVehicleEF	MCY	2.91	1.23
tblVehicleEF	MCY	0.50	3.99
tblVehicleEF	MCY	2.13	1.42
tblVehicleEF	MDV	1.5320e-003	1.9390e-003
tblVehicleEF	MDV	0.04	0.06
tblVehicleEF	MDV	0.51	0.65
tblVehicleEF	MDV	2.22	2.80
tblVehicleEF	MDV	284.53	347.74
tblVehicleEF	MDV	59.41	88.43
tblVehicleEF	MDV	5.1050e-003	5.1970e-003
tblVehicleEF	MDV	0.02	0.03
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.17	0.28
tblVehicleEF	MDV	0.04	0.01
tblVehicleEF	MDV	8.5000e-004	8.3500e-004
tblVehicleEF	MDV	1.0950e-003	1.3990e-003
tblVehicleEF	MDV	0.02	3.5950e-003
tblVehicleEF	MDV	7.8300e-004	7.7000e-004
tblVehicleEF	MDV	1.0070e-003	1.2860e-003
tblVehicleEF	MDV	0.06	0.37
tblVehicleEF	MDV	0.11	0.08
tblVehicleEF	MDV	0.06	0.37
tblVehicleEF	MDV	5.8750e-003	7.3430e-003
tblVehicleEF	MDV	0.06	0.27
tblVehicleEF	MDV	0.18	0.29
tblVehicleEF	MDV	2.8110e-003	3.4360e-003

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tblVehicleEF	MDV	5.8800e-004	8.7400e-004
tblVehicleEF	MDV	0.06	0.37
tblVehicleEF	MDV	0.11	0.08
tblVehicleEF	MDV	0.06	0.37
tblVehicleEF	MDV	8.5010e-003	0.01
tblVehicleEF	MDV	0.06	0.27
tblVehicleEF	MDV	0.20	0.32
tblVehicleEF	MH	4.8290e-003	5.6150e-003
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.29	0.34
tblVehicleEF	MH	1.46	1.56
tblVehicleEF	MH	1,304.47	1,589.84
tblVehicleEF	MH	13.82	16.87
tblVehicleEF	MH	0.06	0.08
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	1.31	1.64
tblVehicleEF	MH	0.23	0.30
tblVehicleEF	MH	0.13	0.04
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.02	0.04
tblVehicleEF	MH	1.8400e-004	1.8500e-004
tblVehicleEF	MH	0.06	0.02
tblVehicleEF	MH	3.3370e-003	3.4120e-003
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	1.6900e-004	1.7000e-004
tblVehicleEF	MH	0.30	19.52
tblVehicleEF	MH	0.03	4.06
tblVehicleEF	MH	0.13	19.52
tblVehicleEF	MH	0.05	0.06

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tblVehicleEF	MH	3.9570e-003	0.11
tblVehicleEF	MH	0.07	0.08
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	1.3700e-004	1.6700e-004
tblVehicleEF	MH	0.30	19.52
tblVehicleEF	MH	0.03	4.06
tblVehicleEF	MH	0.13	19.52
tblVehicleEF	MH	0.05	0.07
tblVehicleEF	MH	3.9570e-003	0.11
tblVehicleEF	MH	0.07	0.08
tblVehicleEF	MHD	2.2870e-003	0.01
tblVehicleEF	MHD	7.3600e-004	7.1140e-003
tblVehicleEF	MHD	4.8750e-003	4.1100e-003
tblVehicleEF	MHD	0.33	0.55
tblVehicleEF	MHD	0.13	0.09
tblVehicleEF	MHD	0.49	0.42
tblVehicleEF	MHD	59.93	129.17
tblVehicleEF	MHD	896.36	852.33
tblVehicleEF	MHD	4.74	4.17
tblVehicleEF	MHD	8.9460e-003	0.02
tblVehicleEF	MHD	0.12	0.12
tblVehicleEF	MHD	4.5090e-003	2.9020e-003
tblVehicleEF	MHD	0.32	0.65
tblVehicleEF	MHD	1.50	0.39
tblVehicleEF	MHD	1.89	1.07
tblVehicleEF	MHD	1.0300e-004	2.8900e-004
tblVehicleEF	MHD	0.13	0.04
tblVehicleEF	MHD	7.3780e-003	3.2500e-003
tblVehicleEF	MHD	6.3000e-005	4.9000e-005

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tblVehicleEF	MHD	9.9000e-005	2.7600e-004
tblVehicleEF	MHD	0.06	0.01
tblVehicleEF	MHD	7.0550e-003	3.1050e-003
tblVehicleEF	MHD	5.8000e-005	4.5000e-005
tblVehicleEF	MHD	1.8000e-004	0.01
tblVehicleEF	MHD	9.8650e-003	2.2890e-003
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	1.1100e-004	0.01
tblVehicleEF	MHD	0.01	8.0580e-003
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	5.6800e-004	1.1910e-003
tblVehicleEF	MHD	8.5170e-003	8.0390e-003
tblVehicleEF	MHD	4.7000e-005	4.1000e-005
tblVehicleEF	MHD	1.8000e-004	0.01
tblVehicleEF	MHD	9.8650e-003	2.2890e-003
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	1.1100e-004	0.01
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	OBUS	6.6010e-003	7.5120e-003
tblVehicleEF	OBUS	1.8540e-003	9.3640e-003
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	0.73	0.70
tblVehicleEF	OBUS	0.24	0.32
tblVehicleEF	OBUS	1.55	1.81
tblVehicleEF	OBUS	109.51	104.31
tblVehicleEF	OBUS	1,117.55	1,251.89

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tblVehicleEF	OBUS	12.09	13.70
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.13	0.15
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.52	0.34
tblVehicleEF	OBUS	1.55	0.86
tblVehicleEF	OBUS	1.26	0.80
tblVehicleEF	OBUS	1.7400e-004	3.1700e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	8.6430e-003	0.02
tblVehicleEF	OBUS	1.4500e-004	1.4200e-004
tblVehicleEF	OBUS	1.6700e-004	3.0300e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	8.2580e-003	0.01
tblVehicleEF	OBUS	1.3300e-004	1.3000e-004
tblVehicleEF	OBUS	1.1630e-003	0.09
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	5.4800e-004	0.09
tblVehicleEF	OBUS	0.02	0.04
tblVehicleEF	OBUS	0.06	0.10
tblVehicleEF	OBUS	0.07	0.09
tblVehicleEF	OBUS	1.0380e-003	9.8600e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	1.2000e-004	1.3500e-004
tblVehicleEF	OBUS	1.1630e-003	0.09
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.07	0.07
tblVehicleEF	OBUS	5.4800e-004	0.09

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tblVehicleEF	OBUS	0.02	0.05
tblVehicleEF	OBUS	0.06	0.10
tblVehicleEF	OBUS	0.08	0.10
tblVehicleEF	SBUS	0.04	0.09
tblVehicleEF	SBUS	2.6380e-003	0.17
tblVehicleEF	SBUS	3.9710e-003	2.7060e-003
tblVehicleEF	SBUS	2.18	1.18
tblVehicleEF	SBUS	0.22	0.70
tblVehicleEF	SBUS	0.53	0.33
tblVehicleEF	SBUS	312.30	155.09
tblVehicleEF	SBUS	955.60	890.07
tblVehicleEF	SBUS	3.05	2.05
tblVehicleEF	SBUS	0.04	0.02
tblVehicleEF	SBUS	0.13	0.12
tblVehicleEF	SBUS	4.3020e-003	3.1730e-003
tblVehicleEF	SBUS	2.06	0.81
tblVehicleEF	SBUS	2.23	0.94
tblVehicleEF	SBUS	1.53	0.48
tblVehicleEF	SBUS	9.8800e-004	3.9300e-004
tblVehicleEF	SBUS	0.74	0.04
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	6.1960e-003
tblVehicleEF	SBUS	4.5000e-005	2.4000e-005
tblVehicleEF	SBUS	9.4500e-004	3.7400e-004
tblVehicleEF	SBUS	0.32	0.01
tblVehicleEF	SBUS	2.7690e-003	2.7280e-003
tblVehicleEF	SBUS	0.02	5.9120e-003
tblVehicleEF	SBUS	4.1000e-005	2.2000e-005
tblVehicleEF	SBUS	6.0800e-004	0.04

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tblVehicleEF	SBUS	6.1590e-003	7.6100e-003
tblVehicleEF	SBUS	0.21	0.11
tblVehicleEF	SBUS	2.9900e-004	0.04
tblVehicleEF	SBUS	0.04	0.03
tblVehicleEF	SBUS	0.01	0.03
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	2.9690e-003	1.3070e-003
tblVehicleEF	SBUS	9.1090e-003	7.9380e-003
tblVehicleEF	SBUS	3.0000e-005	2.0000e-005
tblVehicleEF	SBUS	6.0800e-004	0.04
tblVehicleEF	SBUS	6.1590e-003	7.6100e-003
tblVehicleEF	SBUS	0.30	0.23
tblVehicleEF	SBUS	2.9900e-004	0.04
tblVehicleEF	SBUS	0.05	0.20
tblVehicleEF	SBUS	0.01	0.03
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	UBUS	1.71	0.54
tblVehicleEF	UBUS	0.01	0.01
tblVehicleEF	UBUS	12.99	6.44
tblVehicleEF	UBUS	0.84	2.05
tblVehicleEF	UBUS	1,639.77	780.74
tblVehicleEF	UBUS	7.43	13.61
tblVehicleEF	UBUS	0.27	0.09
tblVehicleEF	UBUS	6.6560e-003	0.02
tblVehicleEF	UBUS	0.67	0.14
tblVehicleEF	UBUS	0.08	0.12
tblVehicleEF	UBUS	0.08	0.21
tblVehicleEF	UBUS	0.03	0.09
tblVehicleEF	UBUS	4.8850e-003	2.6430e-003

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tblVehicleEF	UBUS	8.8000e-005	7.8000e-005
tblVehicleEF	UBUS	0.03	0.07
tblVehicleEF	UBUS	7.7720e-003	0.02
tblVehicleEF	UBUS	4.6670e-003	2.5170e-003
tblVehicleEF	UBUS	8.1000e-005	7.2000e-005
tblVehicleEF	UBUS	2.1000e-004	0.03
tblVehicleEF	UBUS	2.9060e-003	7.6760e-003
tblVehicleEF	UBUS	1.2100e-004	0.03
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	7.0000e-004	0.03
tblVehicleEF	UBUS	0.05	0.05
tblVehicleEF	UBUS	0.01	5.9270e-003
tblVehicleEF	UBUS	7.4000e-005	1.3500e-004
tblVehicleEF	UBUS	2.1000e-004	0.03
tblVehicleEF	UBUS	2.9060e-003	7.6760e-003
tblVehicleEF	UBUS	1.2100e-004	0.03
tblVehicleEF	UBUS	1.75	0.58
tblVehicleEF	UBUS	7.0000e-004	0.03
tblVehicleEF	UBUS	0.05	0.06
tblVehicleTrips	ST_TR	2.21	0.00
tblVehicleTrips	ST_TR	1.74	1.51
tblVehicleTrips	SU_TR	0.70	0.00
tblVehicleTrips	SU_TR	1.74	1.51
tblVehicleTrips	WD_TR	9.74	0.00
tblVehicleTrips	WD_TR	1.74	1.51
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00

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tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	NumberCatalytic	0.96	0.00
tblWoodstoves	NumberNoncatalytic	0.96	0.00
tblWoodstoves	WoodstoveDayYear	14.12	0.00
tblWoodstoves	WoodstoveWoodMass	582.40	0.00

2.0 Emissions Summary

**2.2 Overall Operational
Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3473	4.1100e-003	0.3568	2.0000e-005		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003	0.0000	0.5853	0.5853	5.6000e-004	0.0000	0.5994
Energy	2.9700e-003	0.0258	0.0140	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	49.5115	49.5115	6.0900e-003	1.2100e-003	50.0243
Mobile	0.1412	0.1225	0.7529	2.5300e-003	0.2528	1.7300e-003	0.2545	0.0633	1.6300e-003	0.0650	0.0000	235.4531	235.4531	8.2000e-003	0.0130	239.5393
Waste						0.0000	0.0000		0.0000	0.0000	12.0942	0.0000	12.0942	0.7148	0.0000	29.9629
Water						0.0000	0.0000		0.0000	0.0000	4.3539	4.0181	8.3720	0.0161	9.6000e-003	11.6358

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Total	0.4915	0.1524	1.1236	2.7100e-003	0.2528	5.7600e-003	0.2585	0.0633	5.6600e-003	0.0690	16.4481	289.5680	306.0162	0.7457	0.0238	331.7616
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Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3473	4.1100e-003	0.3568	2.0000e-005		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003	0.0000	0.5853	0.5853	5.6000e-004	0.0000	0.5994
Energy	2.9700e-003	0.0258	0.0140	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	49.5115	49.5115	6.0900e-003	1.2100e-003	50.0243
Mobile	0.1412	0.1225	0.7529	2.5300e-003	0.2528	1.7300e-003	0.2545	0.0633	1.6300e-003	0.0650	0.0000	235.4531	235.4531	8.2000e-003	0.0130	239.5393
Waste						0.0000	0.0000		0.0000	0.0000	12.0942	0.0000	12.0942	0.7148	0.0000	29.9629
Water						0.0000	0.0000		0.0000	0.0000	4.3539	4.0181	8.3720	0.0161	9.6000e-003	11.6358
Total	0.4915	0.1524	1.1236	2.7100e-003	0.2528	5.7600e-003	0.2585	0.0633	5.6600e-003	0.0690	16.4481	289.5680	306.0162	0.7457	0.0238	331.7616

	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
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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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	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	0.1412	0.1225	0.7529	2.5300e-003	0.2528	1.7300e-003	0.2545	0.0633	1.6300e-003	0.0650	0.0000	235.4531	235.4531	8.2000e-003	0.0130	239.5393
Unmitigated	0.1412	0.1225	0.7529	2.5300e-003	0.2528	1.7300e-003	0.2545	0.0633	1.6300e-003	0.0650	0.0000	235.4531	235.4531	8.2000e-003	0.0130	239.5393

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	261.12	235.68	196.32	573,311	573,311
General Office Building	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	58.89	58.89	58.89	171,930	171,930
Total	320.01	294.57	255.21	745,241	745,241

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.534132	0.029187	0.213277	0.128565	0.033166	0.009100	0.022146	0.022521	0.001399	0.001126	0.003517	0.001109	0.000757
General Office Building	0.534132	0.029187	0.213277	0.128565	0.033166	0.009100	0.022146	0.022521	0.001399	0.001126	0.003517	0.001109	0.000757
Parking Lot	0.534132	0.029187	0.213277	0.128565	0.033166	0.009100	0.022146	0.022521	0.001399	0.001126	0.003517	0.001109	0.000757
Unrefrigerated Warehouse-No Rail	0.534132	0.029187	0.213277	0.128565	0.033166	0.009100	0.022146	0.022521	0.001399	0.001126	0.003517	0.001109	0.000757

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5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	20.1040	20.1040	5.5300e-003	6.7000e-004	20.4419
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	20.1040	20.1040	5.5300e-003	6.7000e-004	20.4419
NaturalGas Mitigated	2.9700e-003	0.0258	0.0140	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	29.4076	29.4076	5.6000e-004	5.4000e-004	29.5823
NaturalGas Unmitigated	2.9700e-003	0.0258	0.0140	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	29.4076	29.4076	5.6000e-004	5.4000e-004	29.5823

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	402321	2.1700e-003	0.0185	7.8900e-003	1.2000e-004		1.5000e-003	1.5000e-003		1.5000e-003	1.5000e-003	0.0000	21.4694	21.4694	4.1000e-004	3.9000e-004	21.5969

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General Office Building	14596.2	8.0000e-005	7.2000e-004	6.0000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.7789	0.7789	1.0000e-005	1.0000e-005	0.7835
Parking Lot	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
Unrefrigerated Warehouse-No	134160	7.2000e-004	6.5800e-003	5.5200e-003	4.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	7.1593	7.1593	1.4000e-004	1.3000e-004	7.2018
Total		2.9700e-003	0.0258	0.0140	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	29.4076	29.4076	5.6000e-004	5.3000e-004	29.5823

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	402321	2.1700e-003	0.0185	7.8900e-003	1.2000e-004		1.5000e-003	1.5000e-003		1.5000e-003	1.5000e-003	0.0000	21.4694	21.4694	4.1000e-004	3.9000e-004	21.5969
General Office Building	14596.2	8.0000e-005	7.2000e-004	6.0000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.7789	0.7789	1.0000e-005	1.0000e-005	0.7835
Parking Lot	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
Unrefrigerated Warehouse-No	134160	7.2000e-004	6.5800e-003	5.5200e-003	4.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	7.1593	7.1593	1.4000e-004	1.3000e-004	7.2018
Total		2.9700e-003	0.0258	0.0140	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	29.4076	29.4076	5.6000e-004	5.3000e-004	29.5823

5.3 Energy by Land Use - Electricity

Unmitigated

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	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	185589	10.1001	2.7800e-003	3.4000e-004	10.2699
General Office Building	15470.2	0.8419	2.3000e-004	3.0000e-005	0.8561
Parking Lot	31850	1.7333	4.8000e-004	6.0000e-005	1.7625
Unrefrigerated Warehouse-No	136500	7.4286	2.0400e-003	2.5000e-004	7.5535
Total		20.1040	5.5300e-003	6.8000e-004	20.4419

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	185589	10.1001	2.7800e-003	3.4000e-004	10.2699
General Office Building	15470.2	0.8419	2.3000e-004	3.0000e-005	0.8561
Parking Lot	31850	1.7333	4.8000e-004	6.0000e-005	1.7625
Unrefrigerated Warehouse-No	136500	7.4286	2.0400e-003	2.5000e-004	7.5535
Total		20.1040	5.5300e-003	6.8000e-004	20.4419

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6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3473	4.1100e-003	0.3568	2.0000e-005		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003	0.0000	0.5853	0.5853	5.6000e-004	0.0000	0.5994
Unmitigated	0.3473	4.1100e-003	0.3568	2.0000e-005		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003	0.0000	0.5853	0.5853	5.6000e-004	0.0000	0.5994

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	0.0459					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2906					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	0.0108	4.1100e-003	0.3568	2.0000e-005		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003	0.0000	0.5853	0.5853	5.6000e-004	0.0000	0.5994

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Total	0.3473	4.1100e-003	0.3568	2.0000e-005		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003	0.0000	0.5853	0.5853	5.6000e-004	0.0000	0.5994
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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	0.0459					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2906					0.0000	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	0.0000
Landscaping	0.0108	4.1100e-003	0.3568	2.0000e-005		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003	0.0000	0.5853	0.5853	5.6000e-004	0.0000	0.5994	
Total	0.3473	4.1100e-003	0.3568	2.0000e-005		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003	0.0000	0.5853	0.5853	5.6000e-004	0.0000	0.5994	

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
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Category	MT/yr			
Mitigated	8.3720	0.0161	9.6000e-003	11.6358
Unmitigated	8.3720	0.0161	9.6000e-003	11.6358

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	3.12739 / 1.97162	2.4030	4.1600e-003	2.4500e-003	3.2370
General Office Building	0.15996 / 0.0980402	0.1224	2.1000e-004	1.3000e-004	0.1650
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No	9.01875 / 0	5.8467	0.0117	7.0300e-003	8.2337
Total		8.3720	0.0161	9.6100e-003	11.6358

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
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Land Use	Mgal	MT/yr			
Apartments Mid Rise	3.12739 / 1.97162	2.4030	4.1600e-003	2.4500e-003	3.2370
General Office Building	0.15996 / 0.0980402	0.1224	2.1000e-004	1.3000e-004	0.1650
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No	9.01875 / 0	5.8467	0.0117	7.0300e-003	8.2337
Total		8.3720	0.0161	9.6100e-003	11.6358

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	12.0942	0.7148	0.0000	29.9629
Unmitigated	12.0942	0.7148	0.0000	29.9629

8.2 Waste by Land Use

Unmitigated

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	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	22.08	4.4820	0.2649	0.0000	11.1041
General Office Building	0.84	0.1705	0.0101	0.0000	0.4224
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No	36.66	7.4417	0.4398	0.0000	18.4364
Total		12.0942	0.7148	0.0000	29.9629

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	22.08	4.4820	0.2649	0.0000	11.1041
General Office Building	0.84	0.1705	0.0101	0.0000	0.4224
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No	36.66	7.4417	0.4398	0.0000	18.4364
Total		12.0942	0.7148	0.0000	29.9629

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9.0 Operational Offroad

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

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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11.0 Vegetation

Attachment 3: EMFAC2021 Calculations

Summary of Construction Traffic Emissions (EMFAC2021)

Pollutants YEAR	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	NBio- CO2 <i>Metric Tons</i>
Criteria Pollutants											
2022 & 2023	0.0618	0.2294	0.5331	0.0018	0.0978	0.0132	0.1110	0.0147	0.0055	0.0202	175.3525
Toxic Air Contaminants (1 Mile Trip Length)											
2022 & 2023	0.0535	0.0663	0.1887	0.0002	0.0095	0.0014	0.0109	0.0014	0.0006	0.0021	22.9776

CalEEMod Construction Inputs

Phase	CalEEMod	CalEEMod	Total	Total	CalEEMod	Worker Trip	Vendor Trip	Hauling Trip	Worker Vehicle	Vendor Vehicle	Hauling Vehicle	Worker	Vendor	Hauling		
	WORKER	VENDOR	Worker	Vendor	HAULING										TRIPS	TRIPS
Demolition	15	0	300	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	3240	0	0		
Site Preparation	18	0	90	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	972	0	0		
Grading	15	0	120	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	1296	0	0		
Trenching/Foundation	5	0	50	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	540	0	0		
Paving	20	0	360	0	202	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	3888	0	4040		
Building Construction	89	27	20470	6210	648	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	221076	45333	12960		
Architectural Coating	18	0	324	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	3499.2	0	0		

Number of Days Per Year

2022 & 2023	1/3/22	3/9/23	431	309
			431	309 Total Workdays

Phase	Start Date	End Date	Days/Week	Workdays
Demolition	1/3/2022	1/28/2022	5	20
Site Preparation	1/29/2022	2/4/2022	5	5
Grading	2/5/2022	2/16/2022	5	8
Trenching/Foundation	2/17/2022	3/2/2022	5	10
Paving	1/19/2023	2/13/2023	5	18
Building Construction	3/3/2022	1/18/2023	5	230
Architectural Coating	2/14/2023	3/9/2023	5	18

Source: EMFAC2011 (v1.0.1) Emission Rates
 Region: Sonoma
 Calendar Year: 2022
 Season: Annual

Vehicle Classification: EMFAC2007 Categories
 Units: miles/day for CVMT and EVMT, TRIPs/day for Trips, kWh/day for Energy Consumption, g/mile for RUMK, PMWB and PM10W, g/rip for STREX, HOTSDAK and RUN10SD, g/vehicle/day for IDEXX and DUR10

Region	Calendar Year	Vehicle Class	Fuel	EVMT	Trips	Energy Con	RUMK	PMWB	PM10W	STREX	HOTSDAK	RUN10SD	IDEXX	DUR10
Sonoma	2022	HHDT	Aggregate	Aggregate	Gasoline	2712028	7039271	7038771	0	49.44694	0	0.1020986	0	0.002186
Sonoma	2022	HHDT	Aggregate	Aggregate	Gasoline	2287.78	22679.91	22679.91	0	269995.73	0	2.724809	52.11206	2.581892
Sonoma	2022	HHDT	Aggregate	Aggregate	Natural Gas	148.431	10070.99	10070.99	0	1156.095	0	1.00621	11.2652	0.000422
Sonoma	2022	LDA	Aggregate	Aggregate	Gasoline	644327.9	0	0.007818	0	0.137785	0	0.00319	0	0.002167
Sonoma	2022	LDA	Aggregate	Aggregate	Gasoline	1048.688	31689.52	31689.52	0	4418.866	0	0.0018208	0	0.002488
Sonoma	2022	LDA	Aggregate	Aggregate	Electricity	2068.217	20865.79	0	0	0	0	0	0	0
Sonoma	2022	LDA	Aggregate	Aggregate	Plug-In Hy	2851.604	120031.6	67150.17	61818.42	11842.1	18900.64	0.003001	0	0.117956
Sonoma	2022	LDT1	Aggregate	Aggregate	Gasoline	290.297	810046.8	810046.8	0	0.238345	0	0.003882	0.002	0.001775
Sonoma	2022	LDT1	Aggregate	Aggregate	Gasoline	25.41835	319.0855	319.0855	0	74.24145	0	0.149883	0	0
Sonoma	2022	LDT1	Aggregate	Aggregate	Electricity	29.69266	1079.715	0	0	1079.715	138.8667	416.8591	0	0
Sonoma	2022	LDT1	Aggregate	Aggregate	Plug-In Hy	5.071919	249.6941	119.9528	129.7484	20.74151	39.19392	0.002033	0	0.117544
Sonoma	2022	LDT2	Aggregate	Aggregate	Gasoline	68707.44	2153348	2153348	0	318006.6	0	0.108067	0	0.441335
Sonoma	2022	LDT2	Aggregate	Aggregate	Gasoline	295.5345	11380.62	11380.62	0	1392.155	0	0.008129	0	0.002
Sonoma	2022	LDT2	Aggregate	Aggregate	Electricity	132.2975	4907.462	0	4907.462	569.2734	1894.685	0	0	0
Sonoma	2022	LDT2	Aggregate	Aggregate	Gasoline	260.5042	12555.57	6249.268	6306.304	1077.193	1904.682	0.003443	0	0.117542
Sonoma	2022	LDT2	Aggregate	Aggregate	Gasoline	8676.835	308184.6	308184.6	0	129271.9	0	0.131262	0.009613	0.697014
Sonoma	2022	LDT2	Aggregate	Aggregate	Gasoline	2815.809	131739.1	131739.1	0	110891.8	0	0.1778483	3.267072	0
Sonoma	2022	LDT2	Aggregate	Aggregate	Gasoline	1234.51	50670.47	50670.47	0	19732.22	0	0.190949	0.038508	0.616517
Sonoma	2022	LDT2	Aggregate	Aggregate	Gasoline	1036.413	56210.01	56210.01	0	20726.66	0	0.165623	0.001925	0.004046
Sonoma	2022	LDT2	Aggregate	Aggregate	Gasoline	4874.11	168591.2	168591.2	0	210240.9	0	0.167234	0.016188	0.001496
Sonoma	2022	MDV	Aggregate	Aggregate	Gasoline	10940.63	40501.82	40501.82	0	4934.496	0	0.094277	0	0.007902
Sonoma	2022	MDV	Aggregate	Aggregate	Gasoline	125.795	4767.31	0	4767.31	647.7021	1840.575	0	0	0
Sonoma	2022	MDV	Aggregate	Aggregate	Gasoline	201.4888	9375.848	4855.061	4520.787	831.1444	1365.413	0.003383	0	0.117552
Sonoma	2022	MDV	Aggregate	Aggregate	Gasoline	1283.008	12044.58	12044.58	0	128.3081	0	0.161666	0	0.412675
Sonoma	2022	MH	Aggregate	Aggregate	Gasoline	593.8208	5721.925	5721.925	0	59.38208	0	0.477274	0	0.115685
Sonoma	2022	MHDT	Aggregate	Aggregate	Gasoline	701.846	34018.16	34018.16	0	14018.16	0	0.712833	0.087473	0.461277
Sonoma	2022	MHDT	Aggregate	Aggregate	Gasoline	5006.17	212959.6	212959.6	0	50095.64	0	1.434417	14.65201	1.593192
Sonoma	2022	MHDT	Aggregate	Aggregate	Natural Gas	30.9017	1550.925	1550.925	0	334.6292	0	0.161486	0.000951	0.0014679
Sonoma	2022	OBUS	Aggregate	Aggregate	Gasoline	184.6626	8733.208	8733.208	0	3694.7209	0	0.702623	0.064788	0.413122
Sonoma	2022	OBUS	Aggregate	Aggregate	Gasoline	164.2136	12484.06	12484.06	0	1879.236	0	1.178659	12.54801	1.570836
Sonoma	2022	OBUS	Aggregate	Aggregate	Natural Gas	0.901512	41.88965	41.88965	0	8.06221	0	0.230238	1.522296	0.000078
Sonoma	2022	SBUS	Aggregate	Aggregate	Gasoline	571.6232	2953.316	2953.316	0	295.5013	0	0.20807	0.0261	0.67829
Sonoma	2022	SBUS	Aggregate	Aggregate	Gasoline	388.3851	9106.626	9106.626	0	5623.821	0	0.326207	22.60304	0.435056
Sonoma	2022	SBUS	Aggregate	Aggregate	Natural Gas	26.48421	164.4086	164.4086	0	262.7977	0	0.063623	1.330636	0
Sonoma	2022	UBUS	Aggregate	Aggregate	Gasoline	68.86511	3610.895	3610.895	0	195.4605	0	0.087007	0.000847	0.000028
Sonoma	2022	UBUS	Aggregate	Aggregate	Gasoline	43.352703	3856.33	3856.33	0	172.7319	0	0.007663	0.00385	0.006699
Sonoma	2022	UBUS	Aggregate	Aggregate	Electricity	1.000251	26.86026	46.8728	0	26.86026	46.8728	0	0	
Sonoma	2022	UBUS	Aggregate	Aggregate	Natural Gas	45.39372	3656.307	3656.307	0	181.5749	0	0.448365	0	0.000154

Season	EmissionTy	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
A	CH4_IDLEX	0	0	0	0	0.004397	0.002928	0.010223	0.177848	0.008196	0	0	0.092003	0
A	CH4_RUNE	0.002593	0.00926	0.003388	0.0046	0.011963	0.008106	0.007879	0.063776	0.010898	0.590975	0.200724	0.197359	0.014036
A	CH4_STRE	0.073928	0.140322	0.092537	0.118776	0.019978	0.011159	0.008506	7.20E-08	0.023787	0.024177	0.220225	0.002467	0.02567
A	CO_IDLEX	0	0	0	0	0.168401	0.132886	0.67772	4.651055	0.580244	0	0	1.137166	0
A	CO_RUNE	0.764951	1.973893	0.947677	1.110723	1.141808	0.645257	0.357378	0.58844	0.805679	9.615219	15.97023	0.909155	1.460002
A	CO_STREX	3.368502	7.473267	4.200471	4.722781	1.68676	1.035275	1.067266	0.00142	2.727533	2.647556	8.756079	0.342247	2.398764
A	CO2_NBIO	0	0	0	0	9.383208	14.52901	163.3306	764.9807	88.63551	0	0	182.0544	0
A	CO2_NBIO	256.6616	335.4447	344.5335	419.9791	774.1331	842.1304	1214.46	1689.085	1521.111	1284.513	192.1219	1086.553	1636.44
A	CO2_NBIO	67.23257	93.01671	89.74943	108.5432	14.00748	8.608021	8.249476	0.054931	20.31278	20.81816	56.25802	2.109212	21.01351
A	NOX_IDLEX	0	0	0	0	0.085427	0.11608	0.886628	3.948067	0.367282	0	0	1.384511	0
A	NOX_RUNE	0.048708	0.194752	0.085171	0.124443	1.391199	1.206921	1.055745	2.17474	1.18346	0.311563	0.683414	2.632209	2.003301
A	NOX_STRE	0.260738	0.503517	0.377838	0.508943	0.360441	0.216523	1.470102	2.752382	0.856772	0.207852	0.176824	0.441707	0.284832
A	PM10_IDLEX	0	0	0	0	0.001033	0.001475	0.002192	0.003065	0.000484	0	0	0.001178	0
A	PM10_PMI	0.008452	0.010786	0.010223	0.010491	0.077927	0.090923	0.045174	0.08152	0.051527	0.106341	0.012	0.044873	0.044943
A	PM10_PMI	0.008	0.008	0.008	0.008	0.010001	0.010812	0.012	0.033894	0.012	0.025542	0.004	0.011029	0.013438
A	PM10_RUNE	0.001347	0.002483	0.00145	0.001589	0.027642	0.030484	0.012046	0.024451	0.020323	0.002594	0.001993	0.014338	0.046615
A	PM10_STR	0.002037	0.003672	0.002213	0.002366	0.000241	8.67E-05	0.000115	2.38E-06	0.000218	0.000128	0.003735	2.23E-05	0.000295
A	PM25_IDLEX	0	0	0	0	0.000988	0.001411	0.002097	0.002927	0.000463	0	0	0.001125	0
A	PM25_PMI	0.002958	0.003775	0.003578	0.003672	0.027274	0.031823	0.015811	0.028532	0.018034	0.037219	0.0042	0.015706	0.01573
A	PM25_PMI	0.002	0.002	0.002	0.002	0.0025	0.002703	0.003	0.008474	0.003	0.006386	0.001	0.002757	0.00336
A	PM25_RUNE	0.001242	0.002288	0.001334	0.001468	0.026408	0.029149	0.011517	0.023389	0.019427	0.002469	0.00187	0.013702	0.044552
A	PM25_STR	0.001873	0.003376	0.002035	0.002175	0.000221	7.97E-05	0.000105	2.19E-06	0.0002	0.000118	0.003524	2.05E-05	0.000272
A	ROG_DIUR	0.32858	0.879119	0.345572	0.45649	0.128957	0.05457	0.027306	0.00052	0.095294	0.044003	4.895034	0.010488	34.51645
A	ROG_HTSK	0.095043	0.237699	0.095876	0.119828	0.0328	0.014201	0.00673	0.000148	0.022202	0.015249	3.55202	0.003423	9.050894
A	ROG_IDLEX	0	0	0	0	0.019854	0.015464	0.026581	0.301914	0.048852	0	0	0.112214	0
A	ROG_REST	0.32858	0.879119	0.345572	0.45649	0.128957	0.05457	0.027306	0.00052	0.095294	0.044003	4.895034	0.010488	34.51645
A	ROG_RUNE	0.010418	0.042627	0.01386	0.020237	0.150428	0.142081	0.035817	0.02278	0.068919	0.031474	1.386222	0.050472	0.101924
A	ROG_RUNE	0.252876	0.716597	0.265291	0.356324	0.189193	0.075997	0.05635	0.001356	0.105233	0.036016	3.910604	0.00604	0.216303
A	ROG_STRE	0.345641	0.764193	0.441855	0.618718	0.101906	0.054505	0.048258	3.91E-07	0.128756	0.095255	1.685032	0.013549	0.109989
A	SO2_IDLEX	0	0	0	0	9.07E-05	0.000139	0.001528	0.006751	0.000842	0	0	0.001574	0
A	SO2_RUNE	0.002537	0.003316	0.003405	0.004148	0.007521	0.0081	0.011534	0.015388	0.014647	0.006748	0.001899	0.009728	0.016018
A	SO2_STRE	0.000665	0.00092	0.000887	0.001073	0.000138	8.51E-05	8.16E-05	5.43E-07	0.000201	0.000206	0.000556	2.09E-05	0.000208
A	TOG_DIUR	0.32858	0.879119	0.345572	0.45649	0.128957	0.05457	0.027306	0.00052	0.095294	0.044003	0.146997	0.010488	34.51645
A	TOG_HTSK	0.095043	0.237699	0.095876	0.119828	0.0328	0.014201	0.00673	0.000148	0.022202	0.015249	3.55202	0.003423	9.050894
A	TOG_IDLEX	0	0	0	0	0.027679	0.020706	0.040299	0.508357	0.064052	0	0	0.228082	0
A	TOG_RESTI	0.32858	0.879119	0.345572	0.45649	0.128957	0.05457	0.027306	0.00052	0.095294	0.044003	0.146997	0.010488	34.51645
A	TOG_RUNE	0.01515	0.062149	0.020203	0.029409	0.181992	0.164673	0.048965	0.089182	0.091127	0.628347	1.636862	0.254109	0.132918
A	TOG_RUNE	0.252876	0.716597	0.265291	0.356324	0.189193	0.075997	0.05635	0.001356	0.105233	0.036016	3.910604	0.00604	0.216303
A	TOG_STRE	0.378434	0.836693	0.483775	0.677416	0.111574	0.059676	0.052836	4.28E-07	0.140971	0.104292	1.830926	0.014834	0.120424
A	N2O_IDLEX	0	0	0	0	0.000898	0.001866	0.025158	0.122933	0.012255	0	0	0.026461	0
A	N2O_RUNE	0.005014	0.01308	0.006994	0.010182	0.057829	0.089275	0.159792	0.269083	0.144798	0.181567	0.044539	0.14739	0.080532
A	N2O_STRE	0.032275	0.044194	0.039413	0.0443	0.027611	0.017352	0.00554	3.39E-05	0.019302	0.025356	0.010054	0.002652	0.028937

FleetMixLa LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH	
Apartment	0.486165	0.045865	0.21434	0.141752	0.048048	0.01301	0.021353	0.019982	0.00167	0.001093	0.004415	0.001068	0.00124
General Of	0.486165	0.045865	0.21434	0.141752	0.048048	0.01301	0.021353	0.019982	0.00167	0.001093	0.004415	0.001068	0.00124
Parking Lot	0.486165	0.045865	0.21434	0.141752	0.048048	0.01301	0.021353	0.019982	0.00167	0.001093	0.004415	0.001068	0.00124
Unrefrigerat	0.486165	0.045865	0.21434	0.141752	0.048048	0.01301	0.021353	0.019982	0.00167	0.001093	0.004415	0.001068	0.00124

Season	EmissionTy	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
A	CH4_IDLEX	0	0	0	0	0.004002	0.002599	0.012076	0.158045	0.007896	0	0	0.093739	0
A	CH4_RUNE	0.001486	0.005038	0.002191	0.002623	0.007502	0.006021	0.007548	0.047978	0.010072	0.640187	0.17227	0.184466	0.007638
A	CH4_STRE	0.051242	0.097523	0.068398	0.081057	0.016721	0.009262	0.005667	3.83E-08	0.019135	0.020525	0.192786	0.002684	0.022077
A	CO_IDLEX	0	0	0	0	0.165773	0.130233	0.632138	4.499144	0.669033	0	0	1.193011	0
A	CO_RUNEX	0.542545	1.231638	0.709444	0.769447	0.784235	0.498458	0.154774	0.502113	0.486056	7.756167	13.62555	0.823552	0.516213
A	CO_STREX	2.364446	4.982249	3.133335	3.424152	1.723851	0.987404	0.641344	0.001018	2.15797	2.447676	8.599194	0.347459	1.845754
A	CO2_NBIO	0	0	0	0	8.776507	14.23087	151.6694	667.0067	102.0933	0	0	172.9323	0
A	CO2_NBIO	223.7073	305.4603	307.916	372.6941	705.5937	775.4584	1064.948	1456.964	1369.237	1027.949	188.9008	1011.564	1603.711
A	CO2_NBIO	58.16572	82.22509	79.3043	95.79318	13.80389	7.987382	5.750776	0.012185	16.41109	19.10316	50.69062	2.143326	18.38802
A	NOX_IDLEX	0	0	0	0	0.071971	0.105207	0.765536	3.576336	0.373896	0	0	1.128316	0
A	NOX_RUNE	0.027662	0.103888	0.049979	0.063542	0.873981	0.886498	0.617157	1.632002	1.031839	0.200541	0.599049	1.751867	1.834369
A	NOX_STRE	0.197151	0.364401	0.280313	0.340012	0.316877	0.19067	1.322037	2.636876	0.879512	0.165179	0.143541	0.474278	0.298507
A	PM10_IDLEX	0	0	0	0	0.000948	0.00152	0.000652	0.001949	0.000392	0	0	0.000749	0
A	PM10_PMI	0.008256	0.010685	0.010162	0.010329	0.075899	0.08885	0.043332	0.081287	0.052892	0.132913	0.012	0.043924	0.044934
A	PM10_PMI	0.008	0.008	0.008	0.008	0.009807	0.010725	0.012	0.033915	0.012	0.042781	0.004	0.010944	0.013584
A	PM10_RUNE	0.00093	0.001608	0.001089	0.001142	0.020325	0.025956	0.005509	0.02177	0.018185	0.003391	0.002009	0.010343	0.043058
A	PM10_STR	0.001572	0.002636	0.001772	0.001844	0.000175	5.53E-05	6.95E-05	1.75E-07	0.000188	0.000129	0.003355	2.41E-05	0.000208
A	PM25_IDLEX	0	0	0	0	0.000907	0.001455	0.000623	0.001859	0.000375	0	0	0.000714	0
A	PM25_PMI	0.00289	0.00374	0.003557	0.003615	0.026564	0.031098	0.015166	0.02845	0.018512	0.046519	0.0042	0.015373	0.015727
A	PM25_PMI	0.002	0.002	0.002	0.002	0.002452	0.002681	0.003	0.008479	0.003	0.010695	0.001	0.002736	0.003396
A	PM25_RUNE	0.000856	0.001479	0.001002	0.001053	0.019413	0.02482	0.005265	0.020825	0.017386	0.003231	0.001878	0.00988	0.041161
A	PM25_STR	0.001445	0.002424	0.001629	0.001696	0.000161	5.08E-05	6.39E-05	1.61E-07	0.000173	0.000119	0.00315	2.21E-05	0.000191
A	ROG_DIUR	0.265041	0.709205	0.305469	0.397011	0.108858	0.05307	0.015529	5.31E-05	0.097988	0.03314	4.994778	0.024448	25.26204
A	ROG_HTSK	0.069712	0.181933	0.077033	0.096019	0.026405	0.012197	0.003559	1.46E-05	0.020287	0.009437	3.556898	0.005615	5.995331
A	ROG_IDLEX	0	0	0	0	0.017857	0.014314	0.020078	0.283636	0.052027	0	0	0.114583	0
A	ROG_REST	0.265041	0.709205	0.305469	0.397011	0.108858	0.05307	0.015529	5.31E-05	0.097988	0.03314	4.994778	0.024448	25.26204
A	ROG_RUNE	0.005361	0.022275	0.008329	0.01072	0.102344	0.114329	0.01474	0.016305	0.04982	0.039066	1.138941	0.040467	0.071035
A	ROG_RUNI	0.201767	0.544621	0.231203	0.301216	0.158785	0.070447	0.030022	0.000134	0.109149	0.0342	3.992608	0.015728	0.148522
A	ROG_STRE	0.225343	0.50366	0.310376	0.39716	0.083243	0.044223	0.030341	2.07E-07	0.10534	0.079889	1.452324	0.014707	0.088353
A	SO2_IDLEX	0	0	0	0	8.49E-05	0.000136	0.001407	0.005809	0.000967	0	0	0.00148	0
A	SO2_RUNE	0.002211	0.00302	0.003044	0.003682	0.006857	0.007453	0.010075	0.013192	0.013101	0.007607	0.001867	0.009048	0.015679
A	SO2_STRE	0.000575	0.000813	0.000784	0.000947	0.000136	7.90E-05	5.69E-05	1.20E-07	0.000162	0.000189	0.000501	2.12E-05	0.000182
A	TOG_DIUR	0.265041	0.709205	0.305469	0.397011	0.108858	0.05307	0.015529	5.31E-05	0.097988	0.03314	0.134652	0.024448	25.26204
A	TOG_HTSK	0.069712	0.181933	0.077033	0.096019	0.026405	0.012197	0.003559	1.46E-05	0.020287	0.009437	3.556898	0.005615	5.995331
A	TOG_IDLEX	0	0	0	0	0.024836	0.018982	0.034782	0.468494	0.066897	0	0	0.232798	0
A	TOG_RESTI	0.265041	0.709205	0.305469	0.397011	0.108858	0.05307	0.015529	5.31E-05	0.097988	0.03314	0.134652	0.024448	25.26204
A	TOG_RUNE	0.007809	0.032504	0.012137	0.015581	0.122007	0.131362	0.024261	0.066061	0.067134	0.686067	1.369677	0.230144	0.087197
A	TOG_RUNI	0.201767	0.544621	0.231203	0.301216	0.158785	0.070447	0.030022	0.000134	0.109149	0.0342	3.992608	0.015728	0.148522
A	TOG_STRE	0.246722	0.551445	0.339823	0.43484	0.09114	0.048419	0.033219	2.27E-07	0.115334	0.087469	1.57884	0.016103	0.096736
A	N2O_IDLEX	0	0	0	0	0.000826	0.001846	0.023552	0.107566	0.014695	0	0	0.024943	0
A	N2O_RUNE	0.003572	0.008063	0.005058	0.006579	0.049794	0.083385	0.144182	0.232476	0.149276	0.129341	0.040918	0.134634	0.080099
A	N2O_STRE	0.027247	0.037359	0.0338	0.035899	0.025525	0.015535	0.003919	1.22E-07	0.015327	0.020985	0.00832	0.003039	0.031891

	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH	
FleetMixLa LDA													
Apartment	0.518249	0.034481	0.214924	0.132556	0.038169	0.010517	0.021562	0.021147	0.001476	0.001107	0.003805	0.001094	0.000914
General Of	0.518249	0.034481	0.214924	0.132556	0.038169	0.010517	0.021562	0.021147	0.001476	0.001107	0.003805	0.001094	0.000914
Parking Lot	0.518249	0.034481	0.214924	0.132556	0.038169	0.010517	0.021562	0.021147	0.001476	0.001107	0.003805	0.001094	0.000914
Unrefriger	0.518249	0.034481	0.214924	0.132556	0.038169	0.010517	0.021562	0.021147	0.001476	0.001107	0.003805	0.001094	0.000914

Season	EmissionTy	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
A	CH4_IDLEX	0	0	0	0	0.003515	0.002343	0.012236	0.130651	0.007512	0	0	0.093296	0
A	CH4_RUNE	0.00114	0.002869	0.0017	0.001939	0.004416	0.004753	0.007114	0.034691	0.009364	0.543498	0.157319	0.168004	0.005615
A	CH4_STRE	0.040308	0.069285	0.05497	0.062825	0.014138	0.00797	0.00411	2.00E-08	0.01568	0.01379	0.175611	0.002706	0.019794
A	CO_IDLEX	0	0	0	0	0.154938	0.128101	0.551848	4.244334	0.69532	0	0	1.180171	0
A	CO_RUNEX	0.473494	0.831198	0.620442	0.654235	0.512317	0.408457	0.094636	0.418326	0.31549	6.438899	12.31408	0.695478	0.340293
A	CO_STREX	1.920467	3.348038	2.604718	2.804562	1.629316	0.973326	0.424543	0.000953	1.810635	2.054403	8.506875	0.327627	1.556346
A	CO2_NBIO	0	0	0	0	7.825552	14.03631	129.168	590.552	104.3108	0	0	155.0865	0
A	CO2_NBIO	209.3241	283.4997	289.3942	347.744	603.532	674.4112	852.3267	1242.045	1251.887	780.7435	187.49	890.0676	1589.841
A	CO2_NBIO	53.60831	74.1426	73.49315	88.43164	12.77038	7.558019	4.170369	0.008446	13.6955	13.61052	46.97831	2.050177	16.87432
A	NOX_IDLEX	0	0	0	0	0.057439	0.097003	0.647071	3.274255	0.34153	0	0	0.810946	0
A	NOX_RUNE	0.021867	0.055273	0.035402	0.042897	0.525523	0.670683	0.394509	1.313342	0.857467	0.144201	0.552145	0.939066	1.640988
A	NOX_STRE	0.17311	0.27575	0.240798	0.278452	0.271888	0.169195	1.067961	2.373391	0.803167	0.120685	0.121609	0.483174	0.295621
A	PM10_IDLEX	0	0	0	0	0.000838	0.001511	0.000289	0.001492	0.000317	0	0	0.000393	0
A	PM10_PMI	0.008234	0.010554	0.010164	0.010273	0.071331	0.084174	0.039858	0.079286	0.053389	0.211134	0.012	0.04181	0.04493
A	PM10_PMI	0.008	0.008	0.008	0.008	0.009525	0.010459	0.012	0.033938	0.012	0.086643	0.004	0.01091	0.01365
A	PM10_RUNE	0.000674	0.001063	0.000797	0.000835	0.014498	0.021464	0.00325	0.019444	0.015376	0.002643	0.002074	0.006196	0.036355
A	PM10_STR	0.00117	0.001843	0.001323	0.001399	9.84E-05	3.84E-05	4.92E-05	9.97E-08	0.000142	7.79E-05	0.003255	2.40E-05	0.000185
A	PM25_IDLEX	0	0	0	0	0.000802	0.001446	0.000276	0.001422	0.000303	0	0	0.000374	0
A	PM25_PMI	0.002882	0.003694	0.003557	0.003595	0.024966	0.029461	0.01395	0.02775	0.018686	0.073897	0.0042	0.014634	0.015726
A	PM25_PMI	0.002	0.002	0.002	0.002	0.002381	0.002615	0.003	0.008485	0.003	0.021661	0.001	0.002728	0.003412
A	PM25_RUNE	0.00062	0.000977	0.000733	0.00077	0.013846	0.020524	0.003105	0.0186	0.014701	0.002517	0.001936	0.005912	0.034752
A	PM25_STR	0.001076	0.001695	0.001217	0.001286	9.05E-05	3.53E-05	4.53E-05	9.17E-08	0.00013	7.16E-05	0.003047	2.21E-05	0.00017
A	ROG_DIUR	0.239552	0.61112	0.286886	0.367362	0.094779	0.058624	0.012026	1.23E-05	0.091146	0.028328	4.774606	0.043523	19.51689
A	ROG_HTSK	0.053802	0.134473	0.062503	0.078485	0.020321	0.011328	0.002289	2.56E-06	0.016793	0.007676	3.551763	0.00761	4.05892
A	ROG_IDLEX	0	0	0	0	0.015537	0.013428	0.016222	0.265374	0.051799	0	0	0.110474	0
A	ROG_REST	0.239552	0.61112	0.286886	0.367362	0.094779	0.058624	0.012026	1.23E-05	0.091146	0.028328	4.774606	0.043523	19.51689
A	ROG_RUNE	0.003794	0.011839	0.006002	0.007343	0.067054	0.093921	0.008058	0.012518	0.036388	0.030633	1.006608	0.026448	0.060426
A	ROG_RUNE	0.18061	0.450578	0.215444	0.274137	0.132355	0.07681	0.022441	2.47E-05	0.098459	0.030639	3.993364	0.029335	0.108825
A	ROG_STRE	0.169609	0.335113	0.238811	0.293071	0.06859	0.037419	0.02137	1.08E-07	0.087214	0.051838	1.307965	0.014773	0.075378
A	SO2_IDLEX	0	0	0	0	7.57E-05	0.000134	0.001191	0.005129	0.000986	0	0	0.001307	0
A	SO2_RUNE	0.002069	0.002803	0.002861	0.003436	0.005868	0.006479	0.008039	0.01123	0.01192	0.005927	0.001854	0.007938	0.015534
A	SO2_STRE	0.00053	0.000733	0.000727	0.000874	0.000126	7.47E-05	4.12E-05	8.35E-08	0.000135	0.000135	0.000464	2.03E-05	0.000167
A	TOG_DIUR	0.239552	0.61112	0.286886	0.367362	0.094779	0.058624	0.012026	1.23E-05	0.091146	0.028328	4.774606	0.043523	19.51689
A	TOG_HTSK	0.053802	0.134473	0.062503	0.078485	0.020321	0.011328	0.002289	2.56E-06	0.016793	0.007676	3.551763	0.00761	4.05892
A	TOG_IDLEX	0	0	0	0	0.021582	0.017657	0.030565	0.421026	0.066034	0	0	0.227453	0
A	TOG_RESTI	0.239552	0.61112	0.286886	0.367362	0.094779	0.058624	0.012026	1.23E-05	0.091146	0.028328	4.774606	0.043523	19.51689
A	TOG_RUNE	0.005531	0.017275	0.008742	0.010676	0.078619	0.107506	0.01618	0.048557	0.05054	0.579667	1.226843	0.19806	0.072342
A	TOG_RUNE	0.18061	0.450578	0.215444	0.274137	0.132355	0.07681	0.022441	2.47E-05	0.098459	0.030639	3.993364	0.029335	0.108825
A	TOG_STRE	0.185701	0.366906	0.261468	0.320876	0.075097	0.040969	0.023398	1.18E-07	0.095489	0.056756	1.422483	0.016175	0.082529
A	N2O_IDLEX	0	0	0	0	0.00072	0.001836	0.020149	0.095305	0.015277	0	0	0.022249	0
A	N2O_RUNE	0.003136	0.005384	0.004231	0.005197	0.040603	0.073387	0.117992	0.198257	0.15157	0.094502	0.03893	0.116159	0.079859
A	N2O_STRE	0.025112	0.032696	0.031592	0.032889	0.022692	0.014051	0.002902	1.55E-08	0.01192	0.016678	0.007176	0.003173	0.03244

FleetMixLa LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH	
Apartment	0.534132	0.029187	0.213277	0.128565	0.033166	0.0091	0.022146	0.022521	0.001399	0.001126	0.003517	0.001109	0.000757
General Of	0.534132	0.029187	0.213277	0.128565	0.033166	0.0091	0.022146	0.022521	0.001399	0.001126	0.003517	0.001109	0.000757
Parking Lot	0.534132	0.029187	0.213277	0.128565	0.033166	0.0091	0.022146	0.022521	0.001399	0.001126	0.003517	0.001109	0.000757
Unrefrigerat	0.534132	0.029187	0.213277	0.128565	0.033166	0.0091	0.022146	0.022521	0.001399	0.001126	0.003517	0.001109	0.000757

Attachment 4: Project Construction Emissions and Health Risk Calculations

3111 Santa Rosa Ave, Santa Rosa, CA

DPM Emissions and Modeling Emission Rates - Unmitigated

Construction Year	Activity	DPM (ton/year)	Area Source	DPM Emissions			Modeled Area (m ²)	DPM Emission Rate (g/s/m ²)
				(lb/yr)	(lb/hr)	(g/s)		
2022 & 2023	Construction	0.1020	CON_DPM	204.1	0.06212	7.83E-03	17,377	4.50E-07
Total		0.1020		204.1	0.0621	0.0078		

Construction Hours

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

days/yr = 365

hours/year = 3285

3111 Santa Rosa Ave, Santa Rosa, CA

PM2.5 Fugitive Dust Emissions for Modeling - Unmitigated

Construction Year	Activity	Area Source	Area (ton/year)	PM2.5 Emissions			Modeled Area (m ²)	PM2.5 Emission Rate g/s/m ²
				(lb/yr)	(lb/hr)	(g/s)		
2022 & 2023	Construction	CON_FUG	0.0404	80.9	0.02461	3.10E-03	17,377	1.78E-07
Total			0.0404	80.9	0.0246	0.0031		

Construction Hours

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

days/yr = 365

hours/year = 3285

**3111 Santa Rosa Ave, Santa Rosa, CA
Construction Health Impact Summary**

Maximum Impacts at MEI Location - Without Mitigation

Emissions Year	Maximum Concentrations		Cancer Risk (per million)		Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu\text{g}/\text{m}^3$)
	Exhaust PM10/DPM ($\mu\text{g}/\text{m}^3$)	Fugitive PM2.5 ($\mu\text{g}/\text{m}^3$)	Infant/Child	Adult		
	2022 - 2023	0.0414	0.0170	7.36	0.12	0.01
Total	-	-	7.36	0.12	-	-
Maximum	0.0414	0.0170	-	-	0.01	0.06

**3111 Santa Rosa Ave, Santa Rosa, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 7.6 meter receptor height**

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

Where: CPF = Cancer potency factor (mg/kg-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 (µg/m³)
 DBR = daily breathing rate (L/kg body weight-day)
 A = Inhalation absorption factor
 EF = Exposure frequency (days/year)
 10⁻⁶ = Conversion factor

Values

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

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information			Infant/Child Cancer Risk (per million)	Adult - Exposure Information			Adult Cancer Risk (per million)	Maximum				
			DPM Conc (ug/m3)		Age Sensitivity Factor		Modeled		Age Sensitivity Factor		DPM Conc (ug/m3)	Sensitivity Factor	DPM Conc (ug/m3)	Sensitivity Factor	Total PM2.5
			Year	Annual			Year	Annual							
0	0.25	-0.25 - 0*	2022 - 2023	0.0333	10	0.45	2022 - 2023	0.0333	-	-	-	-	-	-	
1	1	0 - 1	2022 - 2023	0.0333	10	5.48	2022 - 2023	0.0333	1	0.10	0.007	0.014	0.05		
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						5.93					0.10				

* Third trimester of pregnancy

**3111 Santa Rosa Ave, Santa Rosa, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 4.5 meter receptor height**

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

Where: CPF = Cancer potency factor (mg/kg-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 (µg/m³)
 DBR = daily breathing rate (L/kg body weight-day)
 A = Inhalation absorption factor
 EF = Exposure frequency (days/year)
 10⁻⁶ = Conversion factor

Values

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

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information			Infant/Child Cancer Risk (per million)	Adult - Exposure Information			Adult Cancer Risk (per million)	Maximum			
			DPM Conc (ug/m3)		Age Sensitivity Factor		Modeled		Age Sensitivity Factor		DPM Conc (ug/m3)	Fugitive	Total	
			Year	Annual			Year	Annual						Hazard Index
0	0.25	-0.25 - 0*	2022 - 2023	0.0377	10	0.51	2022 - 2023	0.0377	-	-	-	-	-	-
1	1	0 - 1	2022 - 2023	0.0377	10	6.19	2022 - 2023	0.0377	1	0.11	0.008	0.016	0.05	
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						6.70				0.11				

* Third trimester of pregnancy

**3111 Santa Rosa Ave, Santa Rosa, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 1.5 meter receptor height**

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

Where: CPF = Cancer potency factor (mg/kg-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 (µg/m³)
 DBR = daily breathing rate (L/kg body weight-day)
 A = Inhalation absorption factor
 EF = Exposure frequency (days/year)
 10⁻⁶ = Conversion factor

Values

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

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information			Infant/Child Cancer Risk (per million)	Adult - Exposure Information			Adult Cancer Risk (per million)	Maximum		
			DPM Conc (ug/m3)		Age Sensitivity Factor		Modeled		Age Sensitivity Factor		DPM Conc (ug/m3)	Fugitive	Total
			Year	Annual			Year	Annual					
0	0.25	-0.25 - 0*	2022 - 2023	0.0414	10	0.56	2022 - 2023	0.0414	-	-			
1	1	0 - 1	2022 - 2023	0.0414	10	6.80	2022 - 2023	0.0414	1	0.12	0.01	0.017	0.06
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						7.36				0.12			

* Third trimester of pregnancy

Attachment 5: Community Risk Modeling Information and Calculations

CT-EMFAC2017 Emissions Factors for Highway 101

File Name: Sonoma (SF) - 2024 - Annual.EF
CT-EMFAC2017 Version: 1.0.2.27401
Run Date: 7/19/2021 3:34:18 PM
Area: Sonoma (SF)
Analysis Year: 2024
Season: Annual

```
=====
```

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category	Gas VMT Fraction Within Category
Truck 1	0.031	0.581	0.419
Truck 2	0.020	0.945	0.039
Non-Truck	0.949	0.017	0.959

```
=====
```

```
=====
```

Road Type:	Freeway		
Silt Loading Factor:	CARB	0.015 g/m2	
Precipitation Correction:	CARB	P = 69 days	N = 365 days

```
=====
```

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

Pollutant Name	55 mph	65 mph
PM2.5	0.001661	0.002085
TOG	0.028342	0.033812
Diesel PM	0.000793	0.000973

```
=====
```

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

Pollutant Name	Emission Factor
TOG	1.667356

```
=====
```

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

Pollutant Name	Emission Factor
PM2.5	0.002089

```
=====
```

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

Pollutant Name	Emission Factor
PM2.5	0.017517

```
=====
```

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

Pollutant Name	Emission Factor
PM2.5	0.007520

```
=====
```

=====END=====

CT-EMFAC2017 Emissions Factors for Santa Rosa Avenue

File Name: Sonoma (SF) - 2024 - Annual.EF
 CT-EMFAC2017 Version: 1.0.2.27401
 Run Date: 7/19/2021 3:35:01 PM
 Area: Sonoma (SF)
 Analysis Year: 2024
 Season: Annual

=====

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category	Gas VMT Fraction Within Category
Truck 1	0.020	0.581	0.419
Truck 2	0.023	0.945	0.039
Non-Truck	0.957	0.017	0.959

=====

Road Type: Major/Collector
 Silt Loading Factor: CARB 0.032 g/m2
 Precipitation Correction: CARB P = 69 days N = 365 days

=====

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

Pollutant Name	40 mph
PM2.5	0.001527
TOG	0.030603
Diesel PM	0.000547

=====

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

Pollutant Name	Emission Factor
TOG	1.627244

=====

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

Pollutant Name	Emission Factor
PM2.5	0.002093

=====

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

Pollutant Name	Emission Factor
PM2.5	0.017410

=====

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

Pollutant Name	Emission Factor
PM2.5	0.015055

=====END=====

Roadway Traffic Emissions and Health Risk Calculations

3111 Santa Rosa Ave, Santa Rosa, CA - Off-Site Residential
 Cumulative Operation - Highway 101
 DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
 Year = 2024

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
DPM_NB_101	Highway 101 Northbound	NB	3	695.1	0.43	17.0	55.7	3.4	55	80,325
DPM_SB_101	Highway 101 Southbound	SB	3	691.1	0.43	17.0	55.7	3.4	55	80,325
									Total	160,650

Emission Factors

Speed Category	1	2	3	4
Travel Speed (mph)	55	65		
Emissions per Vehicle (g/VMT)	0.00079	0.000973		

Emission Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and DPM Emissions - DPM_NB_101

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.86%	1495	1.74E-04	9	5.39%	4326	4.12E-04	17	6.48%	5206	4.95E-04
2	1.58%	1270	1.48E-04	10	5.07%	4075	3.88E-04	18	6.27%	5035	4.79E-04
3	1.52%	1218	1.42E-04	11	5.33%	4280	4.07E-04	19	5.34%	4290	5.01E-04
4	1.50%	1208	1.41E-04	12	5.60%	4501	4.28E-04	20	4.29%	3449	4.03E-04
5	1.72%	1382	1.61E-04	13	5.79%	4655	4.43E-04	21	3.74%	3004	3.51E-04
6	2.48%	1995	2.33E-04	14	5.89%	4734	4.50E-04	22	3.24%	2602	3.04E-04
7	3.86%	3098	2.95E-04	15	6.09%	4895	4.66E-04	23	2.73%	2195	2.56E-04
8	5.35%	4298	4.09E-04	16	6.63%	5322	5.06E-04	24	2.23%	1793	2.09E-04
Total										80,325	

2024 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_SB_101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.69%	1356	1.57E-04	9	5.66%	4545	4.30E-04	17	6.33%	5084	4.81E-04
2	1.53%	1230	1.43E-04	10	5.13%	4117	3.89E-04	18	6.21%	4990	4.72E-04
3	1.52%	1221	1.42E-04	11	5.27%	4236	4.01E-04	19	5.07%	4071	4.73E-04
4	1.74%	1402	1.63E-04	12	5.47%	4391	4.15E-04	20	4.11%	3299	3.83E-04
5	2.36%	1893	2.20E-04	13	5.62%	4511	4.27E-04	21	3.53%	2839	3.30E-04
6	3.39%	2722	3.16E-04	14	5.64%	4528	4.28E-04	22	3.07%	2463	2.86E-04
7	4.34%	3483	3.29E-04	15	5.72%	4595	4.35E-04	23	2.53%	2036	2.36E-04
8	5.77%	4632	4.38E-04	16	6.26%	5030	4.76E-04	24	2.05%	1649	1.91E-04
Total										80,325	

3111 Santa Rosa Ave, Santa Rosa, CA - Off-Site Residential
 Cumulative Operation - Highway 101
 PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
 Year = 2024

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
PM2.5_NB_101	Highway 101 Northbound	NB	3	695.1	0.43	17.0	56	1.3	55	80,325
PM2.5_SB_101	Highway 101 Southbound	SB	3	691.1	0.43	17.0	56	1.3	55	80,325
									Total	160,650

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	55	65		
Emissions per Vehicle (g/VMT)	0.001661	0.00209		

Emission Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and PM2.5 Emissions - PM2.5_NB_101

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.86%	1495	3.74E-04	9	5.39%	4326	8.62E-04	17	6.48%	5206	1.04E-03
2	1.58%	1270	3.18E-04	10	5.07%	4075	8.12E-04	18	6.27%	5035	1.00E-03
3	1.52%	1218	3.05E-04	11	5.33%	4280	8.53E-04	19	5.34%	4290	1.07E-03
4	1.50%	1208	3.02E-04	12	5.60%	4501	8.97E-04	20	4.29%	3449	8.63E-04
5	1.72%	1382	3.46E-04	13	5.79%	4655	9.28E-04	21	3.74%	3004	7.51E-04
6	2.48%	1995	4.99E-04	14	5.89%	4734	9.43E-04	22	3.24%	2602	6.51E-04
7	3.86%	3098	6.17E-04	15	6.09%	4895	9.76E-04	23	2.73%	2195	5.49E-04
8	5.35%	4298	8.56E-04	16	6.63%	5322	1.06E-03	24	2.23%	1793	4.48E-04
Total										80,325	

2024 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM2.5_SB_101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.69%	1356	3.37E-04	9	5.66%	4545	9.01E-04	17	6.33%	5084	1.01E-03
2	1.53%	1230	3.06E-04	10	5.13%	4117	8.16E-04	18	6.21%	4990	9.89E-04
3	1.52%	1221	3.04E-04	11	5.27%	4236	8.39E-04	19	5.07%	4071	1.01E-03
4	1.74%	1402	3.49E-04	12	5.47%	4391	8.70E-04	20	4.11%	3299	8.21E-04
5	2.36%	1893	4.71E-04	13	5.62%	4511	8.94E-04	21	3.53%	2839	7.06E-04
6	3.39%	2722	6.77E-04	14	5.64%	4528	8.97E-04	22	3.07%	2463	6.12E-04
7	4.34%	3483	6.90E-04	15	5.72%	4595	9.10E-04	23	2.53%	2036	5.06E-04
8	5.77%	4632	9.18E-04	16	6.26%	5030	9.97E-04	24	2.05%	1649	4.10E-04
Total										80,325	

3111 Santa Rosa Ave, Santa Rosa, CA - Off-Site Residential
 Cumulative Operation - Highway 101
 TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
 Year = 2024

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
TEXH_NB_101	Highway 101 Northbound	NB	3	695.1	0.43	17.0	56	1.3	55	80,325
TEXH_SB_101	Highway 101 Southbound	SB	3	691.1	0.43	17.0	56	1.3	55	80,325
									Total	160,650

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	55	65		
Emissions per Vehicle (g/VMT)	0.02834	0.03381		

Emission Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_NB_101

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.86%	1495	6.06E-03	9	5.39%	4326	1.47E-02	17	6.48%	5206	1.77E-02
2	1.58%	1270	5.15E-03	10	5.07%	4075	1.39E-02	18	6.27%	5035	1.71E-02
3	1.52%	1218	4.94E-03	11	5.33%	4280	1.46E-02	19	5.34%	4290	1.74E-02
4	1.50%	1208	4.90E-03	12	5.60%	4501	1.53E-02	20	4.29%	3449	1.40E-02
5	1.72%	1382	5.60E-03	13	5.79%	4655	1.58E-02	21	3.74%	3004	1.22E-02
6	2.48%	1995	8.09E-03	14	5.89%	4734	1.61E-02	22	3.24%	2602	1.06E-02
7	3.86%	3098	1.05E-02	15	6.09%	4895	1.66E-02	23	2.73%	2195	8.90E-03
8	5.35%	4298	1.46E-02	16	6.63%	5322	1.81E-02	24	2.23%	1793	7.27E-03
Total										80,325	

2024 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH_SB_101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.69%	1356	5.47E-03	9	5.66%	4545	1.54E-02	17	6.33%	5084	1.72E-02
2	1.53%	1230	4.96E-03	10	5.13%	4117	1.39E-02	18	6.21%	4990	1.69E-02
3	1.52%	1221	4.93E-03	11	5.27%	4236	1.43E-02	19	5.07%	4071	1.64E-02
4	1.74%	1402	5.65E-03	12	5.47%	4391	1.48E-02	20	4.11%	3299	1.33E-02
5	2.36%	1893	7.64E-03	13	5.62%	4511	1.53E-02	21	3.53%	2839	1.15E-02
6	3.39%	2722	1.10E-02	14	5.64%	4528	1.53E-02	22	3.07%	2463	9.93E-03
7	4.34%	3483	1.18E-02	15	5.72%	4595	1.55E-02	23	2.53%	2036	8.21E-03
8	5.77%	4632	1.57E-02	16	6.26%	5030	1.70E-02	24	2.05%	1649	6.65E-03
Total										80,325	

3111 Santa Rosa Ave, Santa Rosa, CA - Off-Site Residential
 Cumulative Operation - Highway 101
 TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
 Year = 2024

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
TEVAP_NB_101	Highway 101 Northbound	NB	3	695.1	0.43	17.0	56	1.3	55	80,325
TEVAP_SB_101	Highway 101 Southbound	SB	3	691.1	0.43	17.0	56	1.3	55	80,325
									Total	160,650

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	55	65		
Emissions per Vehicle per Hour (g/hour)	1.66736	1.66736		
Emissions per Vehicle per Mile (g/VMI)	0.03032	0.02565		

Emission Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_NB_101

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.86%	1495	4.60E-03	9	5.39%	4326	1.57E-02	17	6.48%	5206	1.89E-02
2	1.58%	1270	3.91E-03	10	5.07%	4075	1.48E-02	18	6.27%	5035	1.83E-02
3	1.52%	1218	3.75E-03	11	5.33%	4280	1.56E-02	19	5.34%	4290	1.32E-02
4	1.50%	1208	3.72E-03	12	5.60%	4501	1.64E-02	20	4.29%	3449	1.06E-02
5	1.72%	1382	4.25E-03	13	5.79%	4655	1.69E-02	21	3.74%	3004	9.25E-03
6	2.48%	1995	6.14E-03	14	5.89%	4734	1.72E-02	22	3.24%	2602	8.01E-03
7	3.86%	3098	1.13E-02	15	6.09%	4895	1.78E-02	23	2.73%	2195	6.76E-03
8	5.35%	4298	1.56E-02	16	6.63%	5322	1.94E-02	24	2.23%	1793	5.52E-03
Total										80,325	

2024 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP_SB_101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.69%	1356	4.15E-03	9	5.66%	4545	1.64E-02	17	6.33%	5084	1.84E-02
2	1.53%	1230	3.76E-03	10	5.13%	4117	1.49E-02	18	6.21%	4990	1.80E-02
3	1.52%	1221	3.74E-03	11	5.27%	4236	1.53E-02	19	5.07%	4071	1.25E-02
4	1.74%	1402	4.29E-03	12	5.47%	4391	1.59E-02	20	4.11%	3299	1.01E-02
5	2.36%	1893	5.79E-03	13	5.62%	4511	1.63E-02	21	3.53%	2839	8.69E-03
6	3.39%	2722	8.33E-03	14	5.64%	4528	1.64E-02	22	3.07%	2463	7.54E-03
7	4.34%	3483	1.26E-02	15	5.72%	4595	1.66E-02	23	2.53%	2036	6.23E-03
8	5.77%	4632	1.67E-02	16	6.26%	5030	1.82E-02	24	2.05%	1649	5.05E-03
Total										80,325	

3111 Santa Rosa Ave, Santa Rosa, CA - Off-Site Residential
Cumulative Operation - Highway 101
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2024

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
FUG_NB_101	Highway 101 Northbound	NB	3	695.1	0.43	17.0	56	1.3	55	80,325
FUG_SB_101	Highway 101 Southbound	SB	3	691.1	0.43	17.0	56	1.3	55	80,325
									Total	160,650

Emission Factors - Fugitive PM2.5

Speed Category Travel Speed (mph)	1 55	2 65	3	4
Tire Wear - Emissions per Vehicle (g/VMT)	0.00209	0.00209		
Brake Wear - Emissions per Vehicle (g/VMT)	0.01752	0.01752		
Road Dust - Emissions per Vehicle (g/VMT)	0.00752	0.00752		
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.02713	0.02713		

Emission Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_NB_101

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.86%	1495	4.86E-03	9	5.39%	4326	1.41E-02	17	6.48%	5206	1.69E-02
2	1.58%	1270	4.13E-03	10	5.07%	4075	1.33E-02	18	6.27%	5035	1.64E-02
3	1.52%	1218	3.96E-03	11	5.33%	4280	1.39E-02	19	5.34%	4290	1.40E-02
4	1.50%	1208	3.93E-03	12	5.60%	4501	1.46E-02	20	4.29%	3449	1.12E-02
5	1.72%	1382	4.50E-03	13	5.79%	4655	1.51E-02	21	3.74%	3004	9.78E-03
6	2.48%	1995	6.49E-03	14	5.89%	4734	1.54E-02	22	3.24%	2602	8.47E-03
7	3.86%	3098	1.01E-02	15	6.09%	4895	1.59E-02	23	2.73%	2195	7.14E-03
8	5.35%	4298	1.40E-02	16	6.63%	5322	1.73E-02	24	2.23%	1793	5.83E-03
Total										80,325	

2024 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG_SB_101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.69%	1356	4.39E-03	9	5.66%	4545	1.47E-02	17	6.33%	5084	1.65E-02
2	1.53%	1230	3.98E-03	10	5.13%	4117	1.33E-02	18	6.21%	4990	1.61E-02
3	1.52%	1221	3.95E-03	11	5.27%	4236	1.37E-02	19	5.07%	4071	1.32E-02
4	1.74%	1402	4.54E-03	12	5.47%	4391	1.42E-02	20	4.11%	3299	1.07E-02
5	2.36%	1893	6.13E-03	13	5.62%	4511	1.46E-02	21	3.53%	2839	9.19E-03
6	3.39%	2722	8.81E-03	14	5.64%	4528	1.47E-02	22	3.07%	2463	7.97E-03
7	4.34%	3483	1.13E-02	15	5.72%	4595	1.49E-02	23	2.53%	2036	6.59E-03
8	5.77%	4632	1.50E-02	16	6.26%	5030	1.63E-02	24	2.05%	1649	5.34E-03
Total										80,325	

3111 Santa Rosa Ave, Santa Rosa, CA - Off-Site Residential
Cumulative Operation - Santa Rosa Avenue
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2024

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
DPM_NB_SAN	Santa Rosa Avenue Northbound	NB	2	709.5	0.44	13.3	43.7	3.4	40	11,915
DPM_SB_SAN	Santa Rosa Avenue Southbound	SB	2	709.5	0.44	13.3	43.7	3.4	40	11,915
									Total	23,830

Emission Factors

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle (g/VMI)	0.00055			

Emission Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and DPM Emissions - DPM_NB_SAN

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	4.10%	488	3.27E-05	9	6.78%	808	5.41E-05	17	5.63%	671	4.49E-05
2	3.44%	410	2.75E-05	10	7.91%	942	6.31E-05	18	4.01%	478	3.20E-05
3	3.44%	410	2.75E-05	11	6.10%	727	4.87E-05	19	2.84%	339	2.27E-05
4	1.97%	234	1.57E-05	12	7.11%	847	5.67E-05	20	1.18%	141	9.46E-06
5	1.64%	195	1.31E-05	13	6.29%	749	5.02E-05	21	2.97%	354	2.37E-05
6	2.13%	254	1.70E-05	14	5.96%	710	4.75E-05	22	4.28%	510	3.42E-05
7	4.96%	590	3.96E-05	15	5.30%	632	4.23E-05	23	3.13%	373	2.50E-05
8	3.85%	458	3.07E-05	16	4.15%	495	3.32E-05	24	0.84%	100	6.69E-06
Total										11,915	

2024 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_SB_SAN

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	4.10%	488	3.27E-05	9	6.78%	808	5.41E-05	17	5.63%	671	4.49E-05
2	3.44%	410	2.75E-05	10	7.91%	942	6.31E-05	18	4.01%	478	3.20E-05
3	3.44%	410	2.75E-05	11	6.10%	727	4.87E-05	19	2.84%	339	2.27E-05
4	1.97%	234	1.57E-05	12	7.11%	847	5.67E-05	20	1.18%	141	9.46E-06
5	1.64%	195	1.31E-05	13	6.29%	749	5.02E-05	21	2.97%	354	2.37E-05
6	2.13%	254	1.70E-05	14	5.96%	710	4.75E-05	22	4.28%	510	3.42E-05
7	4.96%	590	3.96E-05	15	5.30%	632	4.23E-05	23	3.13%	373	2.50E-05
8	3.85%	458	3.07E-05	16	4.15%	495	3.32E-05	24	0.84%	100	6.69E-06
Total										11,915	

3111 Santa Rosa Ave, Santa Rosa, CA - Off-Site Residential
 Cumulative Operation - Santa Rosa Avenue
 PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
 Year = 2024

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
PM2.5 EB SAN	Santa Rosa Avenue Northbound	NB	2	709.5	0.44	13.3	44	1.3	40	11,915
PM2.5 WB SAN	Santa Rosa Avenue Southbound	SB	2	709.5	0.44	13.3	44	1.3	40	11,915
									Total	23,830

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle (g/VMT)	0.001527			

Emission Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and PM2.5 Emissions - PM2.5 EB SAN

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.17%	140	2.61E-05	9	7.18%	855	1.60E-04	17	7.48%	891	1.67E-04
2	0.47%	56	1.04E-05	10	4.47%	533	9.96E-05	18	8.16%	972	1.82E-04
3	0.53%	63	1.18E-05	11	4.71%	562	1.05E-04	19	5.64%	672	1.26E-04
4	0.24%	29	5.44E-06	12	5.92%	705	1.32E-04	20	4.23%	504	9.42E-05
5	0.51%	61	1.13E-05	13	6.13%	730	1.37E-04	21	3.21%	382	7.15E-05
6	0.92%	110	2.05E-05	14	6.04%	720	1.35E-04	22	3.28%	391	7.30E-05
7	3.71%	442	8.27E-05	15	6.97%	830	1.55E-04	23	2.45%	292	5.47E-05
8	7.62%	907	1.70E-04	16	7.12%	848	1.59E-04	24	1.85%	220	4.12E-05
Total										11,915	

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

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.17%	140	2.61E-05	9	7.18%	855	1.60E-04	17	7.48%	891	1.67E-04
2	0.47%	56	1.04E-05	10	4.47%	533	9.96E-05	18	8.16%	972	1.82E-04
3	0.53%	63	1.18E-05	11	4.71%	562	1.05E-04	19	5.64%	672	1.26E-04
4	0.24%	29	5.44E-06	12	5.92%	705	1.32E-04	20	4.23%	504	9.42E-05
5	0.51%	61	1.13E-05	13	6.13%	730	1.37E-04	21	3.21%	382	7.15E-05
6	0.92%	110	2.05E-05	14	6.04%	720	1.35E-04	22	3.28%	391	7.30E-05
7	3.71%	442	8.27E-05	15	6.97%	830	1.55E-04	23	2.45%	292	5.47E-05
8	7.62%	907	1.70E-04	16	7.12%	848	1.59E-04	24	1.85%	220	4.12E-05
Total										11,915	

3111 Santa Rosa Ave, Santa Rosa, CA - Off-Site Residential
Cumulative Operation - Santa Rosa Avenue
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = **2024**

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
TEXH_EB_SAN	Santa Rosa Avenue Northbound	NB	2	709.5	0.44	13.3	44	1.3	40	11,915
TEXH_WB_SAN	Santa Rosa Avenue Southbound	SB	2	709.5	0.44	13.3	44	1.3	40	11,915
									Total	23,830

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle (g/VMT)	0.03060			

Emission Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_EB_SAN

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.17%	140	5.23E-04	9	7.18%	855	3.20E-03	17	7.48%	891	3.34E-03
2	0.47%	56	2.09E-04	10	4.47%	533	2.00E-03	18	8.16%	972	3.64E-03
3	0.53%	63	2.37E-04	11	4.71%	562	2.11E-03	19	5.64%	672	2.52E-03
4	0.24%	29	1.09E-04	12	5.92%	705	2.64E-03	20	4.23%	504	1.89E-03
5	0.51%	61	2.27E-04	13	6.13%	730	2.74E-03	21	3.21%	382	1.43E-03
6	0.92%	110	4.11E-04	14	6.04%	720	2.70E-03	22	3.28%	391	1.46E-03
7	3.71%	442	1.66E-03	15	6.97%	830	3.11E-03	23	2.45%	292	1.10E-03
8	7.62%	907	3.40E-03	16	7.12%	848	3.18E-03	24	1.85%	220	8.25E-04
Total										11,915	

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

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.17%	140	5.23E-04	9	7.18%	855	3.20E-03	17	7.48%	891	3.34E-03
2	0.47%	56	2.09E-04	10	4.47%	533	2.00E-03	18	8.16%	972	3.64E-03
3	0.53%	63	2.37E-04	11	4.71%	562	2.11E-03	19	5.64%	672	2.52E-03
4	0.24%	29	1.09E-04	12	5.92%	705	2.64E-03	20	4.23%	504	1.89E-03
5	0.51%	61	2.27E-04	13	6.13%	730	2.74E-03	21	3.21%	382	1.43E-03
6	0.92%	110	4.11E-04	14	6.04%	720	2.70E-03	22	3.28%	391	1.46E-03
7	3.71%	442	1.66E-03	15	6.97%	830	3.11E-03	23	2.45%	292	1.10E-03
8	7.62%	907	3.40E-03	16	7.12%	848	3.18E-03	24	1.85%	220	8.25E-04
Total										11,915	

3111 Santa Rosa Ave, Santa Rosa, CA - Off-Site Residential
 Cumulative Operation - Santa Rosa Avenue
 TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
 Year = 2024

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
TEVAP_EB_SAN	Santa Rosa Avenue Northbound	NB	2	709.5	0.44	13.3	44	1.3	40	11,915
TEVAP_WB_SAN	Santa Rosa Avenue Southbound	SB	2	709.5	0.44	13.3	44	1.3	40	11,915
									Total	23,830

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle per Hour (g/hour)	1.62724			
Emissions per Vehicle per Mile (g/VMT)	0.04068			

Emission Factors from CT-EMFAC2017

2024 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_EB_SAN

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.17%	140	6.95E-04	9	7.18%	855	4.26E-03	17	7.48%	891	4.44E-03
2	0.47%	56	2.77E-04	10	4.47%	533	2.65E-03	18	8.16%	972	4.84E-03
3	0.53%	63	3.15E-04	11	4.71%	562	2.80E-03	19	5.64%	672	3.35E-03
4	0.24%	29	1.45E-04	12	5.92%	705	3.51E-03	20	4.23%	504	2.51E-03
5	0.51%	61	3.02E-04	13	6.13%	730	3.64E-03	21	3.21%	382	1.90E-03
6	0.92%	110	5.46E-04	14	6.04%	720	3.58E-03	22	3.28%	391	1.95E-03
7	3.71%	442	2.20E-03	15	6.97%	830	4.14E-03	23	2.45%	292	1.46E-03
8	7.62%	907	4.52E-03	16	7.12%	848	4.23E-03	24	1.85%	220	1.10E-03
										Total	11,915

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

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.17%	140	6.95E-04	9	7.18%	855	4.26E-03	17	7.48%	891	4.44E-03
2	0.47%	56	2.77E-04	10	4.47%	533	2.65E-03	18	8.16%	972	4.84E-03
3	0.53%	63	3.15E-04	11	4.71%	562	2.80E-03	19	5.64%	672	3.35E-03
4	0.24%	29	1.45E-04	12	5.92%	705	3.51E-03	20	4.23%	504	2.51E-03
5	0.51%	61	3.02E-04	13	6.13%	730	3.64E-03	21	3.21%	382	1.90E-03
6	0.92%	110	5.46E-04	14	6.04%	720	3.58E-03	22	3.28%	391	1.95E-03
7	3.71%	442	2.20E-03	15	6.97%	830	4.14E-03	23	2.45%	292	1.46E-03
8	7.62%	907	4.52E-03	16	7.12%	848	4.23E-03	24	1.85%	220	1.10E-03
										Total	11,915

3111 Santa Rosa Ave, Santa Rosa, CA - Off-Site Residential
Cumulative Operation - Santa Rosa Avenue
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2024

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
FUG_EB_SAN	Santa Rosa Avenue Northbound	NB	2	709.5	0.44	13.3	44	1.3	40	11,915
FUG_WB_SAN	Santa Rosa Avenue Southbound	SB	2	709.5	0.44	13.3	44	1.3	40	11,915
									Total	23,830

Emission Factors - Fugitive PM2.5

Speed Category Travel Speed (mph)	1 40	2	3	4
Tire Wear - Emissions per Vehicle (g/VMT)	0.00209			
Brake Wear - Emissions per Vehicle (g/VMT)	0.01741			
Road Dust - Emissions per Vehicle (g/VMT)	0.01506			
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.03456			

Emission Factors from CT-EMFAC2017

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

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.17%	140	5.91E-04	9	7.18%	855	3.62E-03	17	7.48%	891	3.77E-03
2	0.47%	56	2.36E-04	10	4.47%	533	2.25E-03	18	8.16%	972	4.11E-03
3	0.53%	63	2.67E-04	11	4.71%	562	2.38E-03	19	5.64%	672	2.84E-03
4	0.24%	29	1.23E-04	12	5.92%	705	2.99E-03	20	4.23%	504	2.13E-03
5	0.51%	61	2.57E-04	13	6.13%	730	3.09E-03	21	3.21%	382	1.62E-03
6	0.92%	110	4.64E-04	14	6.04%	720	3.05E-03	22	3.28%	391	1.65E-03
7	3.71%	442	1.87E-03	15	6.97%	830	3.51E-03	23	2.45%	292	1.24E-03
8	7.62%	907	3.84E-03	16	7.12%	848	3.59E-03	24	1.85%	220	9.32E-04
Total										11,915	

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

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.17%	140	5.91E-04	9	7.18%	855	3.62E-03	17	7.48%	891	3.77E-03
2	0.47%	56	2.36E-04	10	4.47%	533	2.25E-03	18	8.16%	972	4.11E-03
3	0.53%	63	2.67E-04	11	4.71%	562	2.38E-03	19	5.64%	672	2.84E-03
4	0.24%	29	1.23E-04	12	5.92%	705	2.99E-03	20	4.23%	504	2.13E-03
5	0.51%	61	2.57E-04	13	6.13%	730	3.09E-03	21	3.21%	382	1.62E-03
6	0.92%	110	4.64E-04	14	6.04%	720	3.05E-03	22	3.28%	391	1.65E-03
7	3.71%	442	1.87E-03	15	6.97%	830	3.51E-03	23	2.45%	292	1.24E-03
8	7.62%	907	3.84E-03	16	7.12%	848	3.59E-03	24	1.85%	220	9.32E-04
Total										11,915	

**3111 Santa Rosa Ave, Santa Rosa, CA - Highway 101 Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
at Construction Residential MEI Receptor (1.5 meter receptor height)**

Emission Year 2022
Receptor Information Construction Residential MEI receptor
Number of Receptors 1
Receptor Height 1.5 meters
Receptor Distances At Construction Residential MEI location

Meteorological Conditions
BAAQMD Sonoma Co. Airport Met Data 2013-2017
Land Use Classification Urban
Wind Speed Variable
Wind Direction Variable

Construction Residential MEI Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0101	0.2734	0.2102

Construction Residential MEI PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)*		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.2082	0.1902	0.0180

**3111 Santa Rosa Ave, Santa Rosa, CA - Highway 101 Traffic Cancer Risk
Impacts at Construction Residential MEI - 1.5 meter receptor height
30 Year Residential Exposure**

Cancer Risk Calculation Method

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

Where: CPF = Cancer potency factor (mg/kg-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 10⁶

Where: C_{air} = concentration in air (µg/m³)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10⁶ = Conversion factor

Cancer Potency Factors (mg/kg-day)⁻¹

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Maximum - Exposure Information				Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
1	1	0 - 1	2022	10	0.0101	0.2734	0.2102	1.657	0.256	0.0116	1.93
2	1	1 - 2	2023	10	0.0101	0.2734	0.2102	1.657	0.256	0.0116	1.93
3	1	2 - 3	2024	3	0.0101	0.2734	0.2102	0.261	0.040	0.0018	0.30
4	1	3 - 4	2025	3	0.0101	0.2734	0.2102	0.261	0.040	0.0018	0.30
5	1	4 - 5	2026	3	0.0101	0.2734	0.2102	0.261	0.040	0.0018	0.30
6	1	5 - 6	2027	3	0.0101	0.2734	0.2102	0.261	0.040	0.0018	0.30
7	1	6 - 7	2028	3	0.0101	0.2734	0.2102	0.261	0.040	0.0018	0.30
8	1	7 - 8	2029	3	0.0101	0.2734	0.2102	0.261	0.040	0.0018	0.30
9	1	8 - 9	2030	3	0.0101	0.2734	0.2102	0.261	0.040	0.0018	0.30
10	1	9 - 10	2031	3	0.0101	0.2734	0.2102	0.261	0.040	0.0018	0.30
11	1	10 - 11	2032	3	0.0101	0.2734	0.2102	0.261	0.040	0.0018	0.30
12	1	11 - 12	2033	3	0.0101	0.2734	0.2102	0.261	0.040	0.0018	0.30
13	1	12 - 13	2034	3	0.0101	0.2734	0.2102	0.261	0.040	0.0018	0.30
14	1	13 - 14	2035	3	0.0101	0.2734	0.2102	0.261	0.040	0.0018	0.30
15	1	14 - 15	2036	3	0.0101	0.2734	0.2102	0.261	0.040	0.0018	0.30
16	1	15 - 16	2037	3	0.0101	0.2734	0.2102	0.261	0.040	0.0018	0.30
17	1	16-17	2038	1	0.0101	0.2734	0.2102	0.029	0.004	0.0002	0.03
18	1	17-18	2039	1	0.0101	0.2734	0.2102	0.029	0.004	0.0002	0.03
19	1	18-19	2040	1	0.0101	0.2734	0.2102	0.029	0.004	0.0002	0.03
20	1	19-20	2041	1	0.0101	0.2734	0.2102	0.029	0.004	0.0002	0.03
21	1	20-21	2042	1	0.0101	0.2734	0.2102	0.029	0.004	0.0002	0.03
22	1	21-22	2043	1	0.0101	0.2734	0.2102	0.029	0.004	0.0002	0.03
23	1	22-23	2044	1	0.0101	0.2734	0.2102	0.029	0.004	0.0002	0.03
24	1	23-24	2045	1	0.0101	0.2734	0.2102	0.029	0.004	0.0002	0.03
25	1	24-25	2046	1	0.0101	0.2734	0.2102	0.029	0.004	0.0002	0.03
26	1	25-26	2047	1	0.0101	0.2734	0.2102	0.029	0.004	0.0002	0.03
27	1	26-27	2048	1	0.0101	0.2734	0.2102	0.029	0.004	0.0002	0.03
28	1	27-28	2049	1	0.0101	0.2734	0.2102	0.029	0.004	0.0002	0.03
29	1	28-29	2050	1	0.0101	0.2734	0.2102	0.029	0.004	0.0002	0.03
30	1	29-30	2051	1	0.0101	0.2734	0.2102	0.029	0.004	0.0002	0.03
Total Increased Cancer Risk								7.51	1.162	0.053	8.72

* Third trimester of pregnancy

Maximum
Hazard Index 0.00202
Fugitive PM2.5 0.19
Total PM2.5 0.21

**3111 Santa Rosa Ave, Santa Rosa, CA - Highway 101 Traffic - TACs & PM2.5
 AERMOD Risk Modeling Parameters and Maximum Concentrations - Without MERV13 Filtration
 On-Site Receptors (1.5 meter receptor height)**

Emission Year 2024
Receptor Information Maximum On-Site Receptor
 Number of Receptors 84
 Receptor Height 1.5 meter
 Receptor Distances 7 meter grid spacing

Meteorological Conditions

BAAQMD Sonoma Co. Airport Met Data 2013-2017
 Land Use Classification Urban
 Wind Speed Variable
 Wind Direction Variable

Construction Residential MEI Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0190	0.7040	0.6202

Construction Residential MEI PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)*		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.6493	0.6067	0.0426

**3111 Santa Rosa Ave, Santa Rosa, CA - Highway 101 Traffic - TACs & PM2.5
 AERMOD Risk Modeling Parameters and Maximum Concentrations - Without MERV13 Filtration
 On-Site Receptors (4.5 meter receptor height)**

Emission Year 2024
Receptor Information Maximum On-Site Receptor
 Number of Receptors 84
 Receptor Height 4.5 meter
 Receptor Distances 7 meter grid spacing

Meteorological Conditions
 BAAQMD Sonoma Co. Airport Met Data 2013-2017
 Land Use Classification Urban
 Wind Speed Variable
 Wind Direction Variable

Construction School MEI Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0180	0.6572	0.5787

Construction School MEI PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)*		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.6060	0.5662	0.0397

**3111 Santa Rosa Ave, Santa Rosa, CA - Highway 101 Traffic - TACs & PM2.5
 AERMOD Risk Modeling Parameters and Maximum Concentrations - Without MERV13 Filtration
 On-Site Receptors (7.6 meter receptor height)**

Emission Year 2024
Receptor Information Maximum On-Site Receptor
 Number of Receptors 84
 Receptor Height 7.6 meter
 Receptor Distances 7 meter grid spacing

Meteorological Conditions
 BAAQMD Sonoma Co. Airport Met Data 2013-2017
 Land Use Classification Urban
 Wind Speed Variable
 Wind Direction Variable

Construction School MEI Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0150	0.5533	0.4899

Construction School MEI PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)*		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.5115	0.4781	0.0334

**3111 Santa Rosa Ave, Santa Rosa, CA - Highway 101 Traffic - TACs & PM2.5
 AERMOD Risk Modeling Parameters and Maximum Concentrations - With MERV13 Filtration
 On-Site Receptors (1.5 meter receptor height)**

Emission Year 2024
Receptor Information Maximum On-Site Receptor
 Number of Receptors 84
 Receptor Height 1.5 meter
 Receptor Distances 7 meter grid spacing

Meteorological Conditions

BAAQMD Sonoma Co. Airport Met Data 2013-2017
 Land Use Classification Urban
 Wind Speed Variable
 Wind Direction Variable

Construction Residential MEI Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0057	0.7040	0.6202

Construction Residential MEI PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)*		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.1948	0.1820	0.0128

**3111 Santa Rosa Ave, Santa Rosa, CA - Highway 101 Traffic - TACs & PM2.5
 AERMOD Risk Modeling Parameters and Maximum Concentrations - With MERV13 Filtration
 On-Site Receptors (4.5 meter receptor height)**

Emission Year 2024
Receptor Information Maximum On-Site Receptor
 Number of Receptors 84
 Receptor Height 4.5 meter
 Receptor Distances 7 meter grid spacing

Meteorological Conditions
 BAAQMD Sonoma Co. Airport Met Data 2013-2017
 Land Use Classification Urban
 Wind Speed Variable
 Wind Direction Variable

Construction School MEI Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0054	0.6572	0.5787

Construction School MEI PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)*		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.1818	0.1699	0.0119

**3111 Santa Rosa Ave, Santa Rosa, CA - Highway 101 Traffic - TACs & PM2.5
 AERMOD Risk Modeling Parameters and Maximum Concentrations - With MERV13 Filtration
 On-Site Receptors (7.6 meter receptor height)**

Emission Year 2024
Receptor Information Maximum On-Site Receptor
 Number of Receptors 84
 Receptor Height 7.6 meter
 Receptor Distances 7 meter grid spacing

Meteorological Conditions

BAAQMD Sonoma Co. Airport Met Data 2013-2017
 Land Use Classification Urban
 Wind Speed Variable
 Wind Direction Variable

Construction School MEI Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0045	0.5533	0.4899

Construction School MEI PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)*		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.1534	0.1434	0.0100

**3111 Santa Rosa Ave, Santa Rosa, CA - Highway 101 Traffic Cancer Risk
Impacts at On-Site 1st Floor Receptors - 1.5 meter receptor height
30 Year Residential Exposure - Without MERV13 Filtration**

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-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 10⁶

Where: C_{air} = concentration in air (µg/m³)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10⁶ = Conversion factor

Cancer Potency Factors (mg/kg-day)⁻¹

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Maximum - Exposure Information				Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
	0	0.25	-0.25 - 0*	2024	10	0.0190	0.7040	0.6202	0.259	0.055	
1	1	0 - 1	2024	10	0.0190	0.7040	0.6202	3.126	0.660	0.0343	3.82
2	1	1 - 2	2025	10	0.0190	0.7040	0.6202	3.126	0.660	0.0343	3.82
3	1	2 - 3	2026	3	0.0190	0.7040	0.6202	0.492	0.104	0.0054	0.60
4	1	3 - 4	2027	3	0.0190	0.7040	0.6202	0.492	0.104	0.0054	0.60
5	1	4 - 5	2028	3	0.0190	0.7040	0.6202	0.492	0.104	0.0054	0.60
6	1	5 - 6	2029	3	0.0190	0.7040	0.6202	0.492	0.104	0.0054	0.60
7	1	6 - 7	2030	3	0.0190	0.7040	0.6202	0.492	0.104	0.0054	0.60
8	1	7 - 8	2031	3	0.0190	0.7040	0.6202	0.492	0.104	0.0054	0.60
9	1	8 - 9	2032	3	0.0190	0.7040	0.6202	0.492	0.104	0.0054	0.60
10	1	9 - 10	2033	3	0.0190	0.7040	0.6202	0.492	0.104	0.0054	0.60
11	1	10 - 11	2034	3	0.0190	0.7040	0.6202	0.492	0.104	0.0054	0.60
12	1	11 - 12	2035	3	0.0190	0.7040	0.6202	0.492	0.104	0.0054	0.60
13	1	12 - 13	2036	3	0.0190	0.7040	0.6202	0.492	0.104	0.0054	0.60
14	1	13 - 14	2037	3	0.0190	0.7040	0.6202	0.492	0.104	0.0054	0.60
15	1	14 - 15	2038	3	0.0190	0.7040	0.6202	0.492	0.104	0.0054	0.60
16	1	15 - 16	2039	3	0.0190	0.7040	0.6202	0.492	0.104	0.0054	0.60
17	1	16-17	2040	1	0.0190	0.7040	0.6202	0.055	0.012	0.0006	0.07
18	1	17-18	2041	1	0.0190	0.7040	0.6202	0.055	0.012	0.0006	0.07
19	1	18-19	2042	1	0.0190	0.7040	0.6202	0.055	0.012	0.0006	0.07
20	1	19-20	2043	1	0.0190	0.7040	0.6202	0.055	0.012	0.0006	0.07
21	1	20-21	2044	1	0.0190	0.7040	0.6202	0.055	0.012	0.0006	0.07
22	1	21-22	2045	1	0.0190	0.7040	0.6202	0.055	0.012	0.0006	0.07
23	1	22-23	2046	1	0.0190	0.7040	0.6202	0.055	0.012	0.0006	0.07
24	1	23-24	2047	1	0.0190	0.7040	0.6202	0.055	0.012	0.0006	0.07
25	1	24-25	2048	1	0.0190	0.7040	0.6202	0.055	0.012	0.0006	0.07
26	1	25-26	2049	1	0.0190	0.7040	0.6202	0.055	0.012	0.0006	0.07
27	1	26-27	2050	1	0.0190	0.7040	0.6202	0.055	0.012	0.0006	0.07
28	1	27-28	2051	1	0.0190	0.7040	0.6202	0.055	0.012	0.0006	0.07
29	1	28-29	2052	1	0.0190	0.7040	0.6202	0.055	0.012	0.0006	0.07
30	1	29-30	2053	1	0.0190	0.7040	0.6202	0.055	0.012	0.0006	0.07
Total Increased Cancer Risk								14.16	2.991	0.155	17.31

* Third trimester of pregnancy

Maximum		
Hazard Index	Fugitive PM2.5	Total PM2.5
0.00381	0.61	0.65

**3111 Santa Rosa Ave, Santa Rosa, CA - Highway 101 Traffic Cancer Risk
Impacts at On-Site 2nd Floor Receptors - 4.5 meter receptor height
30 Year Residential Exposure - Without MERV13 Filtration**

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-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 10⁶

Where: C_{air} = concentration in air (µg/m³)

DBR = daily breathing rate (L/kg body weight-day)

A = Inhalation absorption factor

EF = Exposure frequency (days/year)

10⁶ = Conversion factor

Cancer Potency Factors (mg/kg-day)⁻¹

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Maximum - Exposure Information				Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
1	1	0 - 1	2024	10	0.0180	0.6572	0.5787	2.952	0.616	0.0320	3.60
2	1	1 - 2	2025	10	0.0180	0.6572	0.5787	2.952	0.616	0.0320	3.60
3	1	2 - 3	2024	3	0.0180	0.6572	0.5787	0.465	0.097	0.0050	0.57
4	1	3 - 4	2025	3	0.0180	0.6572	0.5787	0.465	0.097	0.0050	0.57
5	1	4 - 5	2026	3	0.0180	0.6572	0.5787	0.465	0.097	0.0050	0.57
6	1	5 - 6	2027	3	0.0180	0.6572	0.5787	0.465	0.097	0.0050	0.57
7	1	6 - 7	2028	3	0.0180	0.6572	0.5787	0.465	0.097	0.0050	0.57
8	1	7 - 8	2029	3	0.0180	0.6572	0.5787	0.465	0.097	0.0050	0.57
9	1	8 - 9	2030	3	0.0180	0.6572	0.5787	0.465	0.097	0.0050	0.57
10	1	9 - 10	2031	3	0.0180	0.6572	0.5787	0.465	0.097	0.0050	0.57
11	1	10 - 11	2032	3	0.0180	0.6572	0.5787	0.465	0.097	0.0050	0.57
12	1	11 - 12	2033	3	0.0180	0.6572	0.5787	0.465	0.097	0.0050	0.57
13	1	12 - 13	2034	3	0.0180	0.6572	0.5787	0.465	0.097	0.0050	0.57
14	1	13 - 14	2035	3	0.0180	0.6572	0.5787	0.465	0.097	0.0050	0.57
15	1	14 - 15	2036	3	0.0180	0.6572	0.5787	0.465	0.097	0.0050	0.57
16	1	15 - 16	2037	3	0.0180	0.6572	0.5787	0.465	0.097	0.0050	0.57
17	1	16-17	2038	1	0.0180	0.6572	0.5787	0.052	0.011	0.0006	0.06
18	1	17-18	2039	1	0.0180	0.6572	0.5787	0.052	0.011	0.0006	0.06
19	1	18-19	2040	1	0.0180	0.6572	0.5787	0.052	0.011	0.0006	0.06
20	1	19-20	2041	1	0.0180	0.6572	0.5787	0.052	0.011	0.0006	0.06
21	1	20-21	2042	1	0.0180	0.6572	0.5787	0.052	0.011	0.0006	0.06
22	1	21-22	2043	1	0.0180	0.6572	0.5787	0.052	0.011	0.0006	0.06
23	1	22-23	2044	1	0.0180	0.6572	0.5787	0.052	0.011	0.0006	0.06
24	1	23-24	2045	1	0.0180	0.6572	0.5787	0.052	0.011	0.0006	0.06
25	1	24-25	2046	1	0.0180	0.6572	0.5787	0.052	0.011	0.0006	0.06
26	1	25-26	2047	1	0.0180	0.6572	0.5787	0.052	0.011	0.0006	0.06
27	1	26-27	2048	1	0.0180	0.6572	0.5787	0.052	0.011	0.0006	0.06
28	1	27-28	2049	1	0.0180	0.6572	0.5787	0.052	0.011	0.0006	0.06
29	1	28-29	2050	1	0.0180	0.6572	0.5787	0.052	0.011	0.0006	0.06
30	1	29-30	2051	1	0.0180	0.6572	0.5787	0.052	0.011	0.0006	0.06
Total Increased Cancer Risk								13.37	2.793	0.145	16.31

* Third trimester of pregnancy

Maximum
Hazard Index 0.00359
Fugitive PM2.5 0.57
Total PM2.5 0.61

**3111 Santa Rosa Ave, Santa Rosa, CA - Highway 101 Traffic Cancer Risk
Impacts at On-Site 2nd Floor Receptors - 7.6 meter receptor height
30 Year Residential Exposure - Without MERV13 Filtration**

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-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 10⁶

Where: C_{air} = concentration in air (µg/m³)

DBR = daily breathing rate (L/kg body weight-day)

A = Inhalation absorption factor

EF = Exposure frequency (days/year)

10⁶ = Conversion factor

Cancer Potency Factors (mg/kg-day)⁻¹

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Maximum - Exposure Information				Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
1	1	0 - 1	2024	10	0.0150	0.5533	0.4899	2.469	0.519	0.0271	3.01
2	1	1 - 2	2025	10	0.0150	0.5533	0.4899	2.469	0.519	0.0271	3.01
3	1	2 - 3	2026	3	0.0150	0.5533	0.4899	0.389	0.082	0.0043	0.47
4	1	3 - 4	2027	3	0.0150	0.5533	0.4899	0.389	0.082	0.0043	0.47
5	1	4 - 5	2028	3	0.0150	0.5533	0.4899	0.389	0.082	0.0043	0.47
6	1	5 - 6	2029	3	0.0150	0.5533	0.4899	0.389	0.082	0.0043	0.47
7	1	6 - 7	2030	3	0.0150	0.5533	0.4899	0.389	0.082	0.0043	0.47
8	1	7 - 8	2031	3	0.0150	0.5533	0.4899	0.389	0.082	0.0043	0.47
9	1	8 - 9	2032	3	0.0150	0.5533	0.4899	0.389	0.082	0.0043	0.47
10	1	9 - 10	2033	3	0.0150	0.5533	0.4899	0.389	0.082	0.0043	0.47
11	1	10 - 11	2034	3	0.0150	0.5533	0.4899	0.389	0.082	0.0043	0.47
12	1	11 - 12	2035	3	0.0150	0.5533	0.4899	0.389	0.082	0.0043	0.47
13	1	12 - 13	2036	3	0.0150	0.5533	0.4899	0.389	0.082	0.0043	0.47
14	1	13 - 14	2037	3	0.0150	0.5533	0.4899	0.389	0.082	0.0043	0.47
15	1	14 - 15	2038	3	0.0150	0.5533	0.4899	0.389	0.082	0.0043	0.47
16	1	15 - 16	2039	3	0.0150	0.5533	0.4899	0.389	0.082	0.0043	0.47
17	1	16-17	2040	1	0.0150	0.5533	0.4899	0.043	0.009	0.0005	0.05
18	1	17-18	2041	1	0.0150	0.5533	0.4899	0.043	0.009	0.0005	0.05
19	1	18-19	2042	1	0.0150	0.5533	0.4899	0.043	0.009	0.0005	0.05
20	1	19-20	2043	1	0.0150	0.5533	0.4899	0.043	0.009	0.0005	0.05
21	1	20-21	2044	1	0.0150	0.5533	0.4899	0.043	0.009	0.0005	0.05
22	1	21-22	2045	1	0.0150	0.5533	0.4899	0.043	0.009	0.0005	0.05
23	1	22-23	2046	1	0.0150	0.5533	0.4899	0.043	0.009	0.0005	0.05
24	1	23-24	2047	1	0.0150	0.5533	0.4899	0.043	0.009	0.0005	0.05
25	1	24-25	2048	1	0.0150	0.5533	0.4899	0.043	0.009	0.0005	0.05
26	1	25-26	2049	1	0.0150	0.5533	0.4899	0.043	0.009	0.0005	0.05
27	1	26-27	2050	1	0.0150	0.5533	0.4899	0.043	0.009	0.0005	0.05
28	1	27-28	2051	1	0.0150	0.5533	0.4899	0.043	0.009	0.0005	0.05
29	1	28-29	2052	1	0.0150	0.5533	0.4899	0.043	0.009	0.0005	0.05
30	1	29-30	2053	1	0.0150	0.5533	0.4899	0.043	0.009	0.0005	0.05
Total Increased Cancer Risk								11.19	2.351	0.123	13.66

* Third trimester of pregnancy

Maximum
Hazard Index 0.00301
Fugitive PM2.5 0.48
Total PM2.5 0.51

**3111 Santa Rosa Ave, Santa Rosa, CA - Highway 101 Traffic Cancer Risk
Impacts at On-Site 1st Floor Receptors - 1.5 meter receptor height
30 Year Residential Exposure - With MERV13 Filtration**

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-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 10⁶

Where: C_{air} = concentration in air (µg/m³)

DBR = daily breathing rate (L/kg body weight-day)

A = Inhalation absorption factor

EF = Exposure frequency (days/year)

10⁶ = Conversion factor

Cancer Potency Factors (mg/kg-day)⁻¹

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Maximum - Exposure Information				Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	0.25	-0.25 - 0*	2024	10	0.0057	0.7040	0.6202	0.078	0.055	0.0028	0.14
1	1	0 - 1	2024	10	0.0057	0.7040	0.6202	0.938	0.660	0.0343	1.63
2	1	1 - 2	2025	10	0.0057	0.7040	0.6202	0.938	0.660	0.0343	1.63
3	1	2 - 3	2026	3	0.0057	0.7040	0.6202	0.148	0.104	0.0054	0.26
4	1	3 - 4	2027	3	0.0057	0.7040	0.6202	0.148	0.104	0.0054	0.26
5	1	4 - 5	2028	3	0.0057	0.7040	0.6202	0.148	0.104	0.0054	0.26
6	1	5 - 6	2029	3	0.0057	0.7040	0.6202	0.148	0.104	0.0054	0.26
7	1	6 - 7	2030	3	0.0057	0.7040	0.6202	0.148	0.104	0.0054	0.26
8	1	7 - 8	2031	3	0.0057	0.7040	0.6202	0.148	0.104	0.0054	0.26
9	1	8 - 9	2032	3	0.0057	0.7040	0.6202	0.148	0.104	0.0054	0.26
10	1	9 - 10	2033	3	0.0057	0.7040	0.6202	0.148	0.104	0.0054	0.26
11	1	10 - 11	2034	3	0.0057	0.7040	0.6202	0.148	0.104	0.0054	0.26
12	1	11 - 12	2035	3	0.0057	0.7040	0.6202	0.148	0.104	0.0054	0.26
13	1	12 - 13	2036	3	0.0057	0.7040	0.6202	0.148	0.104	0.0054	0.26
14	1	13 - 14	2037	3	0.0057	0.7040	0.6202	0.148	0.104	0.0054	0.26
15	1	14 - 15	2038	3	0.0057	0.7040	0.6202	0.148	0.104	0.0054	0.26
16	1	15 - 16	2039	3	0.0057	0.7040	0.6202	0.148	0.104	0.0054	0.26
17	1	16-17	2040	1	0.0057	0.7040	0.6202	0.016	0.012	0.0006	0.03
18	1	17-18	2041	1	0.0057	0.7040	0.6202	0.016	0.012	0.0006	0.03
19	1	18-19	2042	1	0.0057	0.7040	0.6202	0.016	0.012	0.0006	0.03
20	1	19-20	2043	1	0.0057	0.7040	0.6202	0.016	0.012	0.0006	0.03
21	1	20-21	2044	1	0.0057	0.7040	0.6202	0.016	0.012	0.0006	0.03
22	1	21-22	2045	1	0.0057	0.7040	0.6202	0.016	0.012	0.0006	0.03
23	1	22-23	2046	1	0.0057	0.7040	0.6202	0.016	0.012	0.0006	0.03
24	1	23-24	2047	1	0.0057	0.7040	0.6202	0.016	0.012	0.0006	0.03
25	1	24-25	2048	1	0.0057	0.7040	0.6202	0.016	0.012	0.0006	0.03
26	1	25-26	2049	1	0.0057	0.7040	0.6202	0.016	0.012	0.0006	0.03
27	1	26-27	2050	1	0.0057	0.7040	0.6202	0.016	0.012	0.0006	0.03
28	1	27-28	2051	1	0.0057	0.7040	0.6202	0.016	0.012	0.0006	0.03
29	1	28-29	2052	1	0.0057	0.7040	0.6202	0.016	0.012	0.0006	0.03
30	1	29-30	2053	1	0.0057	0.7040	0.6202	0.016	0.012	0.0006	0.03
Total Increased Cancer Risk								4.25	2.991	0.155	7.40

* Third trimester of pregnancy

Maximum
Hazard Index **Fugitive PM2.5** **Total PM2.5**
 0.00114 0.18 0.19

**3111 Santa Rosa Ave, Santa Rosa, CA - Highway 101 Traffic Cancer Risk
Impacts at On-Site 2nd Floor Receptors - 4.5 meter receptor height
30 Year Residential Exposure - With MERV13 Filtration**

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-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 10⁶

Where: C_{air} = concentration in air (µg/m³)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10⁶ = Conversion factor

Cancer Potency Factors (mg/kg-day)⁻¹

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Maximum - Exposure Information				Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
1	1	0 - 1	2024	10	0.0054	0.6572	0.5787	0.885	0.616	0.0320	1.53
2	1	1 - 2	2025	10	0.0054	0.6572	0.5787	0.885	0.616	0.0320	1.53
3	1	2 - 3	2024	3	0.0054	0.6572	0.5787	0.139	0.097	0.0050	0.24
4	1	3 - 4	2025	3	0.0054	0.6572	0.5787	0.139	0.097	0.0050	0.24
5	1	4 - 5	2026	3	0.0054	0.6572	0.5787	0.139	0.097	0.0050	0.24
6	1	5 - 6	2027	3	0.0054	0.6572	0.5787	0.139	0.097	0.0050	0.24
7	1	6 - 7	2028	3	0.0054	0.6572	0.5787	0.139	0.097	0.0050	0.24
8	1	7 - 8	2029	3	0.0054	0.6572	0.5787	0.139	0.097	0.0050	0.24
9	1	8 - 9	2030	3	0.0054	0.6572	0.5787	0.139	0.097	0.0050	0.24
10	1	9 - 10	2031	3	0.0054	0.6572	0.5787	0.139	0.097	0.0050	0.24
11	1	10 - 11	2032	3	0.0054	0.6572	0.5787	0.139	0.097	0.0050	0.24
12	1	11 - 12	2033	3	0.0054	0.6572	0.5787	0.139	0.097	0.0050	0.24
13	1	12 - 13	2034	3	0.0054	0.6572	0.5787	0.139	0.097	0.0050	0.24
14	1	13 - 14	2035	3	0.0054	0.6572	0.5787	0.139	0.097	0.0050	0.24
15	1	14 - 15	2036	3	0.0054	0.6572	0.5787	0.139	0.097	0.0050	0.24
16	1	15 - 16	2037	3	0.0054	0.6572	0.5787	0.139	0.097	0.0050	0.24
17	1	16-17	2038	1	0.0054	0.6572	0.5787	0.015	0.011	0.0006	0.03
18	1	17-18	2039	1	0.0054	0.6572	0.5787	0.015	0.011	0.0006	0.03
19	1	18-19	2040	1	0.0054	0.6572	0.5787	0.015	0.011	0.0006	0.03
20	1	19-20	2041	1	0.0054	0.6572	0.5787	0.015	0.011	0.0006	0.03
21	1	20-21	2042	1	0.0054	0.6572	0.5787	0.015	0.011	0.0006	0.03
22	1	21-22	2043	1	0.0054	0.6572	0.5787	0.015	0.011	0.0006	0.03
23	1	22-23	2044	1	0.0054	0.6572	0.5787	0.015	0.011	0.0006	0.03
24	1	23-24	2045	1	0.0054	0.6572	0.5787	0.015	0.011	0.0006	0.03
25	1	24-25	2046	1	0.0054	0.6572	0.5787	0.015	0.011	0.0006	0.03
26	1	25-26	2047	1	0.0054	0.6572	0.5787	0.015	0.011	0.0006	0.03
27	1	26-27	2048	1	0.0054	0.6572	0.5787	0.015	0.011	0.0006	0.03
28	1	27-28	2049	1	0.0054	0.6572	0.5787	0.015	0.011	0.0006	0.03
29	1	28-29	2050	1	0.0054	0.6572	0.5787	0.015	0.011	0.0006	0.03
30	1	29-30	2051	1	0.0054	0.6572	0.5787	0.015	0.011	0.0006	0.03
Total Increased Cancer Risk								4.01	2.793	0.145	6.95

* Third trimester of pregnancy

Maximum		
Hazard Index	Fugitive PM2.5	Total PM2.5
0.00108	0.17	0.18

**3111 Santa Rosa Ave, Santa Rosa, CA - Highway 101 Traffic Cancer Risk
Impacts at On-Site 2nd Floor Receptors - 7.6 meter receptor height
30 Year Residential Exposure - With MERV13 Filtration**

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-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 10⁶

Where: C_{air} = concentration in air (µg/m³)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10⁶ = Conversion factor

Cancer Potency Factors (mg/kg-day)⁻¹

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Maximum - Exposure Information				Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
1	1	0 - 1	2024	10	0.0045	0.5533	0.4899	0.741	0.519	0.0271	1.29
2	1	1 - 2	2025	10	0.0045	0.5533	0.4899	0.741	0.519	0.0271	1.29
3	1	2 - 3	2024	3	0.0045	0.5533	0.4899	0.117	0.082	0.0043	0.20
4	1	3 - 4	2025	3	0.0045	0.5533	0.4899	0.117	0.082	0.0043	0.20
5	1	4 - 5	2026	3	0.0045	0.5533	0.4899	0.117	0.082	0.0043	0.20
6	1	5 - 6	2027	3	0.0045	0.5533	0.4899	0.117	0.082	0.0043	0.20
7	1	6 - 7	2028	3	0.0045	0.5533	0.4899	0.117	0.082	0.0043	0.20
8	1	7 - 8	2029	3	0.0045	0.5533	0.4899	0.117	0.082	0.0043	0.20
9	1	8 - 9	2030	3	0.0045	0.5533	0.4899	0.117	0.082	0.0043	0.20
10	1	9 - 10	2031	3	0.0045	0.5533	0.4899	0.117	0.082	0.0043	0.20
11	1	10 - 11	2032	3	0.0045	0.5533	0.4899	0.117	0.082	0.0043	0.20
12	1	11 - 12	2033	3	0.0045	0.5533	0.4899	0.117	0.082	0.0043	0.20
13	1	12 - 13	2034	3	0.0045	0.5533	0.4899	0.117	0.082	0.0043	0.20
14	1	13 - 14	2035	3	0.0045	0.5533	0.4899	0.117	0.082	0.0043	0.20
15	1	14 - 15	2036	3	0.0045	0.5533	0.4899	0.117	0.082	0.0043	0.20
16	1	15 - 16	2037	3	0.0045	0.5533	0.4899	0.117	0.082	0.0043	0.20
17	1	16-17	2038	1	0.0045	0.5533	0.4899	0.013	0.009	0.0005	0.02
18	1	17-18	2039	1	0.0045	0.5533	0.4899	0.013	0.009	0.0005	0.02
19	1	18-19	2040	1	0.0045	0.5533	0.4899	0.013	0.009	0.0005	0.02
20	1	19-20	2041	1	0.0045	0.5533	0.4899	0.013	0.009	0.0005	0.02
21	1	20-21	2042	1	0.0045	0.5533	0.4899	0.013	0.009	0.0005	0.02
22	1	21-22	2043	1	0.0045	0.5533	0.4899	0.013	0.009	0.0005	0.02
23	1	22-23	2044	1	0.0045	0.5533	0.4899	0.013	0.009	0.0005	0.02
24	1	23-24	2045	1	0.0045	0.5533	0.4899	0.013	0.009	0.0005	0.02
25	1	24-25	2046	1	0.0045	0.5533	0.4899	0.013	0.009	0.0005	0.02
26	1	25-26	2047	1	0.0045	0.5533	0.4899	0.013	0.009	0.0005	0.02
27	1	26-27	2048	1	0.0045	0.5533	0.4899	0.013	0.009	0.0005	0.02
28	1	27-28	2049	1	0.0045	0.5533	0.4899	0.013	0.009	0.0005	0.02
29	1	28-29	2050	1	0.0045	0.5533	0.4899	0.013	0.009	0.0005	0.02
30	1	29-30	2051	1	0.0045	0.5533	0.4899	0.013	0.009	0.0005	0.02
Total Increased Cancer Risk								3.36	2.351	0.123	5.83

* Third trimester of pregnancy

Maximum
Hazard Index 0.00090
Fugitive PM2.5 0.14
Total PM2.5 0.15

**3111 Santa Rosa Ave, Santa Rosa, CA - Santa Rosa Ave Traffic - TACs & PM2.5
 AERMOD Risk Modeling Parameters and Maximum Concentrations - Without MERV13 Filtration
 On-Site Receptors (1.5 meter receptor height)**

Emission Year 2024
Receptor Information Maximum On-Site Receptor
 Number of Receptors 84
 Receptor Height 1.5 meter
 Receptor Distances 7 meter grid spacing

Meteorological Conditions

BAAQMD Sonoma Co. Airport Met Data 2013-2017
 Land Use Classification Urban
 Wind Speed Variable
 Wind Direction Variable

Construction School MEI Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0056	0.3644	0.4839

Construction School MEI PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)*		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.4296	0.4114	0.0182

**3111 Santa Rosa Ave, Santa Rosa, CA - Santa Rosa Ave Traffic - TACs & PM2.5
 AERMOD Risk Modeling Parameters and Maximum Concentrations - Without MERV13 Filtration
 On-Site Receptors (4.5 meter receptor height)**

Emission Year 2024
Receptor Information Maximum On-Site Receptor
 Number of Receptors 84
 Receptor Height 4.5 meter
 Receptor Distances 7 meter grid spacing

Meteorological Conditions

BAAQMD Sonoma Co. Airport Met Data 2013-2017
 Land Use Classification Urban
 Wind Speed Variable
 Wind Direction Variable

Construction School MEI Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0048	0.2674	0.3550

Construction School MEI PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)*		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.3152	0.3018	0.0133

**3111 Santa Rosa Ave, Santa Rosa, CA - Santa Rosa Ave Traffic - TACs & PM2.5
 AERMOD Risk Modeling Parameters and Maximum Concentrations - Without MERV13 Filtration
 On-Site Receptors (7.6 meter receptor height)**

Emission Year 2024
Receptor Information Maximum On-Site Receptor
 Number of Receptors 84
 Receptor Height 7.6 meter
 Receptor Distances 7 meter grid spacing

Meteorological Conditions

BAAQMD Sonoma Co. Airport Met Data 2013-2017
 Land Use Classification Urban
 Wind Speed Variable
 Wind Direction Variable

Construction School MEI Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0032	0.1518	0.2016

Construction School MEI PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)*		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.1790	0.1714	0.0076

**3111 Santa Rosa Ave, Santa Rosa, CA - Santa Rosa Ave Traffic - TACs & PM2.5
 AERMOD Risk Modeling Parameters and Maximum Concentrations - With MERV13 Filtration
 On-Site Receptors (1.5 meter receptor height)**

Emission Year 2024
Receptor Information Maximum On-Site Receptor
 Number of Receptors 54
 Receptor Height 1.5 meter
 Receptor Distances 7 meter grid spacing

Meteorological Conditions

BAAQMD Sonoma Co. Airport Met Data 2013-2017
 Land Use Classification Urban
 Wind Speed Variable
 Wind Direction Variable

Construction School MEI Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0017	0.3644	0.4839

Construction School MEI PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)*		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.1289	0.1234	0.0055

**3111 Santa Rosa Ave, Santa Rosa, CA - Santa Rosa Ave Traffic - TACs & PM2.5
 AERMOD Risk Modeling Parameters and Maximum Concentrations - With MERV13 Filtration
 On-Site Receptors (4.5 meter receptor height)**

Emission Year 2024
Receptor Information Maximum On-Site Receptor
 Number of Receptors 84
 Receptor Height 4.5 meter
 Receptor Distances 7 meter grid spacing

Meteorological Conditions

BAAQMD Sonoma Co. Airport Met Data 2013-2017
 Land Use Classification Urban
 Wind Speed Variable
 Wind Direction Variable

Construction School MEI Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0014	0.2674	0.3550

Construction School MEI PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)*		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.0946	0.0906	0.0040

**3111 Santa Rosa Ave, Santa Rosa, CA - Santa Rosa Ave Traffic - TACs & PM2.5
 AERMOD Risk Modeling Parameters and Maximum Concentrations - With MERV13 Filtration
 On-Site Receptors (7.6 meter receptor height)**

Emission Year 2024
Receptor Information Maximum On-Site Receptor
 Number of Receptors 84
 Receptor Height 7.6 meter
 Receptor Distances 7 meter grid spacing

Meteorological Conditions

BAAQMD Sonoma Co. Airport Met Data 2013-2017
 Land Use Classification Urban
 Wind Speed Variable
 Wind Direction Variable

Construction School MEI Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.0010	0.1518	0.2016

Construction School MEI PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)*		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.0537	0.0514	0.0023

**3111 Santa Rosa Ave, Santa Rosa, CA - Santa Rosa Avenue Traffic Cancer Risk
Impacts at On-Site 1st Floor Receptors - 1.5 meter receptor height
30 Year Residential Exposure - Without MERV13 Filtration**

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-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 10⁶

Where: C_{air} = concentration in air (µg/m³)

DBR = daily breathing rate (L/kg body weight-day)

A = Inhalation absorption factor

EF = Exposure frequency (days/year)

10⁶ = Conversion factor

Cancer Potency Factors (mg/kg-day)⁻¹

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Maximum - Exposure Information				Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	0.25	-0.25 - 0*	2024	10	0.0056	0.3644	0.4839	0.076	0.028	0.0022	0.11
1	1	0 - 1	2024	10	0.0056	0.3644	0.4839	0.916	0.342	0.0267	1.28
2	1	1 - 2	2025	10	0.0056	0.3644	0.4839	0.916	0.342	0.0267	1.28
3	1	2 - 3	2026	3	0.0056	0.3644	0.4839	0.144	0.054	0.0042	0.20
4	1	3 - 4	2027	3	0.0056	0.3644	0.4839	0.144	0.054	0.0042	0.20
5	1	4 - 5	2028	3	0.0056	0.3644	0.4839	0.144	0.054	0.0042	0.20
6	1	5 - 6	2029	3	0.0056	0.3644	0.4839	0.144	0.054	0.0042	0.20
7	1	6 - 7	2030	3	0.0056	0.3644	0.4839	0.144	0.054	0.0042	0.20
8	1	7 - 8	2031	3	0.0056	0.3644	0.4839	0.144	0.054	0.0042	0.20
9	1	8 - 9	2032	3	0.0056	0.3644	0.4839	0.144	0.054	0.0042	0.20
10	1	9 - 10	2033	3	0.0056	0.3644	0.4839	0.144	0.054	0.0042	0.20
11	1	10 - 11	2034	3	0.0056	0.3644	0.4839	0.144	0.054	0.0042	0.20
12	1	11 - 12	2035	3	0.0056	0.3644	0.4839	0.144	0.054	0.0042	0.20
13	1	12 - 13	2036	3	0.0056	0.3644	0.4839	0.144	0.054	0.0042	0.20
14	1	13 - 14	2037	3	0.0056	0.3644	0.4839	0.144	0.054	0.0042	0.20
15	1	14 - 15	2038	3	0.0056	0.3644	0.4839	0.144	0.054	0.0042	0.20
16	1	15 - 16	2039	3	0.0056	0.3644	0.4839	0.144	0.054	0.0042	0.20
17	1	16-17	2040	1	0.0056	0.3644	0.4839	0.016	0.006	0.0005	0.02
18	1	17-18	2041	1	0.0056	0.3644	0.4839	0.016	0.006	0.0005	0.02
19	1	18-19	2042	1	0.0056	0.3644	0.4839	0.016	0.006	0.0005	0.02
20	1	19-20	2043	1	0.0056	0.3644	0.4839	0.016	0.006	0.0005	0.02
21	1	20-21	2044	1	0.0056	0.3644	0.4839	0.016	0.006	0.0005	0.02
22	1	21-22	2045	1	0.0056	0.3644	0.4839	0.016	0.006	0.0005	0.02
23	1	22-23	2046	1	0.0056	0.3644	0.4839	0.016	0.006	0.0005	0.02
24	1	23-24	2047	1	0.0056	0.3644	0.4839	0.016	0.006	0.0005	0.02
25	1	24-25	2048	1	0.0056	0.3644	0.4839	0.016	0.006	0.0005	0.02
26	1	25-26	2049	1	0.0056	0.3644	0.4839	0.016	0.006	0.0005	0.02
27	1	26-27	2050	1	0.0056	0.3644	0.4839	0.016	0.006	0.0005	0.02
28	1	27-28	2051	1	0.0056	0.3644	0.4839	0.016	0.006	0.0005	0.02
29	1	28-29	2052	1	0.0056	0.3644	0.4839	0.016	0.006	0.0005	0.02
30	1	29-30	2053	1	0.0056	0.3644	0.4839	0.016	0.006	0.0005	0.02
Total Increased Cancer Risk								4.15	1.548	0.121	5.82

* Third trimester of pregnancy

Maximum
Hazard Index 0.001
Fugitive PM2.5 0.41
Total PM2.5 0.43

**3111 Santa Rosa Ave, Santa Rosa, CA - Santa Rosa Avenue Traffic Cancer Risk
Impacts at On-Site 2nd Floor Receptors - 4.5 meter receptor height
30 Year Residential Exposure - Without MERV13 Filtration**

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-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 10⁶

Where: C_{air} = concentration in air (µg/m³)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10⁶ = Conversion factor

Cancer Potency Factors (mg/kg-day)⁻¹

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Maximum - Exposure Information				Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
1	1	0 - 1	2024	10	0.0048	0.2674	0.3550	0.788	0.251	0.0196	1.06
2	1	1 - 2	2025	10	0.0048	0.2674	0.3550	0.788	0.251	0.0196	1.06
3	1	2 - 3	2025	3	0.0048	0.2674	0.3550	0.124	0.039	0.0031	0.17
4	1	3 - 4	2026	3	0.0048	0.2674	0.3550	0.124	0.039	0.0031	0.17
5	1	4 - 5	2027	3	0.0048	0.2674	0.3550	0.124	0.039	0.0031	0.17
6	1	5 - 6	2028	3	0.0048	0.2674	0.3550	0.124	0.039	0.0031	0.17
7	1	6 - 7	2029	3	0.0048	0.2674	0.3550	0.124	0.039	0.0031	0.17
8	1	7 - 8	2030	3	0.0048	0.2674	0.3550	0.124	0.039	0.0031	0.17
9	1	8 - 9	2031	3	0.0048	0.2674	0.3550	0.124	0.039	0.0031	0.17
10	1	9 - 10	2032	3	0.0048	0.2674	0.3550	0.124	0.039	0.0031	0.17
11	1	10 - 11	2033	3	0.0048	0.2674	0.3550	0.124	0.039	0.0031	0.17
12	1	11 - 12	2034	3	0.0048	0.2674	0.3550	0.124	0.039	0.0031	0.17
13	1	12 - 13	2035	3	0.0048	0.2674	0.3550	0.124	0.039	0.0031	0.17
14	1	13 - 14	2036	3	0.0048	0.2674	0.3550	0.124	0.039	0.0031	0.17
15	1	14 - 15	2037	3	0.0048	0.2674	0.3550	0.124	0.039	0.0031	0.17
16	1	15 - 16	2038	3	0.0048	0.2674	0.3550	0.124	0.039	0.0031	0.17
17	1	16-17	2039	1	0.0048	0.2674	0.3550	0.014	0.004	0.0003	0.02
18	1	17-18	2040	1	0.0048	0.2674	0.3550	0.014	0.004	0.0003	0.02
19	1	18-19	2041	1	0.0048	0.2674	0.3550	0.014	0.004	0.0003	0.02
20	1	19-20	2042	1	0.0048	0.2674	0.3550	0.014	0.004	0.0003	0.02
21	1	20-21	2043	1	0.0048	0.2674	0.3550	0.014	0.004	0.0003	0.02
22	1	21-22	2044	1	0.0048	0.2674	0.3550	0.014	0.004	0.0003	0.02
23	1	22-23	2045	1	0.0048	0.2674	0.3550	0.014	0.004	0.0003	0.02
24	1	23-24	2046	1	0.0048	0.2674	0.3550	0.014	0.004	0.0003	0.02
25	1	24-25	2047	1	0.0048	0.2674	0.3550	0.014	0.004	0.0003	0.02
26	1	25-26	2048	1	0.0048	0.2674	0.3550	0.014	0.004	0.0003	0.02
27	1	26-27	2049	1	0.0048	0.2674	0.3550	0.014	0.004	0.0003	0.02
28	1	27-28	2050	1	0.0048	0.2674	0.3550	0.014	0.004	0.0003	0.02
29	1	28-29	2051	1	0.0048	0.2674	0.3550	0.014	0.004	0.0003	0.02
30	1	29-30	2052	1	0.0048	0.2674	0.3550	0.014	0.004	0.0003	0.02
Total Increased Cancer Risk								3.57	1.136	0.089	4.80

* Third trimester of pregnancy

Maximum
Hazard Index 0.001
Fugitive PM2.5 0.30
Total PM2.5 0.32

**3111 Santa Rosa Ave, Santa Rosa, CA - Santa Rosa Avenue Traffic Cancer Risk
Impacts at On-Site 2nd Floor Receptors - 7.6 meter receptor height
30 Year Residential Exposure - Without MERV13 Filtration**

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-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 10⁶

Where: C_{air} = concentration in air (µg/m³)

DBR = daily breathing rate (L/kg body weight-day)

A = Inhalation absorption factor

EF = Exposure frequency (days/year)

10⁶ = Conversion factor

Cancer Potency Factors (mg/kg-day)⁻¹

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Maximum - Exposure Information				Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	0.25	-0.25 - 0*	2024	10	0.0032	0.1518	0.2016	0.043	0.012	0.0009	0.06
1	1	0 - 1	2024	10	0.0032	0.1518	0.2016	0.521	0.142	0.0111	0.67
2	1	1 - 2	2025	10	0.0032	0.1518	0.2016	0.521	0.142	0.0111	0.67
3	1	2 - 3	2026	3	0.0032	0.1518	0.2016	0.082	0.022	0.0018	0.11
4	1	3 - 4	2027	3	0.0032	0.1518	0.2016	0.082	0.022	0.0018	0.11
5	1	4 - 5	2028	3	0.0032	0.1518	0.2016	0.082	0.022	0.0018	0.11
6	1	5 - 6	2029	3	0.0032	0.1518	0.2016	0.082	0.022	0.0018	0.11
7	1	6 - 7	2030	3	0.0032	0.1518	0.2016	0.082	0.022	0.0018	0.11
8	1	7 - 8	2031	3	0.0032	0.1518	0.2016	0.082	0.022	0.0018	0.11
9	1	8 - 9	2032	3	0.0032	0.1518	0.2016	0.082	0.022	0.0018	0.11
10	1	9 - 10	2033	3	0.0032	0.1518	0.2016	0.082	0.022	0.0018	0.11
11	1	10 - 11	2034	3	0.0032	0.1518	0.2016	0.082	0.022	0.0018	0.11
12	1	11 - 12	2035	3	0.0032	0.1518	0.2016	0.082	0.022	0.0018	0.11
13	1	12 - 13	2036	3	0.0032	0.1518	0.2016	0.082	0.022	0.0018	0.11
14	1	13 - 14	2037	3	0.0032	0.1518	0.2016	0.082	0.022	0.0018	0.11
15	1	14 - 15	2038	3	0.0032	0.1518	0.2016	0.082	0.022	0.0018	0.11
16	1	15 - 16	2039	3	0.0032	0.1518	0.2016	0.082	0.022	0.0018	0.11
17	1	16-17	2040	1	0.0032	0.1518	0.2016	0.009	0.002	0.0002	0.01
18	1	17-18	2041	1	0.0032	0.1518	0.2016	0.009	0.002	0.0002	0.01
19	1	18-19	2042	1	0.0032	0.1518	0.2016	0.009	0.002	0.0002	0.01
20	1	19-20	2043	1	0.0032	0.1518	0.2016	0.009	0.002	0.0002	0.01
21	1	20-21	2044	1	0.0032	0.1518	0.2016	0.009	0.002	0.0002	0.01
22	1	21-22	2045	1	0.0032	0.1518	0.2016	0.009	0.002	0.0002	0.01
23	1	22-23	2046	1	0.0032	0.1518	0.2016	0.009	0.002	0.0002	0.01
24	1	23-24	2047	1	0.0032	0.1518	0.2016	0.009	0.002	0.0002	0.01
25	1	24-25	2048	1	0.0032	0.1518	0.2016	0.009	0.002	0.0002	0.01
26	1	25-26	2049	1	0.0032	0.1518	0.2016	0.009	0.002	0.0002	0.01
27	1	26-27	2050	1	0.0032	0.1518	0.2016	0.009	0.002	0.0002	0.01
28	1	27-28	2051	1	0.0032	0.1518	0.2016	0.009	0.002	0.0002	0.01
29	1	28-29	2052	1	0.0032	0.1518	0.2016	0.009	0.002	0.0002	0.01
30	1	29-30	2053	1	0.0032	0.1518	0.2016	0.009	0.002	0.0002	0.01
Total Increased Cancer Risk								2.36	0.645	0.050	3.05

* Third trimester of pregnancy

Maximum		
Hazard Index	Fugitive PM2.5	Total PM2.5
0.001	0.17	0.18

**3111 Santa Rosa Ave, Santa Rosa, CA - Santa Rosa Avenue Traffic Cancer Risk
Impacts at On-Site 1st Floor Receptors - 1.5 meter receptor height
30 Year Residential Exposure - With MERV13 Filtration**

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-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 10⁶

Where: C_{air} = concentration in air (µg/m³)

DBR = daily breathing rate (L/kg body weight-day)

A = Inhalation absorption factor

EF = Exposure frequency (days/year)

10⁶ = Conversion factor

Cancer Potency Factors (mg/kg-day)⁻¹

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Maximum - Exposure Information				Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
1	1	0 - 1	2024	10	0.0017	0.3644	0.4839	0.275	0.342	0.0267	0.64
2	1	1 - 2	2025	10	0.0017	0.3644	0.4839	0.275	0.342	0.0267	0.64
3	1	2 - 3	2026	3	0.0017	0.3644	0.4839	0.043	0.054	0.0042	0.10
4	1	3 - 4	2027	3	0.0017	0.3644	0.4839	0.043	0.054	0.0042	0.10
5	1	4 - 5	2028	3	0.0017	0.3644	0.4839	0.043	0.054	0.0042	0.10
6	1	5 - 6	2029	3	0.0017	0.3644	0.4839	0.043	0.054	0.0042	0.10
7	1	6 - 7	2030	3	0.0017	0.3644	0.4839	0.043	0.054	0.0042	0.10
8	1	7 - 8	2031	3	0.0017	0.3644	0.4839	0.043	0.054	0.0042	0.10
9	1	8 - 9	2032	3	0.0017	0.3644	0.4839	0.043	0.054	0.0042	0.10
10	1	9 - 10	2033	3	0.0017	0.3644	0.4839	0.043	0.054	0.0042	0.10
11	1	10 - 11	2034	3	0.0017	0.3644	0.4839	0.043	0.054	0.0042	0.10
12	1	11 - 12	2035	3	0.0017	0.3644	0.4839	0.043	0.054	0.0042	0.10
13	1	12 - 13	2036	3	0.0017	0.3644	0.4839	0.043	0.054	0.0042	0.10
14	1	13 - 14	2037	3	0.0017	0.3644	0.4839	0.043	0.054	0.0042	0.10
15	1	14 - 15	2038	3	0.0017	0.3644	0.4839	0.043	0.054	0.0042	0.10
16	1	15 - 16	2039	3	0.0017	0.3644	0.4839	0.043	0.054	0.0042	0.10
17	1	16-17	2040	1	0.0017	0.3644	0.4839	0.005	0.006	0.0005	0.01
18	1	17-18	2041	1	0.0017	0.3644	0.4839	0.005	0.006	0.0005	0.01
19	1	18-19	2042	1	0.0017	0.3644	0.4839	0.005	0.006	0.0005	0.01
20	1	19-20	2043	1	0.0017	0.3644	0.4839	0.005	0.006	0.0005	0.01
21	1	20-21	2044	1	0.0017	0.3644	0.4839	0.005	0.006	0.0005	0.01
22	1	21-22	2045	1	0.0017	0.3644	0.4839	0.005	0.006	0.0005	0.01
23	1	22-23	2046	1	0.0017	0.3644	0.4839	0.005	0.006	0.0005	0.01
24	1	23-24	2047	1	0.0017	0.3644	0.4839	0.005	0.006	0.0005	0.01
25	1	24-25	2048	1	0.0017	0.3644	0.4839	0.005	0.006	0.0005	0.01
26	1	25-26	2049	1	0.0017	0.3644	0.4839	0.005	0.006	0.0005	0.01
27	1	26-27	2050	1	0.0017	0.3644	0.4839	0.005	0.006	0.0005	0.01
28	1	27-28	2051	1	0.0017	0.3644	0.4839	0.005	0.006	0.0005	0.01
29	1	28-29	2052	1	0.0017	0.3644	0.4839	0.005	0.006	0.0005	0.01
30	1	29-30	2053	1	0.0017	0.3644	0.4839	0.005	0.006	0.0005	0.01
Total Increased Cancer Risk								1.25	1.548	0.121	2.92

* Third trimester of pregnancy

Maximum
Hazard Index 0.000
Fugitive PM2.5 0.12
Total PM2.5 0.13

**3111 Santa Rosa Ave, Santa Rosa, CA - Santa Rosa Avenue Traffic Cancer Risk
Impacts at On-Site 2nd Floor Receptors - 4.5 meter receptor height
30 Year Residential Exposure - With MERV13 Filtration**

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-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 10⁶

Where: C_{air} = concentration in air (µg/m³)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10⁶ = Conversion factor

Cancer Potency Factors (mg/kg-day)⁻¹

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Maximum - Exposure Information				Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
1	1	0 - 1	2024	10	0.0014	0.2674	0.3550	0.237	0.251	0.0196	0.51
2	1	1 - 2	2025	10	0.0014	0.2674	0.3550	0.237	0.251	0.0196	0.51
3	1	2 - 3	2026	3	0.0014	0.2674	0.3550	0.037	0.039	0.0031	0.08
4	1	3 - 4	2027	3	0.0014	0.2674	0.3550	0.037	0.039	0.0031	0.08
5	1	4 - 5	2028	3	0.0014	0.2674	0.3550	0.037	0.039	0.0031	0.08
6	1	5 - 6	2029	3	0.0014	0.2674	0.3550	0.037	0.039	0.0031	0.08
7	1	6 - 7	2030	3	0.0014	0.2674	0.3550	0.037	0.039	0.0031	0.08
8	1	7 - 8	2031	3	0.0014	0.2674	0.3550	0.037	0.039	0.0031	0.08
9	1	8 - 9	2032	3	0.0014	0.2674	0.3550	0.037	0.039	0.0031	0.08
10	1	9 - 10	2033	3	0.0014	0.2674	0.3550	0.037	0.039	0.0031	0.08
11	1	10 - 11	2034	3	0.0014	0.2674	0.3550	0.037	0.039	0.0031	0.08
12	1	11 - 12	2035	3	0.0014	0.2674	0.3550	0.037	0.039	0.0031	0.08
13	1	12 - 13	2036	3	0.0014	0.2674	0.3550	0.037	0.039	0.0031	0.08
14	1	13 - 14	2037	3	0.0014	0.2674	0.3550	0.037	0.039	0.0031	0.08
15	1	14 - 15	2038	3	0.0014	0.2674	0.3550	0.037	0.039	0.0031	0.08
16	1	15 - 16	2039	3	0.0014	0.2674	0.3550	0.037	0.039	0.0031	0.08
17	1	16-17	2040	1	0.0014	0.2674	0.3550	0.004	0.004	0.0003	0.01
18	1	17-18	2041	1	0.0014	0.2674	0.3550	0.004	0.004	0.0003	0.01
19	1	18-19	2042	1	0.0014	0.2674	0.3550	0.004	0.004	0.0003	0.01
20	1	19-20	2043	1	0.0014	0.2674	0.3550	0.004	0.004	0.0003	0.01
21	1	20-21	2044	1	0.0014	0.2674	0.3550	0.004	0.004	0.0003	0.01
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23	1	22-23	2046	1	0.0014	0.2674	0.3550	0.004	0.004	0.0003	0.01
24	1	23-24	2047	1	0.0014	0.2674	0.3550	0.004	0.004	0.0003	0.01
25	1	24-25	2048	1	0.0014	0.2674	0.3550	0.004	0.004	0.0003	0.01
26	1	25-26	2049	1	0.0014	0.2674	0.3550	0.004	0.004	0.0003	0.01
27	1	26-27	2050	1	0.0014	0.2674	0.3550	0.004	0.004	0.0003	0.01
28	1	27-28	2051	1	0.0014	0.2674	0.3550	0.004	0.004	0.0003	0.01
29	1	28-29	2052	1	0.0014	0.2674	0.3550	0.004	0.004	0.0003	0.01
30	1	29-30	2053	1	0.0014	0.2674	0.3550	0.004	0.004	0.0003	0.01
Total Increased Cancer Risk								1.07	1.136	0.089	2.30

* Third trimester of pregnancy

Maximum
Hazard Index 0.000
Fugitive PM2.5 0.09
Total PM2.5 0.09

**3111 Santa Rosa Ave, Santa Rosa, CA - Santa Rosa Avenue Traffic Cancer Risk
Impacts at On-Site 2nd Floor Receptors - 7.6 meter receptor height
30 Year Residential Exposure - With MERV13 Filtration**

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-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 10⁶

Where: C_{air} = concentration in air (µg/m³)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10⁶ = Conversion factor

Cancer Potency Factors (mg/kg-day)⁻¹

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

Values

Age -> Parameter	Infant/Child			Adult
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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

Exposure Year	Maximum - Exposure Information				Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	0.25	-0.25 - 0*	2024	10	0.0010	0.1518	0.2016	0.013	0.012	0.0009	0.03
1	1	0 - 1	2024	10	0.0010	0.1518	0.2016	0.156	0.142	0.0111	0.31
2	1	1 - 2	2025	10	0.0010	0.1518	0.2016	0.156	0.142	0.0111	0.31
3	1	2 - 3	2026	3	0.0010	0.1518	0.2016	0.025	0.022	0.0018	0.05
4	1	3 - 4	2027	3	0.0010	0.1518	0.2016	0.025	0.022	0.0018	0.05
5	1	4 - 5	2028	3	0.0010	0.1518	0.2016	0.025	0.022	0.0018	0.05
6	1	5 - 6	2029	3	0.0010	0.1518	0.2016	0.025	0.022	0.0018	0.05
7	1	6 - 7	2030	3	0.0010	0.1518	0.2016	0.025	0.022	0.0018	0.05
8	1	7 - 8	2031	3	0.0010	0.1518	0.2016	0.025	0.022	0.0018	0.05
9	1	8 - 9	2032	3	0.0010	0.1518	0.2016	0.025	0.022	0.0018	0.05
10	1	9 - 10	2033	3	0.0010	0.1518	0.2016	0.025	0.022	0.0018	0.05
11	1	10 - 11	2034	3	0.0010	0.1518	0.2016	0.025	0.022	0.0018	0.05
12	1	11 - 12	2035	3	0.0010	0.1518	0.2016	0.025	0.022	0.0018	0.05
13	1	12 - 13	2036	3	0.0010	0.1518	0.2016	0.025	0.022	0.0018	0.05
14	1	13 - 14	2037	3	0.0010	0.1518	0.2016	0.025	0.022	0.0018	0.05
15	1	14 - 15	2038	3	0.0010	0.1518	0.2016	0.025	0.022	0.0018	0.05
16	1	15 - 16	2039	3	0.0010	0.1518	0.2016	0.025	0.022	0.0018	0.05
17	1	16-17	2040	1	0.0010	0.1518	0.2016	0.003	0.002	0.0002	0.01
18	1	17-18	2041	1	0.0010	0.1518	0.2016	0.003	0.002	0.0002	0.01
19	1	18-19	2042	1	0.0010	0.1518	0.2016	0.003	0.002	0.0002	0.01
20	1	19-20	2043	1	0.0010	0.1518	0.2016	0.003	0.002	0.0002	0.01
21	1	20-21	2044	1	0.0010	0.1518	0.2016	0.003	0.002	0.0002	0.01
22	1	21-22	2045	1	0.0010	0.1518	0.2016	0.003	0.002	0.0002	0.01
23	1	22-23	2046	1	0.0010	0.1518	0.2016	0.003	0.002	0.0002	0.01
24	1	23-24	2047	1	0.0010	0.1518	0.2016	0.003	0.002	0.0002	0.01
25	1	24-25	2048	1	0.0010	0.1518	0.2016	0.003	0.002	0.0002	0.01
26	1	25-26	2049	1	0.0010	0.1518	0.2016	0.003	0.002	0.0002	0.01
27	1	26-27	2050	1	0.0010	0.1518	0.2016	0.003	0.002	0.0002	0.01
28	1	27-28	2051	1	0.0010	0.1518	0.2016	0.003	0.002	0.0002	0.01
29	1	28-29	2052	1	0.0010	0.1518	0.2016	0.003	0.002	0.0002	0.01
30	1	29-30	2053	1	0.0010	0.1518	0.2016	0.003	0.002	0.0002	0.01
Total Increased Cancer Risk								0.71	0.645	0.050	1.40

* Third trimester of pregnancy

Maximum
Hazard Index 0.000
Fugitive PM2.5 0.05
Total PM2.5 0.05

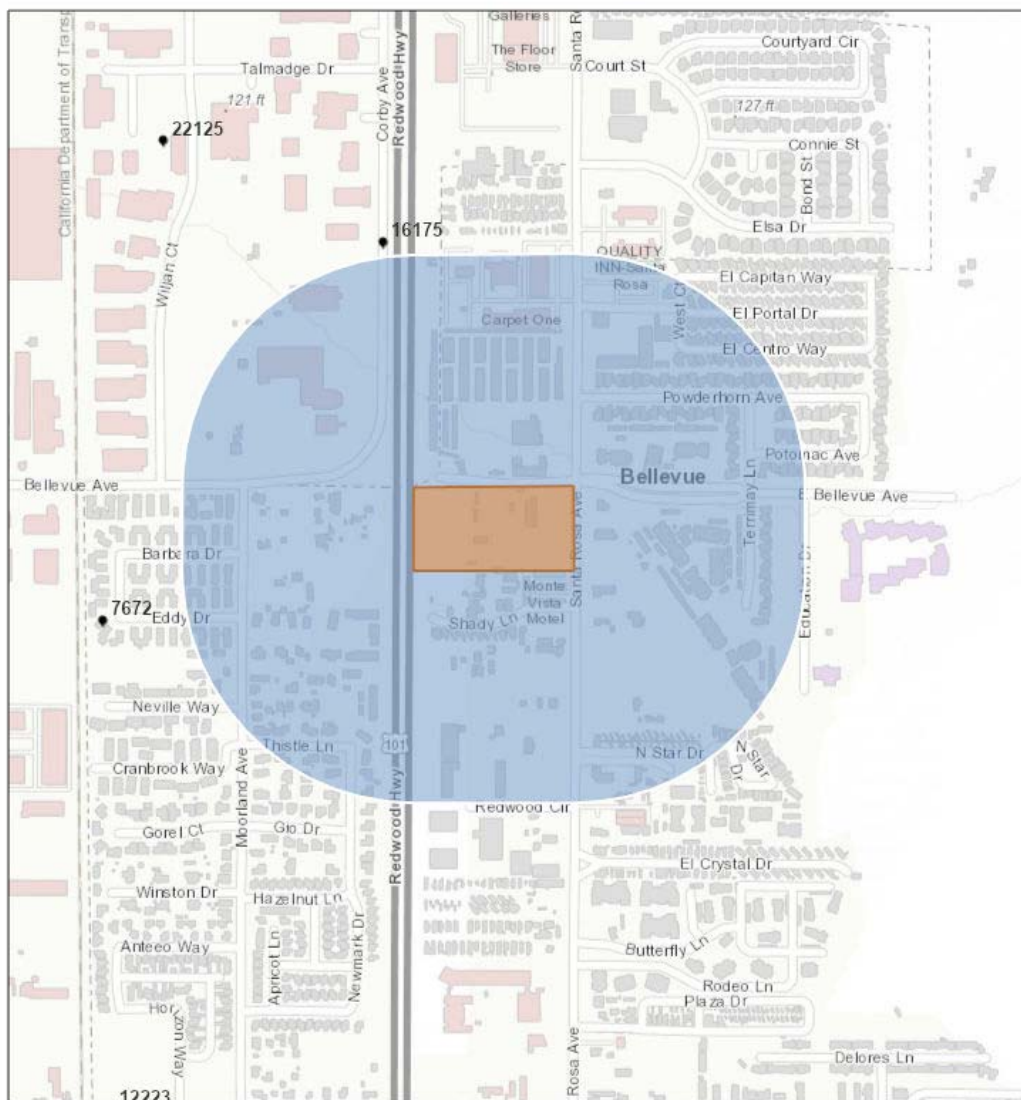


Stationary Source Risk & Hazards Screening Report

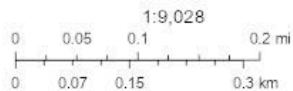
Area of Interest (AOI) Information

Area : 5,495,801.85 ft²

Jul 7 2021 14:16:31 Eastern Daylight Time



● Permitted Facilities 2018



Sonoma County, Bureau of Land Management, Esri, HERE, Garmin, INCREMENT P, Intermap, USGS, METI/NASA, EPA, USDA

Summary

Name	Count	Area(ft ²)	Length(ft)
Permitted Facilities 2018	0	N/A	N/A

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

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

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Attachment 6: Santa Rosa Climate Action Plan New Development Checklist

APPENDIX E: CAP NEW DEVELOPMENT CHECKLIST

To ensure new development projects are compliant with the City’s Climate Action Plan, the following checklist has been developed. This checklist should be filled out for each new project, subject to discretionary review, to allow new development to find a less than significant impact for greenhouse gas emissions in the environmental review process.

#	Description	Compliance			
		Complies	Does Not Comply	N/A	See Discussion
1.1.1	Comply with CALGreen Tier 1 standards*				
1.1.3	After 2020, all new development will utilize zero net electricity*				
1.3.1	Install real-time energy monitors to track energy use*				
1.4.2	Comply with the City's tree preservation ordinance*				
1.4.3	Provide public & private trees in compliance with the Zoning Code*				
1.5	Install new sidewalks and paving with high solar reflectivity materials*				
2.1.3	Pre-wire and pre-plumb for solar thermal or PV systems				
3.1.2	Support implementation of station plans and corridor plans				
3.2.1	Provide on-site services such as ATMs or dry cleaning to site users				
3.2.2	Improve non-vehicular network to promote walking, biking				
3.2.3	Support mixed-use, higher-density development near services				
3.3.1	Provide affordable housing near transit				
3.5.1	Unbundle parking from property cost				
3.6.1	Install calming features to improve ped/bike experience				
4.1.1	Implement the Bicycle and Pedestrian Master Plan				
4.1.2	Install bicycle parking consistent with regulations*				
4.1.3	Provide bicycle safety training to residents, employees, motorists				
4.2.2	Provide safe spaces to wait for bus arrival				

#	Description	Compliance			
		Complies	Does Not Comply	N/A	See Discussion
4.3.2	Work with large employers to provide rideshare programs				
4.3.3	Consider expanding employee programs promoting transit use				
4.3.4	Provide awards for employee use of alternative commute options				
4.3.5	Encourage new employers of 50+ to provide subsidized transit passes*				
4.3.7	Provide space for additional park-and-ride lots				
4.5.1	Include facilities for employees that promote telecommuting				
5.1.2	Install electric vehicle charging equipment				
5.2.1	Provide alternative fuels at new refueling stations*				
6.1.3	Increase diversion of construction waste*				
7.1.1	Reduce potable water use for outdoor landscaping*				
7.1.3	Use water meters which track real-time water use*				
7.3.2	Meet on-site meter separation requirements in locations with current or future recycled water capabilities*				
8.1.3	Establish community gardens and urban farms				
9.1.2	Provide outdoor electrical outlets for charging lawn equipment				
9.1.3	Install low water use landscapes*				
9.2.1	Minimize construction equipment idling time to 5 minutes or less*				
9.2.2	Maintain construction equipment per manufacturer's specs*				
9.2.3	Limit GHG construction equipment emissions by using electrified equipment or alternative fuels*				

**To be in compliance with the CAP, all measures denoted with an asterisk are required in all new development projects unless otherwise specified. If a project cannot meet one or more of the mandatory requirements, substitutions may be made from other measures listed at the discretion of the Community Development Director.*

DISCUSSION (PLEASE LIST POLICY #)

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