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M E M O

Date: November 3, 2023

To: **Collin Monahan**
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From: James A. Reyff
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RE: Cotati Village Community - Cotati, CA

SUBJECT: Update to Air Quality Analysis Job#22-134

Illingworth & Rodkin, Inc. (I&R) prepared the air quality and greenhouse gas (GHG) assessment for this project in 2022[1]. We understand that there have been relatively minor modifications to the project. This memo describes how these modifications apply to the air quality and GHG analysis. Since the time that the study was submitted, the Bay Area Air Quality Management District (BAAQMD) has updated their CEQA Air Quality Guidelines[2] and the CalEEMod model that was used in the analysis has also been updated. This memo addresses updates to the project, guidelines, and model.

Project Changes

Our review of the latest Project plans, dated 10/30/2023, indicate the primary changes are the orientation of Building E and the northern parking area. The current plan would reorient Building E from a north-south orientation to an east-west one and move it further south away from the existing residences at Cotati Cottages. There would be more parking in the northern portion of the

[1] Illingworth & Rodkin, Inc. 2022. *Cotati Village Mixed Use Air Quality and Greenhouse Gas Assessment*. November 17.
[2] See BAAQMD: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines

site. There are two main issues addressed in the air quality and GHG assessment: air pollutant and GHG emissions and health risk impacts.

Changes to the project plans would not affect emissions caused by the Project because the building size and the amount of traffic generated would not change.

Health risk impacts were driven by construction activities that occur over much of the site and are at times concentrated where buildings are located. The revised plan would have little effect on the health risk effects of the Project because the Project site size remains the same and the same amount of construction is anticipated. With mitigation, the Project would have health risk impacts predicted at Cotati Villages residences that are well below thresholds and this modification would not change that finding. There may be some decrease in health risk impacts with this modification since the building is moved further from the existing residences.

Changes to the BAAQMD Guidelines

BAAQMD published updates to their CEQA Guidelines in April of 2023. These updates were mostly a matter of including current practices for predicting impacts that are currently practiced by most consultants performing these types of assessments. An example would be the recommended use of CalEEMod for predicting construction and operational emissions, where the previous 2010/2017 guidelines recommended URBMIS. The air quality and GHG assessment used methods to predict impacts that are consistent with the new guidelines.

Updates to CalEEMod

The air quality and GHG assessment used CalEEMod version 2020.4.0. Version 2022.1 was released in mid-2022 and is now recommended by BAAQMD. The primary difference between the two versions of CalEEMod is that the newer version uses the latest mobile emission factors that are based on the Emfac2021 model. The older version of CalEEMod uses Emfac2017 emission factors. However, I&R modified CalEEMod version 2020.4.0 with the Emfac2021 emission factors for the air quality and GHG assessment prepared in late 2022. Therefore, the air quality and GHG modeling is consistent with the new version of CalEEMod. There may be some minor differences due to slight modification of other factors, but we would anticipate the new model to predict similar results. Certainly, any differences would be quite small and would not lead to new significant impacts.

Conclusion

In summary, the modified Project, with Mitigation Measure AQ-1 (implementation of a Construction Emissions Minimization Plan), would have less than significant impacts on air quality and not have significant GHG emissions.

COTATI VILLAGE MIXED-USE AIR QUALITY & GREENHOUSE GAS ASSESSMENT

Cotati, California

November 17, 2022

Prepared for:

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I&R Project#: 22-134

Introduction

The purpose of this report is to address air quality, community health risk, and greenhouse gas (GHG) impacts associated with the construction and operation of the proposed mixed-use project located on the northeast corner of the Highway 116 and Alder Avenue intersection in Cotati, California. Air quality impacts from this project would be associated with the construction of the new building and infrastructure, and operation of the project. Air pollutants and GHG emissions associated with construction and operation of the project were predicted using appropriate computer models. In addition, the potential project health risk impacts (includes construction and operation) and the impact of existing toxic air contaminant (TAC) sources affecting the nearby sensitive receptors were evaluated. The analysis was conducted following guidance provided by the Bay Area Air Quality Management District (BAAQMD).[1]

Project Description

The project site is located on two adjacent vacant parcels that total 7.82 acres. One of the parcels is currently a park, with plans for it to remain as-is. The project proposes to construct a new three-story mixed-use building. The proposed Project would include 177 residential units and approximately 29,415 square feet (sf) of retail and office space. It would also include 271 parking spaces throughout the site. Of the 271 parking spaces, about 27 spaces would be provided for electric vehicles. Construction is proposed to begin in January 2023 and be completed by March 2024.

The Project would be required to meet California building code requirements. In addition, the City of Cotati requires the Project to comply with CalGreen Tier 1 requirements. These are additional requirements beyond the mandatory building code measures. Tier 2 further increases the requirements. The CalGreen Tiers are only mandatory where local ordinances have specifically adopted them. The Project is committed to providing electric vehicle (EV) charging infrastructure that meet the CalGreen Tier 2 requirements.

Air Quality Setting

The project is located in the portion of Sonoma County that is part of the San Francisco Bay Area Air Basin. Ambient air quality standards have been established at both the State and federal level. The Bay Area meets all ambient air quality standards with the exception of ground-level ozone, respirable particulate matter (PM_{10}) and fine particulate matter ($PM_{2.5}$). In Sonoma County, measured levels of air pollutants are below air quality standards, including ozone, PM_{10} and $PM_{2.5}$.

<u>Air Pollutants of Concern</u>

High ozone levels are caused by the cumulative emissions of reactive organic gases (ROG) and nitrogen oxides (NOx). 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

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

levels aggravate respiratory and cardiovascular diseases, reduced lung function, and increase coughing and chest discomfort.

Particulate matter is another problematic air pollutant of the Bay Area. Particulate matter is assessed and measured in terms of respirable particulate matter or particles that have a diameter of 10 micrometers or less (PM_{10}) and fine particulate matter where particles have a diameter of 2.5 micrometers or less ($PM_{2.5}$). Elevated concentrations of PM_{10} and $PM_{2.5}$ are the result of both region-wide (or cumulative) emissions and localized emissions. High particulate matter levels aggravate respiratory and cardiovascular diseases, reduce lung function, increase mortality (e.g., lung cancer), and result in reduced lung function growth in children.

Toxic Air Contaminants

Toxic air contaminants (TAC) are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer) and include, but are not limited to, the criteria air pollutants listed above. 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 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, which were published in February of 2015.[2] See *Attachment 1* for a detailed description of the community risk modeling methodology used in this assessment.

Sensitive Receptors

There are groups of people more affected by air pollution than others. CARB has identified the following persons who are most likely to be affected by air pollution: children under 16, 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 site are

[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.

the residents in the townhomes north of the project site, with additional single-family homes in the surrounding area. The project will introduce new sensitive (i.e., residential) receptors.

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

In the past decade the EPA has established a number of emission standards for on- and non-road heavy-duty diesel engines used in trucks and other equipment. This was done in part because diesel engines are a significant source of NO_X and particulate matter (PM_{10} and $PM_{2.5}$) and because the EPA has identified DPM as a probable carcinogen. Implementation of the heavy-duty diesel on-road vehicle standards and the non-road diesel engine standards are estimated to reduce particulate matter and NO_X emissions from diesel engines up to 95 percent in 2030 when the heavy-duty vehicle fleet is completely replaced with newer heavy-duty vehicles that comply with these emission standards.[3]

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

[3] USEPA, 2000. *Regulatory Announcement, Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements*. EPA420-F-00-057. December.

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

CARB has adopted and implemented a number of regulations for stationary and mobile sources to reduce emissions of DPM. Several of these regulatory programs affect medium and heavy-duty diesel trucks that represent the bulk of DPM emissions from California highways. CARB regulations require on-road diesel trucks to be retrofitted with particulate matter controls or replaced to meet 2010 or later engine standards that have much lower DPM and $PM_{2.5}$ emissions. This regulation will substantially reduce these emissions between 2013 and 2023. While new trucks and buses will meet strict federal standards, this measure is intended to accelerate the rate at which the fleet either turns over so there are more cleaner vehicles on the road or is retrofitted 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 (NAAQS) and California Ambient Air Quality Standards (CAAQS). The District also has permit authority over most types of stationary equipment utilized for the proposed project. The BAAQMD is responsible for permitting and inspection of stationary sources; enforcement of regulations, including setting fees, levying fines, and enforcement actions; and ensuring that public nuisances are minimized.

[4] California Air Resources Board, 2000. Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. October.

BAAQMD's Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposures to outdoor TACs in the Bay Area.[5] The program examines TAC emissions from point sources, area sources, and on-road and off-road mobile sources with an emphasis on diesel exhaust, which is a major contributor to airborne health risk in California. The CARE program is an on-going program that encourages community involvement and input. The technical analysis portion of the CARE program is being implemented in three phases that includes an assessment of the sources of TAC emissions, modeling and measurement programs to estimate concentrations of TAC, and an assessment of exposures and health risks. Throughout the program, information derived from the technical analyses will be used to focus emission reduction measures in areas with high TAC exposures and high density of sensitive populations. Risk reduction activities associated with the CARE program are focused on the most at-risk communities in the Bay Area. Overburdened communities are areas located (i) within a census tract identified by the California Communities Environmental Health Screening Tool (CalEnviroScreen), Version 4.0 implemented by OEHHA, as having an overall CalEnviroScreen score at or above the 70th percentile, or (ii) within 1,000 feet of any such census tract.[6] The BAAQMD has identified six communities as impacted: Concord, Richmond/San Pablo, Western Alameda County, San José, Redwood City/East Palo Alto, and Eastern San Francisco. The project site is not within a designated CARE area and not within a BAAQMD overburdened area as identified by BAAQMD's Overburdened Areas Map[7].

The BAAQMD *California Environmental Quality Act (CEQA) Air Quality Guidelines*[8] were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process consistent with CEQA requirements including thresholds of significance, mitigation measures, and background air quality information. They also include assessment methodologies for TACs, odors, and GHG emissions. 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 Cotati 2013 General Plan

The 2013 Cotati General Plan Conservation Element includes an extensive list of policies and action measures that are aimed at improving air quality. Additionally, the General Plan Land Use Element and Land Use Map promotes a compact urban development pattern that emphasizes infill development and ensures that land use patterns do to not expose sensitive receptors to unhealthy pollutant concentrations. Furthermore, the Circulation Element includes a range of policies and action items that would effectively reduce vehicle travel, through the use of complete streets and

[5] See BAAQMD: https://www.baaqmd.gov/community-health/community-health-protection-program/community-air-risk-evaluation-care-program , accessed 2/18/2021.
[6] See BAAQMD: https://www.baaqmd.gov/~/media/dotgov/files/rules/reg-2-permits/2021-amendments/documents/20210722_01_appendixd_mapsofoverburdenedcommunities-pdf.pdf?la=en , accessed 11/23/2021.
[7] See BAAQMD: https://www.baaqmd.gov/about-air-quality/interactive-data-maps
[8] Bay Area Air Quality Management District, 2011. *CEQA Air Quality Guidelines*. May. (Updated May 2017)

multi-modal transportation systems. Applicable General Plan policies include:

- **Policy CON 2.1**: Improve air quality through continuing to require a compact development pattern that focuses growth in and around existing urbanized areas, locating new housing near places of employment, encouraging alternative modes of transportation, and requiring projects to mitigate significant air quality impacts.
- **Policy CON 2.2**: Minimize exposure of sensitive receptors to concentrations of air pollutant emissions and toxic air contaminants.
- **Policy CON 2.4**: Require new development or significant remodels to install fireplaces, stoves, and/or heaters which meet current BAAQMD standards.
- **Policy CON 2.5**: Continue to require all construction projects and ground disturbing activities to implement BAAQMD dust control and abatement measures.
- **Policy CON 2.7**: Continue to aggressively implement the greenhouse gas (GHG) reduction measures contained in the 2008 Cotati Greenhouse Gas Emissions Reduction Action Plan.
- **Policy CON 3.1**: Continue to require all new public and privately constructed buildings to meet and comply with CALGreen Tier 1 standards.
- **Policy CON 3.2**: Support innovative and green building best management practices, including LEED certification, for all new development, and encourage project applicants to exceed CALGreen Tier 1 standards, if feasible.
- **Policy CON 3.3**: Promote the use of alternative energy sources in new development.
- **Policy CON 3.7**: Encourage tree planting, including widespread use of trees as windbreaks to maximize the effects of cooling westerly winds and planting of deciduous trees to help reduce summer temperatures, either in conjunction with new development or through private sector participation.
- **Policy CON 3.8**: Promote water conservation among water users.
- **Policy CON 3.9**: Require the use of drought-tolerant and regionally native plants in landscaping.
- **Policy CON 3.10**: Ensure that the layout and design of new development and significant remodels encourages the use of transportation modes other than automobiles and trucks.
- **Policy CON 3.16**: Improve and maintain landscaping around commercial areas in order to minimize the "heat island" effect, provide shade, soften the harshness of such commercial areas, and create a more leisurely ambience.

Significance Thresholds

In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA and these significance thresholds were contained in the District’s 2011 CEQA Air Quality Guidelines. These thresholds were designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA. The thresholds were challenged through a series of court challenges and were mostly upheld.

BAAQMD updated its thresholds in the CEQA Air Quality Guidelines in 2017 and again in 2022 (GHG thresholds only). The latest BAAQMD significance thresholds, which were used in this analysis and are summarized in Table 1. Impacts above the threshold are considered potentially significant.

Per discussion with BAAQMD staff, in circumstances where a cumulative Health Risk and Hazards threshold is exceeded, a project's contribution would be considered cumulatively considerable if the project's risk exceeds the single source threshold.[9]

AIR QUALITY IMPACTS

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*.[10] 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 the planned land uses identified in 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. General plans must show consistency with the control measures listed within the Clean Air Plan. However, at the project-level, there are no consistency measures or thresholds. Despite this, the proposed project would not conflict with the latest Clean Air planning efforts since 1) the project would have construction and operational emissions below the BAAQMD thresholds (see Impact 2 below) and 2) the project would be considered urban infill, and 3) the project would be located near employment centers.

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

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

Table 1. BAAQMD CEQA Air Quality 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	Not Applicable	
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 $\mu g/m^3$	0.8 $\mu g/m^3$	
Greenhouse Gas Emissions			
Land Use Projects – (Must Include A or B)	A. Projects must include, at a minimum, the following project design elements: 1. Buildings a. The project will not include natural gas appliances or natural gas plumbing (in both residential and nonresidential development). b. The project will not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines. 2. Transportation a. Achieve a reduction in project-generated vehicle miles traveled (VMT) below the regional average consistent with the current version of the California Climate Change Scoping Plan (currently 15 percent) or meet a locally adopted Senate Bill 743 VMT target, reflecting the recommendations provided in the Governor's Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA: i. Residential projects: 15 percent below the existing VMT per capita ii. Office projects: 15 percent below the existing VMT per employee iii. Retail projects: no net increase in existing VMT b. Achieve compliance with off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2. B. Be consistent with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b).		
Note: ROG = reactive organic gases, NOx = nitrogen oxides, PM_{10} = course particulate matter or particulates with an aerodynamic diameter of 10 micrometers (µm) or less, $PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less. GHG = greenhouse gases.			

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 O_3 and $PM_{2.5}$ under both the Federal Clean Air Act and the California Clean Air Act. The area is also considered non-attainment for PM_{10} under the California Clean Air Act, but not the federal act. The area has attained both State and Federal ambient air quality standards for carbon monoxide. As part of an effort to attain and maintain ambient air quality standards for O_3, $PM_{2.5}$ and PM_{10}, the BAAQMD has established thresholds of significance for these air pollutants and their precursors. These thresholds are for O_3 precursor pollutants (ROG and NOx), PM_{10}, and $PM_{2.5}$ and apply to both construction period and operational period impacts.

Construction Period Emissions

The California Emissions Estimator Model (CalEEMod) Version 2020.4.0 was used to estimate emissions from on-site construction activity, construction vehicle trips, and evaporative emissions. The project land use types and size, and anticipated construction schedule were input to CalEEMod. Traffic generated by construction (i.e., off-site construction activities), which included worker trips, vendor deliveries and material hauling trip were computed in CalEEMod. The model output from CalEEMod along with construction inputs are included as *Attachment 2*.

<u>CalEEMod Inputs</u>

Land Uses

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

Table 2. Summary of Project Land Use Inputs

Project Land Uses	Size	Units	Square Feet	Acreage
Apartments Low Rise	177	Dwelling Units	179,973	7.82
Parking Lot	271	Parking Spaces	108,400	
Strip Mall	30	1000sqft	30,000	

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 project-specific information provided by the project applicant.

The CalEEMod construction equipment worksheet provided by the applicant included the schedule for each phase of construction (included in *Attachment 2*). Within each construction phase, the quantity of equipment to be used along with the average use hours per day and total number of workdays were provided. Since different equipment would have different estimates of the use per phase, the hours per day for each piece of equipment was computed by dividing the total number of hours that the equipment would be used by the total number of days in that phase. The construction schedule assumed that the earliest possible start date would be January 2023 and the project would be built out over a period of approximately 14 months, or 320 construction workdays. The earliest year of operation was assumed to be 2025.

Construction Traffic Emissions

Construction would produce traffic in the form of worker trips and truck traffic. The traffic-related emissions are based on worker and vendor trip estimates produced by CalEEMod and haul trips that were computed based on the soil material imported and/or exported to the site, and the estimate of cement and asphalt truck trips. CalEEMod provides daily estimates of worker and vendor trips for each applicable phase. The total trips for those were computed by multiplying the daily rate by the number of days in that phase. Haul trips for grading were estimated from the provided 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 default assumptions, where worker trips are assumed to be comprised of light-duty autos (EMFAC category LDA) and light duty trucks (EMFAC category LDT1and LDT2). Vendor trips are comprised of delivery and large trucks (EMFAC category MHDT and HHDT) and haul trips, including concrete trucks, are comprised of large trucks (EMFAC category HHDT). Travel distances are based on CalEEMod default lengths, which are 10.8 miles for worker travel, 7.3 miles for vendor trips and 20 miles for hauling. 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 2023-2024 were used in these calculations. Table 3 provides the traffic inputs that were combined with the EMFAC2021 emission database to compute vehicle emissions.

<u>Summary of Computed Construction Period Emissions</u>

Average daily emissions were computed by dividing the total construction emissions by the number of active workdays. Table 4 shows the average daily construction emissions of ROG, NO_X, PM_{10} exhaust, and $PM_{2.5}$ exhaust during construction of the project. As indicated in Table 4, predicted annualized project construction emissions would not exceed the BAAQMD significance thresholds during any year of construction.

Table 3. Construction Traffic Data Used for EMFAC2021 Model Runs

CalEEMod Run/Land Uses and Construction Phase	Trips by Trip Type			Notes
	Worker Trips[1]	Vendor Trips[1]	Haul Trips[2]	
Vehicle mix[1]	67% LDA 6.4% LDT1 26.6% LDT2	7.1% MHDT 92.9% HHDT	100% HDDT	
Trip Length (miles)	10.8	7.3	20.0 (Demo/Soil) 7.3 (Cement/Asphalt)	CalEEMod default distance with 5-min truck idle time.
Site Preparation	180	-	-	CalEEMod default worker trips.
Grading	315	-	325	2,600-cy soil export. CalEEMod default worker trips.
Trenching	105	-	-	CalEEMod default worker trips.
Building Construction	41,724	9,576	280	140 concrete round trips. CalEEMod default worker and vendor trips.
Architectural Coating	740	-	-	CalEEMod default worker trips.
Paving	300	-	264	1,100-cy asphalt (deliveries). CalEEMod default worker trips.

Notes: [1] Based on 2023-2024 EMFAC21 light-duty vehicle fleet mix for Sonoma County.
[2] Includes grading trips estimated by CalEEMod based on estimated amount of material to be removed. Cement and asphalt trips estimated based on plans provided by the applicant.

Table 4. Construction Period Emissions

Year	ROG	NOx	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
Construction Emissions Per Year (Tons)				
2023 + 2024	1.73	2.02	0.11	0.09
Average Daily Construction Emissions Per Year (pounds/day)				
2023 + 2024 (320 construction workdays)	10.79	12.65	0.66	0.55
BAAQMD Thresholds (pounds per day)	*54* lbs./day	*54* lbs./day	*82* lbs./day	*54* lbs./day
Exceed Threshold?	No	No	No	No

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

The Project intends to implement a Construction Emissions Minimization Plan that includes measures that are consistent with the BAAQMD-recommended basic control measures for reducing fugitive particulate matter.

Operational Period Emissions

Operational air emissions from the project would be generated primarily from autos driven by future residents and employees. 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.

CalEEMod Inputs

Land Uses

The project operational land uses were entered into CalEEMod as described above for the construction period modeling.

Model Year

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

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.[11] The project would produce approximately 2,827 daily trips. When accounting for trip reduction adjustments that include internal capture and passby effects for retail uses, the project would then produce 2,275 net daily trips. Since CalEEMod includes adjustments for Passby and diverted trips, an adjustment for Passby trips was not included in the trip generation inputs to CalEEMod. The trip rate entered into CalEEMod was 2,577 new trips. The Saturday and Sunday trip rates were derived by multiplying the ratio of the CalEEMod default rates for Saturday and Sunday trips to the default weekday rate with the project-specific daily weekday trip rate. The default trip lengths and trip types specified by CalEEMod were used.

EMFAC2021 Adjustment

The vehicle emission factors and fleet mix used in CalEEMod are based on EMFAC2017, which is an older CARB emission inventory for on road mobile sources. Since the release of CalEEMod Version 2020.4.0, new emission factors have been produced by CARB. EMFAC2021 became available for use in January 2021. It includes the latest data on California's car and truck fleets and travel activity. The CalEEMod vehicle emission factors and fleet mix were updated with the emission rates and fleet mix from EMFAC2021. On road emission rates from 2025 Sonoma

[11] W-Trans, *Draft Transportation Impact Study for the Cotati Village Project*, September 8, 2022

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 CalEEMod default emission factor of 119.98 pounds of CO_2 per megawatt of electricity produced by Sonoma Clean Power was used.

The project will be all electric, according to the project applicant[13], therefore natural gas for the Strip Mall and Low-Rise Apartments land use was set to zero and reassigned to electricity use in CalEEMod.

Other Inputs

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

Summary of Computed Operational Emissions

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

Table 5. Operational Period Emissions

Scenario	ROG	NOx	PM_{10}	$PM_{2.5}$
2025 Annual Project Operational Emissions (*tons/year*)	2.97	1.46	1.58	0.42
BAAQMD Thresholds (tons /year)	*10 tons*	*10 tons*	*15 tons*	*10 tons*
Exceed Threshold?	*No*	*No*	*No*	*No*
2025 Daily Project Operational Emissions (*pounds/day*)[1]	16.28	7.99	8.68	0.42
BAAQMD Thresholds (pounds/day)	*54* lbs.	*54* lbs.	*82* lbs.	*54* lbs.
Exceed Threshold?	*No*	*No*	*No*	*No*
Notes: [1]Assumes 365-day operation.				

Impact AIR-3: Expose sensitive receptors to substantial pollutant concentrations? ***Less-Than-Significant Impact.***

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

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

[13] Provided in 220922-Cotati Village – Data Needs for project – FILLED OUT

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).

Project construction activity would generate dust and equipment exhaust that would affect nearby sensitive receptors. The project would increase 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.

Community Risk Methodology

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 risk 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,[13] 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 contribution. Unlike, the increased maximum cancer risk, the annual $PM_{2.5}$ concentration, and HI values are not additive but based on an annual maximum risk for the entirety of the project. The project 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 nearby existing residences to in the vicinity of the project 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 Risks from Project Construction

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

Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known TAC. These exhaust air pollutant emissions would not be considered to contribute substantially to existing or projected air quality violations. Construction exhaust emissions may still pose health risks for sensitive receptors such as surrounding residents. The primary community risk impact issue associated with construction emissions are cancer risk and exposure to $PM_{2.5}$. Diesel exhaust poses both a potential health and nuisance impact to nearby receptors. A health risk assessment of the project construction activities was conducted that evaluated potential health effects to nearby sensitive receptors from construction emissions of DPM and $PM_{2.5}$.[14] This assessment included dispersion modeling to predict the offsite and onsite concentrations resulting from project construction, so that increased cancer risks and non-cancer health effects could be evaluated.

Construction Emissions

The CalEEMod and EMFAC2021 models provided total annual PM_{10} exhaust emissions (assumed to be DPM) for the off-road construction equipment and for exhaust emissions from on-road vehicles, with total emissions from all construction stages of 0.012 tons (24 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 a half mile was used to represent vehicle travel while at or near the construction site. Total $PM_{2.5}$ emissions were calculated by CalEEMod as 0.04 tons (80 pounds) for the overall construction period.

Dispersion Modeling

U.S. EPA's AERMOD model is the preferred model from predicting DPM and $PM_{2.5}$ concentrations. Due to the relatively rural nature of the surrounding area, meteorological data representative of the area are not available. The closest representative data set are for Sonoma County Airport that has a quite difference winds than the Project site. Meteorological data collected by BAAQMD is available for Valley Ford, which is considered much more representative of the Project site. Use of this meteorological data set requires use of a slightly different dispersion model. The U.S. EPA ISCST3 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 ISCST3 dispersion model is a BAAQMD-recommended model for use in modeling analysis of these types of emission activities for CEQA projects when meteorological data suitable for use with the AERMOD model are not available.[15,16] Emission sources for the construction site were grouped into two categories: exhaust emissions of DPM and fugitive $PM_{2.5}$ dust emissions.

Construction Sources

[14] DPM is identified by California as a toxic air contaminant due to the potential to cause cancer.
[15] Note that AERMOD is the preferred dispersion model for this type of assessment; however, adequate meteorological data is not available to use this model. Therefore, the ISCST3 model was used.
[16] Bay Area Air Quality Management District (BAAQMD), 2012, *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0.* May.

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 ISCST3 dispersion model as it would do for a point source (exhaust stack). Therefore, the release height from an area source used to represent emissions from sources with plume rise, such as construction equipment, should be based on the height the exhaust plume is expected to achieve, not just the height of the top of the exhaust pipe.

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

ISCST3 *Inputs and Meteorological Data*

Health risk impacts from construction operation were based on the construction emissions computed by CalEEMod and modeled with the ISCST3 model using 5 years of meteorological data (1990-1994) from the BAAQMD Valley Ford meteorological station. The Valley Ford station is about 10 miles west-southwest from the project site. DPM and $PM_{2.5}$ emissions from construction activities during the 2023-2024 period were modeled as area sources. Concentrations were calculated at nearby residential receptors at receptor heights of 1.5 and 4.5 meters, representative of the breathing heights of residents in first and second floor levels. There are no other sensitive receptor types within 1,000 feet of the project site. Construction was assumed to occur for 9 hours per day (7:00am – 4:00pm).

Summary of Construction Community Risk Impacts

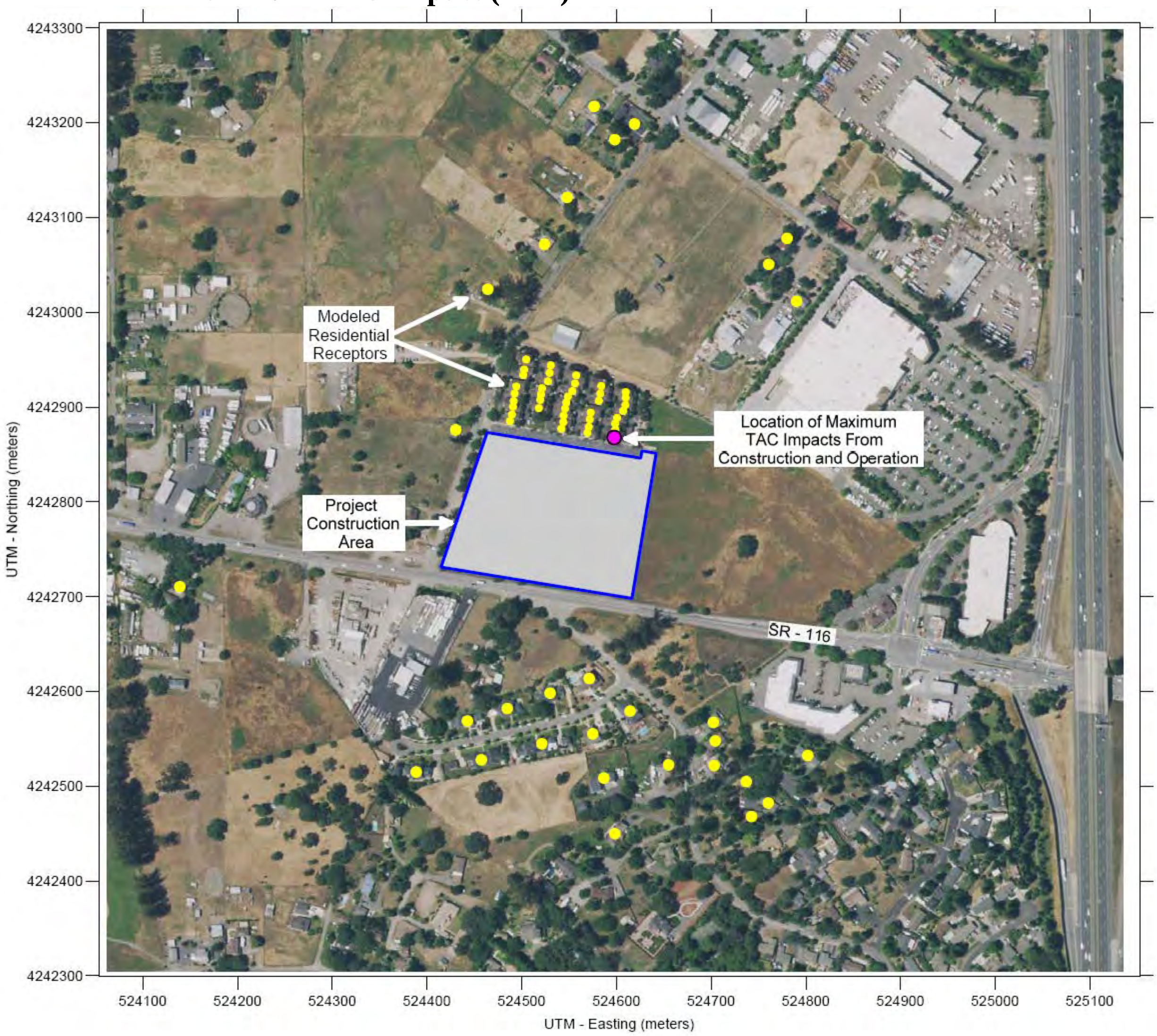
The increased cancer risk calculations were based on applying the BAAQMD recommended age sensitivity factors to the TAC concentrations, as described in *Attachment 1*. Age-sensitivity factors reflect the greater sensitivity of infants and small children to cancer causing TACs. Third trimester, infant, 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 refence exposure level of 5 $\mu g/m^3$.

[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

The maximum modeled annual DPM and $PM_{2.5}$ concentrations, which includes both the DPM and fugitive $PM_{2.5}$ concentrations, were identified at nearby sensitive receptors to find the MEI. Results of this assessment indicated that the MEI most affected by construction was located on the second floor (10 feet above ground) of a townhome north of the project. The location of the MEI and nearby sensitive receptors are shown in Figure 1. Table 6 lists the community risks from construction at the location of the residential MEI. *Attachment 4* to this report includes the emission calculations used for the construction modeling and the cancer risk calculations.

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



Community Risks from Project Operation

Operation of the project would have long-term emissions from mobile sources (i.e., traffic). While these emissions would not be as intensive at or near the site as construction activity, they would contribute to long-term effects to sensitive receptors.

Project Traffic

Diesel powered vehicles are the primary concern with local traffic-generated TAC impacts. This project would generate 2,275 new daily trips[18] with a majority of the trips being from light-duty gasoline-powered vehicles (i.e., passenger cars). The project is not anticipated to generate large amounts of truck trips that would involve diesel vehicles. Per BAAQMD recommended risks and methodology, a road with less than 10,000 total vehicle per day is considered a low-impact source of TACs and do not need to be considered in the CEQA analysis.[19] In addition, projects with the potential to cause or contribute to increased cancer risk from traffic include those that have attract high numbers of diesel-powered on road trucks or use off-road diesel equipment on site, such as a distribution center, a quarry, or a manufacturing facility, may potentially expose existing or future planned receptors to substantial cancer risk levels and/or health hazards. This is not a project of concern for non-BAAQMD permitted mobile sources. Emissions from project traffic are considered negligible and not included in this health risk analysis.

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

The cumulative risk impacts from a project are the combination of construction and operation sources. The project impact is computed by adding the construction cancer risk for an infant to the increased cancer risk for the project operational conditions at the MEI over a 30-year period. Since, as discussed above, the project operation sources are considered negligible, the cumulative risk impact is from the construction sources. As such, the project MEI is identified as the sensitive receptor that is most impacted by the project's construction.

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 15 months of construction cancer risks. Unlike the increased maximum cancer risk, the annual $PM_{2.5}$ concentration and HI risks are not additive but based on an annual maximum risk for the entirety of the project.

Project risk impacts are shown in Table 6. The controlled maximum cancer risks and annual $PM_{2.5}$ concentration would exceed their respective single-source significance thresholds. The predicted HI values from project construction activities at the MEI location would not exceed the threshold. This would be a *significant* impact in terms of increased cancer risk and $PM_{2.5}$ concentrations.

[18] W-Trans, *Draft Transportation Impact Study for the Cotati Village Project*, September 8, 2022.
[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

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 (Years 0 - 2)	Unmitigated	*31.5 (infant)*	*0.36*	*0.04*
	Mitigated	*4.5 (infant)*	*0.11*	*<0.01*
	BAAQMD Single-Source Threshold	***10***	***0.3***	***1.0***
Exceed Threshold?	***Unmitigated***	***Yes***	***Yes***	*No*
	Controlled	*No*	*No*	*No*

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

A review of the project area and based on provided traffic information indicated that Highway 116 (SR-116) is within the influence area and would have traffic exceeding 10,000 vehicles per day. A review of BAAQMD's stationary source map website identified two stationary sources with the potential to affect the project MEI. Figure 2 shows the location of the sources affecting the MEI. Community risk impacts from these sources upon the MEI reported in Table 7. Details of the cumulative modeling and community risk calculations are included in *Attachment 4.*

Highways – SR-116

A refined analysis of the impacts of TACs and $PM_{2.5}$ to the project MEI receptors is necessary to evaluate potential cancer risks and $PM_{2.5}$ concentrations from SR 116. A review of the traffic information reported by the California Department of Transportation (Caltrans) indicates that SR 116 traffic includes 22,500 vehicles per day (based on an annual average) that are about 3.5 percent trucks, of which 2.0 percent are considered diesel heavy duty trucks and 1.5 percent are medium duty trucks.[20]

Traffic Emissions Modeling

This analysis involved the development of DPM, organic TACs, and $PM_{2.5}$ emissions for traffic on SR-116 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 and from re-entrained roadway dust were included in these emissions. DPM emissions are projected to

[20] Caltrans. 2020. *2020 Annual Average Daily Truck Traffic on the California State Highway System*

decrease in the future and are reflected in the CT-EMFAC2017 emissions data. Inputs to the model include region (i.e., Santa Clara County), type of road, traffic mix assigned by CT-EMFAC2017 for the county and adjusted for the local truck mix on SR-116, year of analysis (2025), and season (annual).

To estimate TAC and $PM_{2.5}$ emissions over the 30-year exposure period used for calculating increased cancer risks to the MEI from traffic on SR-116, the CT-EMFAC2017 model was used to develop vehicle emission factors for the year 2025 using the calculated mix of cars and trucks on SR-116. 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 2025 emissions were conservatively assumed as being representative of future conditions over the time period that cancer risks are evaluated (30 years), since, as discussed above, overall vehicle emissions, and in particular diesel truck emissions will decrease in the future.

Average daily traffic volumes and truck percentages were based on Caltrans data for SR-116. Traffic volumes were assumed to increase 1 percent per year. Average hourly traffic distributions for Sonoma County roadways were developed using the EMFAC model,[21] which were then applied to the average daily traffic volumes to obtain estimated hourly traffic volumes and emissions for SR-116. For all hours of the day, an average speed of 40 mph was used for all vehicles based on the posted speed limit in the vicinity of the project and assuming the average speed was 5 mph below the posted limit.

This analysis involved the development of DPM, organic TACs, and $PM_{2.5}$ emissions for future traffic on SR-116 and using these emissions with an air quality dispersion model to calculate TAC and $PM_{2.5}$ concentrations at the project MEI receptor location. 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 ISCST3 dispersion model, which, as discussed previously, is recommended by the BAAQMD for this type of analysis. Traffic emissions from SR-116 within about 1,000 feet of the project site were evaluated with the model. Emissions from vehicle traffic were modeled using a series of volume sources along a line (line-volume sources), with a line segment used to represent the northbound and southbound travel lanes on SR-116. The modeling used receptors placed in the proposed new residential areas of Buildings A through F with 7 meter (23 feet) spacing. Buildings A, B, and C would have residential units starting on the second floor (breathing height of 16 feet, 4.9 meters), while Buildings D, E, and F would have residential units starting on the first floor (breathing height of 5 feet, 1.5 meters). The same meteorological data and off-site MEI sensitive receptor identified in the construction

[21] The Burden output from EMFAC2007, CARB's previous version of the EMFAC model, was used for this since the current web-based version of EMFAC2017 does not include Burden type output with hour by hour traffic volume information.

dispersion modeling were used in the roadway modeling. Other inputs to the model included road geometry, hourly traffic emissions.

Computed Cancer and Non-Cancer Health Impacts

The cancer risk, $PM_{2.5}$ concentration, and HI impacts from SR-116 on the project MEI are shown in Table 7. Figure 2 shows the roadway link used for the modeling and MEI location where concentrations were calculated. The risk impacts from the highway and Off-Ramp on the construction MEI is shown in Table 6. Details of the emission calculations, dispersion modeling and cancer risk calculations for the receptors with the maximum cancer risk from U.S. 101 and the Off-Ramp traffic are provided in *Attachment 5.*

BAAQMD Permitted Stationary Sources

Permitted stationary sources of air pollution near the project site were identified using BAAQMD's *Permitted Stationary Sources 2020* GIS website,[22] which identifies the location of nearby stationary sources and their estimated risk and hazard impacts, including emissions and adjustments to account for new OEHHA guidance. Two sources, a generator and an automotive repair and maintenance shop, were identified using this tool. The screening level risks and hazards provided by BAAQMD for these sources were adjusted for distance using BAAQMD's *Distance Adjustment Multiplier Tool for Gasoline Dispensing Facility, and Generic Equipment*. Community risk impacts from stationary sources upon the MEI are reported in Table 7.

Summary of Health Risks at the Project MEI

Table 7 reports both the project and cumulative community risk impacts at the sensitive receptors most affected by the project (i.e., the MEI). The health risks from project activities (construction and operation) would exceed the maximum increased cancer risk and the annual $PM_{2.5}$ concentration single-source threshold. However, the cumulative source thresholds would not be exceeded.

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

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

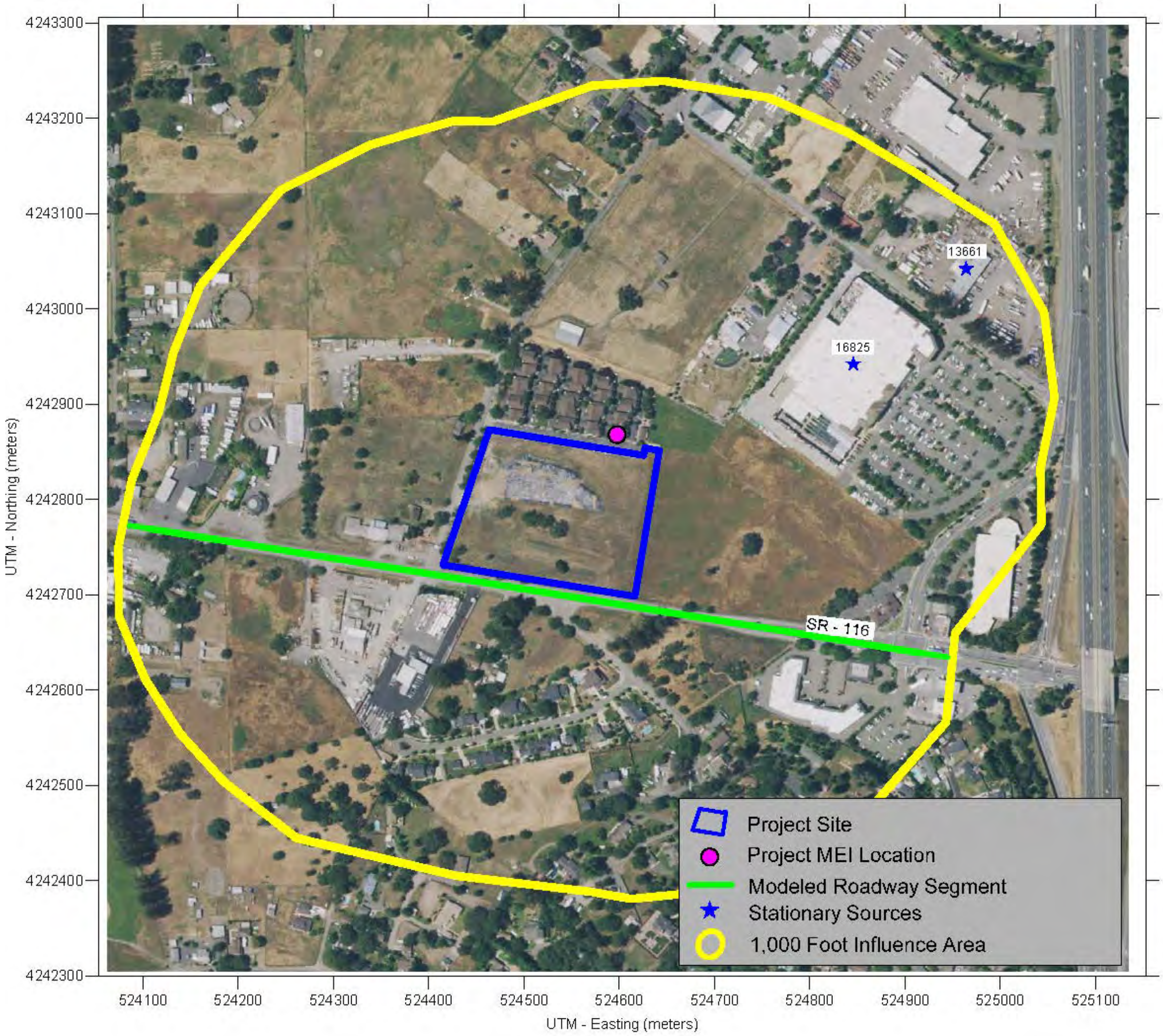


Table 7. Cumulative Community Risk Impacts at the Location of the Project MEI

Source		Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Project Impacts				
Total/Maximum Project Impact (Years 0-30)	Unmitigated Mitigated	**31.5 (infant** 4.5 (infant)	**0.36** 0.11	0.04 <0.01
BAAQMD Single-Source Threshold		***10***	***0.3***	***1.0***
Exceed Threshold?	*Unmitigated* *Mitigated*	***Yes*** *No*	***Yes*** *No*	*No*
Existing Cumulative Sources				
SR-116, ADT 22,500		1.87	0.11	<0.01
Nor-Cal Truckbodys (Facility ID #13661 Automotive Body, Paint, and Interior Repair and Maintenance), MEI at 890 feet		0.7	-	<0.01
Lowe's HIW, Inc #1901 (Facility ID #16825, Generator), MEI at 185 feet		2.8	<0.01	<0.01
Combined Sources	Unmitigated Mitigated	36.9 9.9	0.48 0.23	<0.04
BAAQMD Cumulative Source Threshold		***100***	***0.8***	***10.0***
Exceed Threshold?	Unmitigated Mitigated	*No* *No*	*No* *No*	*No* *No*

Mitigation Measure AQ-1: Implement a Construction Emissions Minimization Plan that includes dust control measures and use of construction equipment that has low diesel particulate matter exhaust emissions.

To reduce construction emissions and dust generation, the Project shall implement a Construction Minimization Plan. This plan is intended to implement BAAQMD recommended measures to control dust generation and measures to reduce diesel exhaust emissions that may affect nearby residences or other sensitive receptors.

<u>Measures to Control Dust</u>

During any construction period ground disturbance, the Project will ensure that the project contractor implement measures to control dust and exhaust that are recommended by BAAQMD and listed below:

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.

<u>Measures to Control Exhaust Emissions</u>

The Project will implement feasible measures to reduce diesel particulate matter emissions from new construction by 70 percent as follows:

1. All off-road mobile construction equipment larger than 25 horsepower used at the site for more than two continuous days or 20 hours total shall meet U.S. EPA Tier 4 emission standards for PM (PM_{10} and $PM_{2.5}$). Note that engines meeting the U.S. EPA Tier 2 or 3 standards that include particulate matter emissions control equivalent to CARB Level 3 verifiable diesel emission control devices would meet this standard.

2. Provide line power to the site during the early phases of construction to minimize the use of diesel-powered stationary equipment.

3. Alternatively, use zero-emission or non-diesel fueled equipment

Effectiveness of Mitigation Measure AQ-1

The Project will implement a Construction Emissions Minimization Plan. This plan would reduce both exhaust and dust (including $PM_{2.5}$) emissions. The plan includes the use of BAAQMD-recommended measures to minimize dust generation and use of construction equipment that meets U.S. EPA Tier 4 engine standards for particulate matter emissions. Effects of this plan were included in the CalEEMod modeling and were provided by the model as "Mitigated Output."

The measures included in the plan are consistent with BAAQMD-recommended basic control measures for reducing fugitive particulate matter that are contained in the BAAQMD CEQA Air

Quality Guidelines. CalEEMod was used to compute emissions associated with the implementation of Mitigation Measures AQ-1, assuming that all off-road mobile equipment meets U.S. EPA Tier 4 engines standard and BAAQMD best management practices for construction were included. With these measures implemented, the project's total construction cancer risk levels (assuming infant exposure) would be reduced to 4.5 chances per million and annual $PM_{2.5}$ concentrations would be reduced to 0.11 µg/m^3. An alternative plan that reduces DPM emissions from construction by 70 percent would reduce total construction and operation cancer risk to about 9.5 chances per million and annual $PM_{2.5}$ concentrations to 0.11 µg/m^3, which would be below the BAAQMD single-source significance thresholds. The impact would be reduced to a level of *less than significant* with implementation of Mitigation Measure AQ-1.

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.[23] These include State Route 116 traffic and two stationary sources permitted by BAAQMD.

<u>Highways – SR-116</u>

The roadway analysis for the project residents was conducted in the same manner as described above for the off-site project MEI. Impacts to future project residents on the first through second residential levels of the proposed Buildings A, B, C, D, E, and F were evaluated. Buildings A, B, and C would have residential units starting on the second floor (breathing height of 16 feet, 4.9 meters), while Buildings D, E, and F would have residential units starting on the first floor (breathing height of 5 feet, 1.5 meters). The modeling used receptors placed in the proposed new residential areas of Buildings A through F with 7 meter (23 feet) spacing. Project sensitive receptors higher than the second residential levels would have roadway impacts less than those on the second residential level. The portions of the nearby roadway included in the modeling are shown in Figure 3 along with the project site and receptor locations where impacts were modeled.

Maximum increased cancer risks were calculated for the residents at the project site using the maximum modeled TAC concentrations. A 30-year exposure period was used in calculating cancer risks assuming the residents would include 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 highest impacts from SR-116 occurred in Building C at a first residential level/second-floor receptor adjacent to SR-116. Cancer risks associated with the roadways are greatest closest to SR-116 and

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[23] 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.

decrease with distance from the roads. The roadway community risk impacts at the project site are shown in Table 8. Details of the emission calculations, dispersion modeling, and cancer risk calculations are contained in *Attachment 5.*

The maximum increased cancer risk and annual $PM_{2.5}$ concentrations for new residents at the project site are shown in Table 8 and were computed using the maximum modeled DPM and $PM_{2.5}$ concentrations and the BAAQMD recommended methods and exposure parameters described in *Attachment 1*. The location of the project receptors where the maximum TAC and $PM_{2.5}$ impacts from the highway occurred is shown in Figure 3. The modeling results and health risk calculations for the receptor with the maximum cancer risk from the SR-116 are provided in *Attachment 5*.

Figure 3. Project Site, On-Site Sensitive Receptors, Rail Line Segments Modeled and Receptor with Maximum TAC Impacts

Stationary Sources

The stationary source screening analysis for the new project sensitive receptors was conducted in the same manner as described above for the project MEI. Table 8 shows the health risk assessment results from the stationary sources.

Combined Community Health Risk at Project Site

Community risk impacts from the existing TAC sources upon the project site are reported in Table 8. The risks from the singular TAC sources are compared against the BAAQMD single-source threshold. The risks from all the sources are then combined and compared against the BAAQMD cumulative-source threshold. As shown, the cancer risks, annual $PM_{2.5}$ concentrations, and HI from the nearby sources do not exceed their single-source or cumulative-source BAAQMD thresholds.

Table 8. Cumulative Community Risk Impacts Upon the On-site Sensitive Receptors

Source	Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
SR-116, ADT 22,500	5.78	0.29	<0.01
Nor-Cal Truckbodys (Facility ID #13661 Automotive Body, Paint, and Interior Repair and Maintenance), MEI at 890 feet	0.7	-	<0.01
Lowe's HIW, Inc #1901 (Facility ID #16825, Generator), MEI at 185 feet	2.8	<0.01	<0.01
BAAQMD Single-Source Threshold	***10***	***0.3***	***1.0***
Exceed Threshold?	*No*	*No*	*No*
Cumulative Total	9.28	<0.30	<0.03
BAAQMD Cumulative Source Threshold	***100***	***0.8***	***10.0***
Exceed Threshold?	*No*	*No*	*No*

GREENHOUSE GAS EMISSIONS

Setting

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

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

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

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

Federal and Statewide GHG Emissions

The U.S. EPA reported that in 2022, total gross nationwide GHG emissions were 5,215.6 million metric tons (MMT) carbon dioxide equivalent (CO_2e).[24] These emissions were lower than peak levels of 7,416 MMT that were emitted in 2007. CARB updates the statewide GHG emission

[24] United States Environmental Protection Agency, 2022. *Draft Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2020*. February. Web: https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks

inventory on an annual basis where the latest inventory includes 2000 through 2019 emissions.[25] In 2019, GHG emissions from statewide emitting activities were 418.2 MMT CO_2e. The 2019 emissions have decreased by 30 percent since peak levels in 2007 and are 7.2 MMT CO_2e lower than 2018 emissions level and almost 13 MMT CO_2e below the State's 2020 GHG limit of 431 MMT CO_2e. Per capita GHG emissions in California have dropped from a 2001 peak of 14.0 MT CO_2e per person to 10.5 MT CO_2e per person in 2019.

Recent Regulatory Actions for GHG Emissions

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

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

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

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

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

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

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[25] CARB. 2021. *California Greenhouse Gas Emission for 2000 to 2019*. Web: https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2019/ghg_inventory_trends_00-19.pdf

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 GHG 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*.[26] While the State is on track to exceed the AB 32 scoping plan 2020 targets, this plan is an update to reflect the enacted SB 32 reduction target.

SB 32 was passed in 2016, which codified a 2030 GHG emissions reduction target of 40 percent below 1990 levels. CARB has drafted a 2022 Scoping Plan Update to reflect the 2030 target set by Executive Order B-30-15 and codified by SB 32. The 2022 draft plan:

- Identifies a path to keep California on track to meet its SB 32 GHG reduction target of at least 40 percent below 1990 emissions by 2030.
- Identifies a technologically feasible, cost-effective path to achieve carbon neutrality by 2045 or earlier.
- Focuses on strategies for reducing California's dependency on petroleum to provide consumers with clean energy options that address climate change, improve air quality, and support economic growth and clean sector jobs.
- Integrates equity and protecting California's most impacted communities as a driving principle.
- Incorporates the contribution of natural and working lands to the state's GHG emissions, as well as its role in achieving carbon neutrality.
- Relies on the most up to date science, including the need to deploy all viable tools, including carbon capture and sequestration as well a direct air capture.
- Evaluates multiple options for achieving our GHG and carbon neutrality targets, as well as the public health benefits and economic impacts associated with each.

The draft Scoping Plan Update was published on May 10, 2022 and, once final, will lay out how the state can get to carbon neutrality by 2045 or earlier. It is also the first Scoping Plan that adds carbon neutrality as a science-based guide and touchstone beyond statutorily established emission reduction targets.[27]

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 2022 Draft 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 to not only obtain the statewide goals, but cost-effectively achieve carbon-neutrality by 2045 or earlier. In the draft 2022 Scoping Plan, CARB recommends:

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[26] 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

[27] https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents

- VMT per capita reduced 12% below 2019 levels by 2030 and 22% below 2019 levels by 2045.
- 100% of Light-duty vehicle sales are zero emissions vehicles (ZEV) by 2035.
- 100% of medium duty/heavy duty vehicle sales are ZEV by 2040.
- 100% of passenger and other locomotive sales are ZEV by 2030.
- 100% of line haul locomotive sales are ZEV by 2035.
- All electric appliances in new residential and commercial building beginning 2026 (residential) and 2029 (commercial).
- 80% of residential appliance sales are electric by 2030 and 100% of residential appliance sales are electric by 2035.
- 80% of commercial appliance sales are electric by 2030 and 100% of commercial appliance sales are electric by 2045.

Executive Order B-55-18 – Carbon Neutrality

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

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

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

Senate Bill 350 - Renewable Portfolio Standards

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

Senate Bill 100 – Current Renewable Portfolio Standards

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

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

The California Green Building Standards Code (CALGreen Code) is part of the California Building Standards Code under Title 24, Part 11.[28] The CALGreen Code encourages sustainable construction standards that involve planning/design, energy efficiency, water efficiency resource efficiency, and environmental quality. These green building standard codes are mandatory statewide and are applicable to residential and non-residential developments. The most recent CALGreen Code (2019 California Building Standard Code) was effective as of January 1, 2020.

The California Building Energy Efficiency Standards (California Energy Code) is under Title 24, Part 6 and is overseen by the California Energy Commission (CEC). This code includes design requirements to conserve energy in new residential and non-residential developments, while being cost effective for homeowners. This Energy Code is enforced and verified by cities during the planning and building permit process. The current energy efficiency standards (2019 Energy Code) replaced the 2016 Energy Code as of January 1,2020. Under the 2019 standards, single-family homes are predicted to be 53 percent more efficient than homes built under the 2016 standard due more stringent energy-efficiency standards and mandatory installation of solar photovoltaic systems. For nonresidential developments, it is predicted that these buildings will use 30 percent less energy due to lightening upgrades.[29]

CEC studies have identified the most aggressive electrification scenario as putting the building sector on track to reach the carbon neutrality goal by 2045.[30] Installing new natural gas infrastructure in new buildings will interfere with this goal. To meet the State's goal, communities have been adopting "Reach" codes that prohibit natural gas connections in new and remodeled buildings.

Requirements for electric vehicle (EV) charging infrastructure are set forth in Title 24 of the California Code of Regulations and are regularly updated on a 3-year cycle. The CALGreen standards consist of a set of mandatory standards required for new development, as well as two

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[28] 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.

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

[30] California Energy Commission. 2021. F*inal Commission Report: California Building Decarbonization Assessment. Publication Number CEC-400-2021-006-CMF*.August

more voluntary standards known as Tier 1 and Tier 2. The CalGreen standards have recently been updated (2022 version) to require deployment of additional EV chargers in various building types, including multifamily residential and nonresidential land uses. They include requirements for both EV capable parking spaces and the installation of Level 2 EV supply equipment for multifamily residential and nonresidential buildings. The 2022 CALGreen standards include requirements for both EV readiness and the actual installation of EV chargers. The 2022 CALGreen standards include both mandatory requirements and more aggressive voluntary Tier 1 and Tier 2 provisions. Providing EV charging infrastructure that meets current CALGreen requirements will not be sufficient to power the anticipated more extensive level of EV penetration in the future that is needed to meet SB 30 climate goals.

SB 743 Transportation Impacts

Senate Bill 743 required lead agencies to abandon the old "level of service" metric for evaluating a project's transportation impacts, which was based solely on the amount of delay experienced by motor vehicles. In response, the Governor's Office of Planning and Research (OPR) developed a VMT metric that considered other factors such as reducing GHG emissions and developing multimodal transportation[31]. A VMT-per-capita metric was adopted into the CEQA Guidelines Section 15064.3 in November 2017. Given current baseline per-capita VMT levels computed by CARB in the 2030 Scoping Plan of 22.24 miles per day for light-duty vehicles and 24.61 miles per day for all vehicle types, the reductions needed to achieve the 2050 climate goal are 16.8 percent for light-duty vehicles and 14.3 percent for all vehicle types combined. Based on this analysis (as well as other factors), OPR recommended using a 15-percent reduction in per capita VMT as an appropriate threshold of significance for evaluating transportation impacts.

Advanced Clean Cars

The Advanced Clean Cars Program, originally adopted by CARB in 2012, was designed to bring together CARB's traditional passenger vehicle requirements to meet federal air quality standards and also support California's AB 32 goals to develop and implement programs to reduce GHG emissions back down to 1990 levels by 2020, a goal achieved in 2016 as a result of numerous emissions reduction programs.

This recent rule, *Advanced Clean Cars II (ACC II)* is phase two of the original rule. ACC II establishes a year-by-year process, starting in 2026, so all new cars and light trucks sold in California will be zero-emission vehicles by 2035, including plug-in hybrid electric vehicles. The regulation codifies the light-duty vehicle goals set out in Governor Newsom's Executive Order N-79-20. Currently, 16 percent of new light-duty vehicles sold in California are zero emissions or plug-in hybrids. By 2030, 68 percent of new vehicles sold in California would be zero emissions and 100 percent by 2035.

City of Cotati

The City of Cotati currently has no adopted Climate Action Plan (CAP); however, Cotati General

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[31] Governor's Office of Planning and Research. 2018. *Technical Advisory on Evaluating Transportation Impacts in CEQA*. December.

Plan Policy CON2.8 supports the development and implementation of a CAP. The City is involved in Sonoma County's efforts to reduce countywide emissions to 25% below 1990 emissions by 2020.[32]

BAAQMD GHG Significance Thresholds

On April 20, 2022, BAAQMD adopted new thresholds of significance for operational GHG emissions from land use projects for projects beginning the CEQA process. The following framework is how BAAQMD will determine GHG significance moving forward.[33] Note BAAQMD intends that the thresholds apply to projects that begin the CEQA process after adoption of the thresholds, unless otherwise directed by the lead agency. The new thresholds of significance are:

A. Projects must include, at a minimum, the following project design elements:
   a. Buildings
      i. The project will not include natural gas appliances or natural gas plumbing (in both residential and non-residential development).
      ii. The project will not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines.
   b. Transportation
      i. Achieve a reduction in project-generated vehicle miles traveled (VMT) below the regional average consistent with the current version of the California Climate Change Scoping Plan (currently 15 percent) or meet a locally adopted Senate Bill 743 VMT target, reflecting the recommendations provided in the Governor's Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA:
         1. Residential Projects: 15 percent (16.8 percent in Petaluma) below the existing VMT per capita
         2. Office Projects: 15 percent (16.8 percent in Petaluma) below the existing VMT per employee
         3. Retail Projects: no net increase in existing VMT
      ii. Achieve compliance with off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2.

B. Be consistent with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b).

Any new land use project would have to include either section A or B from the above list, not both, to be considered in compliance with BAAQMD's GHG thresholds of significance.

[32] City of Cotati, 2016. *Cotati Commitments to meeting community greenhouse gas reduction goals.* Accessed October 10,2022. Web: https://www.cotaticity.org/DocumentCenter/View/255/Climate-Action-PDF
[33] Justification Report: BAAQMD CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Project and Plans. Web: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa-thresholds-2022/justification-report-pdf.pdf?la=en

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.

<u>CalEEMod Modeling</u>

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 construction period emissions. CalEEMod output is included in *Attachment 2*.

<u>Construction GHG Emissions</u>

GHG emissions associated with construction were computed at 582 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.

<u>Operational GHG Emissions</u>

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 6, net annual GHG emissions resulting from operation of the proposed project are predicted to be 1,919 MT of CO_2e in 2025.

Table 6. Annual Project GHG Emissions (CO_2e) in Metric Tons

Source Category	Proposed Project in 2025
Area	2
Energy Consumption	89
Mobile	1,757
Solid Waste Generation	57
Water Usage	14
Total (MT CO_{2e}/year)	1,919

There are no quantified thresholds for GHG emissions adopted by the City or currently used by BAAQMD for evaluation of project GHG emissions. BAAQMD in their latest adopted GHG thresholds recommend that the significance of project GHG emissions be evaluated based on consistency with an adopted GHG reduction plan or meet design elements that are critical in reducing GHG emissions. As described above, the City has not adopted a CAP but has met design elements that will reduce GHG emissions such as Title 24 and Cal Green Tier 1 compliance, all electric appliances, and the required amount of EV parking spaces.

The Project generally meets the requirements for Project thresholds identified above by BAAQMD. The 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. To avoid interference with statewide GHG reduction measures identified in CARB's Scoping Plan and SB 100 goals, the project would include the following standard requirements:

1. Avoid construction of new natural gas connections for the residential building,
    - Conforms – the applicant has confirmed that the project will be all electric and not include natural gas infrastructure.
2. Avoid wasteful or inefficient use of electricity,
    - Conforms – would meet CALGreen Building Standards Code requirements that are considered to be energy efficient.
3. Include electric vehicle (EV) charging infrastructure that meets current Building Code CALGreen Tier 2 compliance, and
    - Conforms – project will provide EV parking spaces as required by Cotati Municipal Code 14.04.130 and meet the CalGreen Tier 2 requirements for including EV charging infrastructure.
2. Reduce VMT per service population by 15 percent over regional average.
    - Conforms – According to the traffic analysis, the daily VMT per capita in the City is 14.2 miles, which is lower than the significance threshold of 15.5 miles. Retail uses are considered to be local serving retail and not increase total VMT.

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 buildings would be constructed in conformance with CALGreen, the Title 24 Building Code, and the City's General Plan, which requires high-efficiency water fixtures, water-efficient irrigation systems, and compliance with current energy efficacy standards. The Project would not interfere with City or State efforts to reduce GHG emissions.

Conclusions

The purpose of this report is to address air quality, community health risk, and greenhouse gas (GHG) impacts associated with the construction and operation of this proposed mixed-use project located on the northeast corner of the Highway 116 and Alder Avenue intersection in Cotati, California. Air quality impacts from this project would be associated with the demolition/grading of the existing land uses, construction of the new building and infrastructure, and operation of the project. Air pollutants and GHG emissions associated with construction and operation of the project were predicted using appropriate computer models. In addition, the potential project health risk impacts (includes construction and operation) and the impact of existing toxic air contaminant (TAC) sources affecting the nearby sensitive receptors were evaluated. The analysis was conducted following guidance provided by BAAQMD. Findings of this report are as follows:

- Emissions of criteria air pollutants from construction and operation of the Project were modeled to be below thresholds recommended by BAAQMD that are used to judge the significance in terms of burden to air basin-wide emissions.

- Emissions of GHG were also considered to be less than significant since the Project will not have significant VMT impacts, will be all electric, constructed to meet current CalGreen standards that would make it energy efficient, and meet CalGreen Tier 2 requirements for installation of EV charging infrastructure.

- Construction period emissions of diesel particulate matter, which is a TAC, are above BAAQMD project-level thresholds. Mitigation Measure AQ-1 would reduce emissions of diesel particulate matter and dust. Mitigation Measure AQ-1 would reduce TAC emissions by 70 percent or more and dust emissions by 50 percent or more. This would reduce the impact to a level of less than significant. Operation of the Project is not anticipated to result in substantial localized TAC emissions that would cause or contribute to significant impacts.

Supporting Documentation

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

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

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

Attachment 4 is the health risk assessment. This includes the summary of the dispersion modeling and the cancer risk calculations for construction. The ISCST3 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 MEI.

Attachment 1: Health Risk Calculation Methodology

Health Risk Calculation Methodology

A health risk assessment (HRA) for exposure to Toxic Air Contaminates (TACs) requires the application of a risk characterization model to the results from the air dispersion model to estimate potential health risk at each sensitive receptor location. The State of California Office of Environmental Health Hazard Assessment (OEHHA) and California Air Resources Board (CARB) develop recommended methods for conducting health risk assessments. The most recent OEHHA risk assessment guidelines were published in February of 2015.[34] 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.[35] 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.[36] Exposure parameters from the OEHHA guidelines and the recent BAAQMD HRA Guidelines were used in this evaluation.

Cancer Risk

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

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

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[34] 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.
[35] CARB, 2015. *Risk Management Guidance for Stationary Sources of Air Toxics*. July 23.
[36] BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*. December 2016.

For children at schools and daycare facilities, BAAQMD recommends using the 95th percentile 8-hour breathing rates. Additionally, CARB and the BAAQMD recommend the use of a residential exposure duration of 30 years for sources with long-term emissions (e.g., roadways). For workers, assumed to be adults, a 25-year exposure period is recommended by the BAAQMD. For school children a 9-year exposure period is recommended by the BAAQMD.

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

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

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

Where:

CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$

ASF = Age sensitivity factor for specified age group

ED = Exposure duration (years)

AT = Averaging time for lifetime cancer risk (years)

FAH = Fraction of time spent at home (unitless)

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

Where:

C_{air} = concentration in air ($\mu g/m^3$)

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

8HrBR = 8-hour breathing rate (L/kg body weight-8 hours)

A = Inhalation absorption factor

EF = Exposure frequency (days/year)

10^{-6} = Conversion factor

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

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

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

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

Non-Cancer Hazards

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

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

Annual $PM_{2.5}$ Concentrations

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

Attachment 2: CalEEMod Input Assumptions and Outputs

Air Quality/Noise Construction Information Data Request

Project Name: **Cotati Village**

Complete ALL Portions in Yellow

See Equipment Type TAB for type, horsepower and load factor

Project Size	177 Dwelling Units	7.82 total project acres disturbed	
	179973 s.f. residential		**Pile Driving? Y/N? NO**
	s.f. retail		
	29,415 s.f. office/commercial		**Project include on-site GENERATOR OR FIRE PUMP during project OPERATION (not construction)? Y/N? N**
	s.f. other, specify:		IF YES (if BOTH separate values) -->
	s.f. parking garage	spaces	Kilowatts/Horsepower:
	s.f. parking lot	271 spaces	Fuel Type:
Construction Days (i.e, M-F)	Monday to	Friday	Location in project (Plans Desired if Available):
Construction Hours	7 am to	7 pm	

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

Quantity	Description	HP	Load Factor	Hours/day	Total Work Days	Avg. Hours per day	HP Annual Hours	Comments
	Demolition	**Start Date:**	-	**Total phase:**	0			**Overall Import/Export Volumes**
		End Date:	-					
	Concrete/Industrial Saws	0	0			#DIV/0!	0	**Demolition Volume**
	Excavators	0	0			#DIV/0!	0	Square footage of buildings to be demolished
	Rubber-Tired Dozers	0	0			#DIV/0!	0	(*or* total tons to be hauled)
	Tractors/Loaders/Backhoes	0	0			#DIV/0!	0	0 square feet *or*
	Other Equipment?							0 Hauling volume (tons)
								Any pavement demolished and hauled? 0 tons
	Site Preparation	**Start Date:**	1/2/2023	**Total phase:**	10			
		End Date:	1/15/2023					
	Graders	187	0.41			0	0	
3	Rubber Tired Dozers	247	0.4	8	10	8	23712	
4	Tractors/Loaders/Backhoes	97	0.37	8	10	8	11485	
	Other Equipment?							
	Grading / Excavation	**Start Date:**	1/16/2023	**Total phase:**	20			
		End Date:	2/13/2023					**Soil Hauling Volume**
1	Excavators	158	0.38	8	20	8	9606	Export volume = 2600 cubic yards
1	Graders	187	0.41	8	20	8	12267	Import volume = 0 cubic yards
1	Rubber Tired Dozers	247	0.4	8	20	8	15808	
	Concrete/Industrial Saws	81	0.73			0	0	
3	Tractors/Loaders/Backhoes	97	0.37	8	20	8	17227	
	Other Equipment?							
	Trenching/Foundation	**Start Date:**	2/14/2023	**Total phase:**	20			
		End Date:	3/14/2023					
1	Tractor/Loader/Backhoe	97	0.37	8	20	8	5742	
1	Excavators	158	0.38	8	20	8	9606	
	Other Equipment?							
	Building - Exterior	**Start Date:**	3/15/2023	**Total phase:**	228			**Cement Trucks? 140 Total Round-Trips**
		End Date:	1/26/2024					
0	Cranes	0	0	0	0	0	0	Electric? (Y/N) ___ Otherwise assumed diesel
3	Forklifts	89	0.2	8	228	8	97402	Liquid Propane (LPG)? (Y/N) ___ Otherwise Assumed diesel
1	Generator Sets	84	0.74	8	228	8	113380	Or temporary line power? (Y/N) Y
3	Tractors/Loaders/Backhoes	97	0.37	7	228	7	171841	
1	Welders	46	0.45	8	228	8	37757	
	Other Equipment?							
Building - Interior/Architectural Coating		**Start Date:**	1/27/2024	**Total phase:**	20			
		End Date:	2/23/2024					
1	Air Compressors	78	0.48	8	20	8	5990	
	Aerial Lift	62	0.31			0	0	
	Other Equipment?							
	Paving	**Start Date:**	2/24/2024	**Total phase:**	20			
		Start Date:	3/22/2024					
	Cement and Mortar Mixers	9	0.56			0	0	
2	Pavers	130	0.42	8	20	8	17472	**Asphalt? 1100 cubic yards or 110 round trips?**
2	Paving Equipment	132	0.36	8	20	8	15206	
2	Rollers	80	0.38	8	20	8	9728	
	Tractors/Loaders/Backhoes	97	0.37			0	0	
	Other Equipment?							
	Additional Phases	**Start Date:**		**Total phase:**				
		Start Date:						
						#DIV/0!	0	
						#DIV/0!	0	
						#DIV/0!	0	
						#DIV/0!	0	
						#DIV/0!	0	

Equipment types listed in "Equipment Types" worksheet tab.		**Total all phases:**	**318**
Equipment listed in this sheet is to provide an example of inputs		**Complete one sheet for each project component**	
It is assumed that water trucks would be used during grading		**year**	**0.87**
Add or subtract phases and equipment, as appropriate		**month**	**10.5**
Modify horsepower or load factor, as appropriate		site work =	50

Construction Criteria Air Pollutants							
Unmitigated	ROG	NOX	PM10 Exhaust	PM2.5 Exhaust	PM2.5 Fugitive	**CO2e**	
Year	Tons					MT	
Construction Equipment							
2023-2024	1.64	1.72	0.08	0.08	0.09	290.60	
EMFAC							
2023-2024	0.09	0.30	0.02	0.01	0.03	291.55	
Total Construction Emissions by Year							
2023-2024	1.73	2.02	0.11	0.09	0.11	582.14	
	Total Construction Emissions						
Tons	1.73	2.02	0.11	0.09		582.14	
Pounds/Workdays	*Average Daily Emissions*					Workdays	
2023-2024	10.79	12.65	0.66	0.55			**320**
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**			
	Total Construction Emissions						
Pounds	10.79	12.65	0.66	0.55		0.00	
Average	10.79	12.65	0.66	0.55		0.00	320.00
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**			

Mitigated Construction Criteria Air Pollutants							
Unmitigated	ROG	NOX	PM10 Exhaust	PM2.5 Exhaust	M2.5 Fugitiv	**CO2e**	
Year	Tons					MT	
Construction Equipment							
2023-2024			0.01	0.01	0.04		
EMFAC							
2023-2024							
Total Construction Emissions by Year							
2023-2024							
	Total Construction Emissions						
Tons							

Operational Criteria Air Pollutants							
Unmitigated	ROG	NOX	Total PM10	Total PM2.5			
Year	Tons						
Total	2.97	1.46	1.58	0.42			
	Existing Use Emissions						
	Net Annual Operational Emissions						
Tons/year	2.97	1.46	1.58	0.42			
Threshold - Tons/year	**10.0**	**10.0**	**15.0**	**10.0**			
	Average Daily Emissions						
Pounds Per Day	16.28	7.99	8.68	2.28			
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**			

Category	**CO2e**			
	Project	Existing	Project 2030	Existing
Area	2.20		2.20	
Energy	88.59		88.60	
Mobile	1757.41		1550.35	
Waste	56.79		56.79	
Water	14.23		56.79	
TOTAL	1919.22	0.00	1754.72	0.00
Net GHG Emissions		1919.22		1754.72
Service Population	0.00			
Per Capita Emissions		#DIV/0!		#DIV/0!
	0	units		
CA DOF 1920 =	0	pphh		

Cotati Village

Uncontrolled DPM

Year	CalEEMod DPM	DPM EMFAC2021	Unmitigated Emissions	CalEEMod Fug PM2.5	Fug PM2.5 EMFAC2021	Unmitigated Emissions
2023-2024	0.0847	0.0012	0.0859	0.0865	0.0013	0.0878

Controlled DPM

Year	CalEEMod DPM	DPM EMFAC2021	Mitigated Emissions	CalEEMod Fug PM2.5	Fug PM2.5 EMFAC2021	Mitigated Emissions
2023-2024	0.0110	0.0012	0.0122	0.0389	0.0013	0.0402

Traffic Consultant Trip Gen						CalEEMod Default			
Land Use		Size	Daily Trips	New Trips	Weekday Trip Gen		Weekday	Sat	Sun
Apartments Mid Rise	DU	177	1193	1068	***6.03***		7.32	8.14	6.28
Internal Capture			*-125*			*Rev*		***6.71***	***5.18***
Strip Mall	ksf	30	1634	1509	***50.30***		44.32	42.04	20.43
Internal Capture			*-125*			*Rev*		***47.71***	***23.19***

Table 2 – Trip Generation Summary

Land Use	Units	Daily		AM Peak Hour				PM I…	
Deductions		Rate	Trips	Rate	Trips	In	Out	Rate	Tri…
Strip Retail Plaza	30 ksf	54.45	1,634	2.36	71	42	29	6.59	19…
*Internal Capture**			*-125*		*-2*	*-1*	*-1*		*-1…*

Asphalt Paving

	sq in	sq ft	Cft	CY	Deliveries	Trips
Concrete		0	0	0	0	0
Asphalt		0	0	1100	132	264
Asphalt Demo		0	0	0	0	0

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	271.00	Space	0.00	108,400.00	0
Apartments Low Rise	177.00	Dwelling Unit	7.82	179,973.00	506
Strip Mall	30.00	1000sqft	0.00	30,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	75
Climate Zone	4			**Operational Year**	2025
Utility Company	Sonoma Clean Power				
CO2 Intensity (lb/MWhr)	119.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Provided construction worksheet - total lot acreage and square footage.

Construction Phase - Construction schedule provided in construction worksheet.

Off-road Equipment - Provided in construction worksheet.

Off-road Equipment - Provided in construction worksheet.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Provided in construction worksheet.

Grading - Grading = 2,600-cy exported.

Date: 9/23/2022 4:18 PM

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Trips and VMT - EMFAC2021 adjustment 0 trips, building const = 140 concrete truck round trips, paving = 1,100-cy asphalt.

Vehicle Trips - Provided tri gen with reduction adjustments.

Vehicle Emission Factors - EMFAC2021 vehicle emissions factors Sonoma County 2025.

Vehicle Emission Factors -

Vehicle Emission Factors -

Fleet Mix - EMFAC2021 fleet mix Sonoma County 2025.

Woodstoves - No hearths.

Energy Use - Project description - all electric appliances.

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

Construction Off-road Equipment Mitigation - BMPs, tier 4 interim mitigation.

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	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
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
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
tblConstructionPhase	NumDays	20.00	21.00
tblConstructionPhase	NumDays	230.00	228.00
tblEnergyUse	NT24E	3,172.76	4,097.40
tblEnergyUse	NT24NG	3,155.00	0.00
tblEnergyUse	T24E	77.89	2,045.21
tblEnergyUse	T24E	2.46	3.15
tblEnergyUse	T24NG	6,712.79	0.00
tblEnergyUse	T24NG	2.34	0.00
tblFireplaces	FireplaceDayYear	11.14	0.00
tblFireplaces	FireplaceHourDay	3.50	0.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	26.55	0.00
tblFireplaces	NumberNoFireplace	7.08	0.00
tblFireplaces	NumberWood	30.09	0.00
tblFleetMix	HHD	6.6260e-003	7.9150e-003
tblFleetMix	HHD	6.6260e-003	7.9150e-003
tblFleetMix	HHD	6.6260e-003	7.9150e-003
tblFleetMix	LDA	0.55	0.47
tblFleetMix	LDA	0.55	0.47
tblFleetMix	LDA	0.55	0.47
tblFleetMix	LDT1	0.06	0.05
tblFleetMix	LDT1	0.06	0.05
tblFleetMix	LDT1	0.06	0.05

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tblFleetMix	LDT2	0.17	0.21
tblFleetMix	LDT2	0.17	0.21
tblFleetMix	LDT2	0.17	0.21
tblFleetMix	LHD1	0.03	0.05
tblFleetMix	LHD1	0.03	0.05
tblFleetMix	LHD1	0.03	0.05
tblFleetMix	LHD2	8.6190e-003	0.01
tblFleetMix	LHD2	8.6190e-003	0.01
tblFleetMix	LHD2	8.6190e-003	0.01
tblFleetMix	MCY	0.03	0.03
tblFleetMix	MCY	0.03	0.03
tblFleetMix	MCY	0.03	0.03
tblFleetMix	MDV	0.12	0.15
tblFleetMix	MDV	0.12	0.15
tblFleetMix	MDV	0.12	0.15
tblFleetMix	MH	4.1400e-003	4.8620e-003
tblFleetMix	MH	4.1400e-003	4.8620e-003
tblFleetMix	MH	4.1400e-003	4.8620e-003
tblFleetMix	MHD	0.01	0.02
tblFleetMix	MHD	0.01	0.02
tblFleetMix	MHD	0.01	0.02
tblFleetMix	OBUS	1.0950e-003	1.0160e-003
tblFleetMix	OBUS	1.0950e-003	1.0160e-003
tblFleetMix	OBUS	1.0950e-003	1.0160e-003
tblFleetMix	SBUS	1.5400e-003	1.4800e-003
tblFleetMix	SBUS	1.5400e-003	1.4800e-003
tblFleetMix	SBUS	1.5400e-003	1.4800e-003
tblFleetMix	UBUS	2.9300e-004	4.2200e-004
tblFleetMix	UBUS	2.9300e-004	4.2200e-004

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tblFleetMix	UBUS	2.9300e-004	4.2200e-004
tblGrading	MaterialExported	0.00	2,600.00
tblLandUse	LandUseSquareFeet	177,000.00	179,973.00
tblLandUse	LotAcreage	2.44	0.00
tblLandUse	LotAcreage	11.06	7.82
tblLandUse	LotAcreage	0.69	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblTripsAndVMT	HaulingTripNumber	325.00	0.00
tblTripsAndVMT	VendorTripNumber	42.00	0.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	183.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	37.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	0.00
tblVehicleEF	HHD	0.02	0.18
tblVehicleEF	HHD	0.04	0.06
tblVehicleEF	HHD	5.37	4.64
tblVehicleEF	HHD	0.44	0.57
tblVehicleEF	HHD	0.01	1.3190e-003
tblVehicleEF	HHD	889.96	749.81
tblVehicleEF	HHD	1,418.69	1,659.43
tblVehicleEF	HHD	0.15	0.04
tblVehicleEF	HHD	0.14	0.12
tblVehicleEF	HHD	0.22	0.26
tblVehicleEF	HHD	1.8000e-005	2.1000e-005
tblVehicleEF	HHD	4.78	3.80

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tblVehicleEF	HHD	2.81	2.08
tblVehicleEF	HHD	2.81	2.78
tblVehicleEF	HHD	2.8640e-003	2.8410e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	2.7400e-003	2.7130e-003
tblVehicleEF	HHD	0.02	0.03
tblVehicleEF	HHD	8.4860e-003	8.4740e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	2.0000e-006	1.0000e-006
tblVehicleEF	HHD	8.0000e-006	3.6000e-004
tblVehicleEF	HHD	4.2000e-004	1.0200e-004
tblVehicleEF	HHD	0.37	0.30
tblVehicleEF	HHD	4.0000e-006	0.00
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	2.5600e-004	9.3500e-004
tblVehicleEF	HHD	2.0000e-006	0.00
tblVehicleEF	HHD	8.3010e-003	6.5990e-003
tblVehicleEF	HHD	0.01	0.02
tblVehicleEF	HHD	2.0000e-006	0.00
tblVehicleEF	HHD	8.0000e-006	3.6000e-004
tblVehicleEF	HHD	4.2000e-004	1.0200e-004
tblVehicleEF	HHD	0.42	0.50
tblVehicleEF	HHD	4.0000e-006	0.00
tblVehicleEF	HHD	0.08	0.09
tblVehicleEF	HHD	2.5600e-004	9.3500e-004
tblVehicleEF	HHD	2.0000e-006	0.00
tblVehicleEF	LDA	1.9810e-003	2.3030e-003

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tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.55	0.71
tblVehicleEF	LDA	2.13	3.14
tblVehicleEF	LDA	236.61	246.96
tblVehicleEF	LDA	49.40	64.91
tblVehicleEF	LDA	4.3200e-003	4.6290e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	0.17	0.25
tblVehicleEF	LDA	0.04	8.3980e-003
tblVehicleEF	LDA	1.4600e-003	1.2770e-003
tblVehicleEF	LDA	1.7030e-003	1.9640e-003
tblVehicleEF	LDA	0.02	2.9390e-003
tblVehicleEF	LDA	1.3460e-003	1.1770e-003
tblVehicleEF	LDA	1.5660e-003	1.8060e-003
tblVehicleEF	LDA	0.04	0.32
tblVehicleEF	LDA	0.10	0.09
tblVehicleEF	LDA	0.03	0.00
tblVehicleEF	LDA	7.6710e-003	9.0850e-003
tblVehicleEF	LDA	0.03	0.24
tblVehicleEF	LDA	0.20	0.32
tblVehicleEF	LDA	2.3400e-003	2.4410e-003
tblVehicleEF	LDA	4.8900e-004	6.4200e-004
tblVehicleEF	LDA	0.04	0.32
tblVehicleEF	LDA	0.10	0.09
tblVehicleEF	LDA	0.03	0.00
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.03	0.24
tblVehicleEF	LDA	0.22	0.35

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tblVehicleEF	LDT1	5.3460e-003	8.3860e-003
tblVehicleEF	LDT1	0.07	0.13
tblVehicleEF	LDT1	1.11	1.83
tblVehicleEF	LDT1	2.44	7.01
tblVehicleEF	LDT1	290.80	328.93
tblVehicleEF	LDT1	62.26	90.88
tblVehicleEF	LDT1	7.5950e-003	0.01
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.10	0.18
tblVehicleEF	LDT1	0.27	0.48
tblVehicleEF	LDT1	0.04	0.01
tblVehicleEF	LDT1	1.9860e-003	2.3370e-003
tblVehicleEF	LDT1	2.3830e-003	3.4730e-003
tblVehicleEF	LDT1	0.02	3.7750e-003
tblVehicleEF	LDT1	1.8290e-003	2.1530e-003
tblVehicleEF	LDT1	2.1910e-003	3.1930e-003
tblVehicleEF	LDT1	0.11	0.84
tblVehicleEF	LDT1	0.24	0.23
tblVehicleEF	LDT1	0.09	0.00
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.13	0.68
tblVehicleEF	LDT1	0.38	0.71
tblVehicleEF	LDT1	2.8780e-003	3.2520e-003
tblVehicleEF	LDT1	6.1600e-004	8.9800e-004
tblVehicleEF	LDT1	0.11	0.84
tblVehicleEF	LDT1	0.24	0.23
tblVehicleEF	LDT1	0.09	0.00
tblVehicleEF	LDT1	0.03	0.06
tblVehicleEF	LDT1	0.13	0.68

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tblVehicleEF	LDT1	0.41	0.78
tblVehicleEF	LDT2	3.5280e-003	3.1090e-003
tblVehicleEF	LDT2	0.07	0.09
tblVehicleEF	LDT2	0.81	0.89
tblVehicleEF	LDT2	2.78	3.97
tblVehicleEF	LDT2	305.45	332.27
tblVehicleEF	LDT2	65.56	86.70
tblVehicleEF	LDT2	6.3450e-003	6.5360e-003
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.07	0.08
tblVehicleEF	LDT2	0.27	0.35
tblVehicleEF	LDT2	0.04	0.01
tblVehicleEF	LDT2	1.5000e-003	1.4050e-003
tblVehicleEF	LDT2	1.7710e-003	2.1650e-003
tblVehicleEF	LDT2	0.02	3.5750e-003
tblVehicleEF	LDT2	1.3810e-003	1.2930e-003
tblVehicleEF	LDT2	1.6280e-003	1.9910e-003
tblVehicleEF	LDT2	0.07	0.34
tblVehicleEF	LDT2	0.15	0.09
tblVehicleEF	LDT2	0.06	0.00
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.08	0.26
tblVehicleEF	LDT2	0.32	0.41
tblVehicleEF	LDT2	3.0220e-003	3.2840e-003
tblVehicleEF	LDT2	6.4900e-004	8.5700e-004
tblVehicleEF	LDT2	0.07	0.34
tblVehicleEF	LDT2	0.15	0.09
tblVehicleEF	LDT2	0.06	0.00
tblVehicleEF	LDT2	0.02	0.02

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tblVehicleEF	LDT2	0.08	0.26
tblVehicleEF	LDT2	0.35	0.45
tblVehicleEF	LHD1	4.0030e-003	4.3360e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.16	0.17
tblVehicleEF	LHD1	1.12	1.08
tblVehicleEF	LHD1	0.93	1.70
tblVehicleEF	LHD1	9.51	9.32
tblVehicleEF	LHD1	751.80	765.78
tblVehicleEF	LHD1	9.25	14.01
tblVehicleEF	LHD1	9.7400e-004	8.9200e-004
tblVehicleEF	LHD1	0.06	0.06
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	1.53	1.30
tblVehicleEF	LHD1	0.26	0.35
tblVehicleEF	LHD1	1.1400e-003	1.0260e-003
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	9.9820e-003
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	2.4400e-004	2.2600e-004
tblVehicleEF	LHD1	1.0900e-003	9.8100e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5560e-003	2.4960e-003
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	2.2400e-004	2.0700e-004
tblVehicleEF	LHD1	2.0910e-003	0.12
tblVehicleEF	LHD1	0.09	0.03

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tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.0320e-003	0.00
tblVehicleEF	LHD1	0.14	0.14
tblVehicleEF	LHD1	0.33	0.18
tblVehicleEF	LHD1	0.07	0.10
tblVehicleEF	LHD1	9.2000e-005	9.0000e-005
tblVehicleEF	LHD1	7.3020e-003	7.4400e-003
tblVehicleEF	LHD1	9.2000e-005	1.3900e-004
tblVehicleEF	LHD1	2.0910e-003	0.12
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.0320e-003	0.00
tblVehicleEF	LHD1	0.17	0.17
tblVehicleEF	LHD1	0.33	0.18
tblVehicleEF	LHD1	0.08	0.11
tblVehicleEF	LHD2	2.8120e-003	2.8680e-003
tblVehicleEF	LHD2	7.6000e-003	7.7940e-003
tblVehicleEF	LHD2	7.6030e-003	0.01
tblVehicleEF	LHD2	0.13	0.13
tblVehicleEF	LHD2	0.75	0.62
tblVehicleEF	LHD2	0.52	1.03
tblVehicleEF	LHD2	14.77	14.48
tblVehicleEF	LHD2	761.89	834.49
tblVehicleEF	LHD2	6.68	8.49
tblVehicleEF	LHD2	1.9280e-003	1.8640e-003
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.12	0.11
tblVehicleEF	LHD2	1.29	1.15

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tblVehicleEF	LHD2	0.17	0.21
tblVehicleEF	LHD2	1.5310e-003	1.4830e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.02	0.03
tblVehicleEF	LHD2	1.0500e-004	8.1000e-005
tblVehicleEF	LHD2	1.4640e-003	1.4190e-003
tblVehicleEF	LHD2	0.04	0.03
tblVehicleEF	LHD2	2.7280e-003	2.7030e-003
tblVehicleEF	LHD2	0.02	0.03
tblVehicleEF	LHD2	9.6000e-005	7.4000e-005
tblVehicleEF	LHD2	8.7700e-004	0.05
tblVehicleEF	LHD2	0.04	0.01
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	4.8300e-004	0.00
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.10	0.08
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	1.4100e-004	1.3800e-004
tblVehicleEF	LHD2	7.3400e-003	8.0260e-003
tblVehicleEF	LHD2	6.6000e-005	8.4000e-005
tblVehicleEF	LHD2	8.7700e-004	0.05
tblVehicleEF	LHD2	0.04	0.01
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	4.8300e-004	0.00
tblVehicleEF	LHD2	0.15	0.16
tblVehicleEF	LHD2	0.10	0.08
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	MCY	0.36	0.20

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tblVehicleEF	MCY	0.27	0.22
tblVehicleEF	MCY	21.08	15.53
tblVehicleEF	MCY	9.22	8.73
tblVehicleEF	MCY	217.51	191.53
tblVehicleEF	MCY	63.10	55.31
tblVehicleEF	MCY	0.07	0.04
tblVehicleEF	MCY	0.02	9.7420e-003
tblVehicleEF	MCY	1.19	0.67
tblVehicleEF	MCY	0.28	0.17
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	2.1620e-003	1.9980e-003
tblVehicleEF	MCY	3.1630e-003	3.6830e-003
tblVehicleEF	MCY	5.0400e-003	4.2000e-003
tblVehicleEF	MCY	2.0240e-003	1.8730e-003
tblVehicleEF	MCY	2.9820e-003	3.4720e-003
tblVehicleEF	MCY	0.91	4.93
tblVehicleEF	MCY	0.87	3.55
tblVehicleEF	MCY	0.48	0.00
tblVehicleEF	MCY	2.47	1.34
tblVehicleEF	MCY	0.76	3.93
tblVehicleEF	MCY	2.06	1.65
tblVehicleEF	MCY	2.1520e-003	1.8930e-003
tblVehicleEF	MCY	6.2400e-004	5.4700e-004
tblVehicleEF	MCY	0.91	0.15
tblVehicleEF	MCY	0.87	3.55
tblVehicleEF	MCY	0.48	0.00
tblVehicleEF	MCY	3.03	1.59
tblVehicleEF	MCY	0.76	3.93
tblVehicleEF	MCY	2.24	1.79

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tblVehicleEF	MDV	4.0540e-003	4.1150e-003
tblVehicleEF	MDV	0.08	0.11
tblVehicleEF	MDV	0.86	1.03
tblVehicleEF	MDV	3.16	4.43
tblVehicleEF	MDV	376.28	405.68
tblVehicleEF	MDV	80.13	105.11
tblVehicleEF	MDV	8.4830e-003	9.3330e-003
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.08	0.11
tblVehicleEF	MDV	0.33	0.47
tblVehicleEF	MDV	0.04	0.01
tblVehicleEF	MDV	1.5660e-003	1.5240e-003
tblVehicleEF	MDV	1.8520e-003	2.2760e-003
tblVehicleEF	MDV	0.02	3.6630e-003
tblVehicleEF	MDV	1.4460e-003	1.4070e-003
tblVehicleEF	MDV	1.7030e-003	2.0920e-003
tblVehicleEF	MDV	0.08	0.45
tblVehicleEF	MDV	0.18	0.12
tblVehicleEF	MDV	0.08	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.09	0.35
tblVehicleEF	MDV	0.40	0.57
tblVehicleEF	MDV	3.7190e-003	4.0070e-003
tblVehicleEF	MDV	7.9300e-004	1.0390e-003
tblVehicleEF	MDV	0.08	0.45
tblVehicleEF	MDV	0.18	0.12
tblVehicleEF	MDV	0.08	0.00
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.09	0.35

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tblVehicleEF	MDV	0.44	0.62
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	1.25	1.28
tblVehicleEF	MH	2.00	2.29
tblVehicleEF	MH	1,505.95	1,629.64
tblVehicleEF	MH	17.37	20.52
tblVehicleEF	MH	0.07	0.08
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	1.85	1.98
tblVehicleEF	MH	0.24	0.29
tblVehicleEF	MH	0.13	0.04
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.04	0.05
tblVehicleEF	MH	2.4500e-004	2.7800e-004
tblVehicleEF	MH	0.06	0.02
tblVehicleEF	MH	3.3210e-003	3.3670e-003
tblVehicleEF	MH	0.04	0.04
tblVehicleEF	MH	2.2500e-004	2.5600e-004
tblVehicleEF	MH	0.68	33.40
tblVehicleEF	MH	0.06	8.56
tblVehicleEF	MH	0.25	0.00
tblVehicleEF	MH	0.09	0.10
tblVehicleEF	MH	0.02	0.21
tblVehicleEF	MH	0.09	0.11
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	1.7200e-004	2.0300e-004
tblVehicleEF	MH	0.68	33.40
tblVehicleEF	MH	0.06	8.56

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tblVehicleEF	MH	0.25	0.00
tblVehicleEF	MH	0.11	0.12
tblVehicleEF	MH	0.02	0.21
tblVehicleEF	MH	0.10	0.12
tblVehicleEF	MHD	2.3490e-003	0.01
tblVehicleEF	MHD	1.5330e-003	7.6690e-003
tblVehicleEF	MHD	6.4340e-003	7.9530e-003
tblVehicleEF	MHD	0.33	0.67
tblVehicleEF	MHD	0.22	0.31
tblVehicleEF	MHD	0.80	0.98
tblVehicleEF	MHD	68.68	162.65
tblVehicleEF	MHD	1,026.30	1,199.03
tblVehicleEF	MHD	6.19	7.78
tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	0.14	0.16
tblVehicleEF	MHD	4.5760e-003	5.2830e-003
tblVehicleEF	MHD	0.39	0.85
tblVehicleEF	MHD	1.57	0.97
tblVehicleEF	MHD	1.85	1.47
tblVehicleEF	MHD	2.9900e-004	1.8000e-003
tblVehicleEF	MHD	0.13	0.05
tblVehicleEF	MHD	7.8810e-003	0.01
tblVehicleEF	MHD	8.2000e-005	1.0400e-004
tblVehicleEF	MHD	2.8600e-004	1.7220e-003
tblVehicleEF	MHD	0.06	0.02
tblVehicleEF	MHD	7.5360e-003	0.01
tblVehicleEF	MHD	7.5000e-005	9.5000e-005
tblVehicleEF	MHD	3.2600e-004	0.02
tblVehicleEF	MHD	0.02	5.9960e-003

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tblVehicleEF	MHD	0.01	0.03
tblVehicleEF	MHD	1.6800e-004	0.00
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	0.02	0.05
tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	6.5100e-004	1.5200e-003
tblVehicleEF	MHD	9.7500e-003	0.01
tblVehicleEF	MHD	6.1000e-005	7.7000e-005
tblVehicleEF	MHD	3.2600e-004	0.02
tblVehicleEF	MHD	0.02	5.9960e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	1.6800e-004	0.00
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	0.02	0.05
tblVehicleEF	MHD	0.04	0.05
tblVehicleEF	OBUS	7.1450e-003	8.1750e-003
tblVehicleEF	OBUS	4.5070e-003	0.01
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.65	0.60
tblVehicleEF	OBUS	0.54	0.72
tblVehicleEF	OBUS	2.11	2.62
tblVehicleEF	OBUS	102.51	91.65
tblVehicleEF	OBUS	1,312.38	1,497.93
tblVehicleEF	OBUS	15.81	19.59
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.13	0.15
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.43	0.37
tblVehicleEF	OBUS	1.51	1.15

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tblVehicleEF	OBUS	1.10	0.87
tblVehicleEF	OBUS	1.4200e-004	4.7600e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	7.9840e-003	0.02
tblVehicleEF	OBUS	1.7600e-004	2.0800e-004
tblVehicleEF	OBUS	1.3600e-004	4.5600e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	7.6260e-003	0.02
tblVehicleEF	OBUS	1.6100e-004	1.9100e-004
tblVehicleEF	OBUS	1.4060e-003	0.09
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	6.0600e-004	0.00
tblVehicleEF	OBUS	0.03	0.07
tblVehicleEF	OBUS	0.07	0.10
tblVehicleEF	OBUS	0.10	0.12
tblVehicleEF	OBUS	9.7300e-004	8.7000e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	1.5600e-004	1.9400e-004
tblVehicleEF	OBUS	1.4060e-003	0.09
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.07	0.06
tblVehicleEF	OBUS	6.0600e-004	0.00
tblVehicleEF	OBUS	0.04	0.09
tblVehicleEF	OBUS	0.07	0.10
tblVehicleEF	OBUS	0.11	0.14
tblVehicleEF	SBUS	0.03	0.09
tblVehicleEF	SBUS	4.2340e-003	0.20
tblVehicleEF	SBUS	2.7040e-003	2.4920e-003

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tblVehicleEF	SBUS	1.59	1.15
tblVehicleEF	SBUS	0.32	0.90
tblVehicleEF	SBUS	0.39	0.34
tblVehicleEF	SBUS	334.60	181.28
tblVehicleEF	SBUS	1,065.38	1,078.71
tblVehicleEF	SBUS	2.29	2.12
tblVehicleEF	SBUS	0.05	0.03
tblVehicleEF	SBUS	0.15	0.15
tblVehicleEF	SBUS	2.7540e-003	2.6940e-003
tblVehicleEF	SBUS	3.11	1.35
tblVehicleEF	SBUS	4.09	2.50
tblVehicleEF	SBUS	1.05	0.45
tblVehicleEF	SBUS	2.5480e-003	1.1120e-003
tblVehicleEF	SBUS	0.74	0.04
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	2.9000e-005	2.3000e-005
tblVehicleEF	SBUS	2.4370e-003	1.0620e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.8200e-003	2.7530e-003
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	2.7000e-005	2.1000e-005
tblVehicleEF	SBUS	2.5400e-004	0.01
tblVehicleEF	SBUS	2.6100e-003	4.0560e-003
tblVehicleEF	SBUS	0.15	0.11
tblVehicleEF	SBUS	1.2000e-004	0.00
tblVehicleEF	SBUS	0.07	0.05
tblVehicleEF	SBUS	5.8280e-003	7.7970e-003
tblVehicleEF	SBUS	0.02	0.01

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tblVehicleEF	SBUS	3.1750e-003	1.5660e-003
tblVehicleEF	SBUS	0.01	9.6580e-003
tblVehicleEF	SBUS	2.3000e-005	2.1000e-005
tblVehicleEF	SBUS	2.5400e-004	0.01
tblVehicleEF	SBUS	2.6100e-003	4.0560e-003
tblVehicleEF	SBUS	0.22	0.23
tblVehicleEF	SBUS	1.2000e-004	0.00
tblVehicleEF	SBUS	0.08	0.25
tblVehicleEF	SBUS	5.8280e-003	7.7970e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	UBUS	2.29	0.60
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	17.52	8.81
tblVehicleEF	UBUS	0.84	2.66
tblVehicleEF	UBUS	1,702.90	1,251.03
tblVehicleEF	UBUS	8.29	20.64
tblVehicleEF	UBUS	0.28	0.17
tblVehicleEF	UBUS	6.6330e-003	0.02
tblVehicleEF	UBUS	0.64	0.29
tblVehicleEF	UBUS	0.08	0.20
tblVehicleEF	UBUS	0.08	0.11
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	4.6580e-003	3.1740e-003
tblVehicleEF	UBUS	8.5000e-005	1.3100e-004
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	7.7720e-003	6.3890e-003
tblVehicleEF	UBUS	4.4500e-003	3.0240e-003
tblVehicleEF	UBUS	7.9000e-005	1.2100e-004
tblVehicleEF	UBUS	1.9200e-004	0.04

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tblVehicleEF	UBUS	2.5600e-003	0.01
tblVehicleEF	UBUS	1.0800e-004	0.00
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	5.7800e-004	0.03
tblVehicleEF	UBUS	0.05	0.09
tblVehicleEF	UBUS	9.4990e-003	7.5470e-003
tblVehicleEF	UBUS	8.2000e-005	2.0400e-004
tblVehicleEF	UBUS	1.9200e-004	0.04
tblVehicleEF	UBUS	2.5600e-003	0.01
tblVehicleEF	UBUS	1.0800e-004	0.00
tblVehicleEF	UBUS	2.33	0.64
tblVehicleEF	UBUS	5.7800e-004	0.03
tblVehicleEF	UBUS	0.05	0.10
tblVehicleTrips	ST_TR	8.14	6.71
tblVehicleTrips	ST_TR	42.04	47.71
tblVehicleTrips	SU_TR	6.28	5.18
tblVehicleTrips	SU_TR	20.43	23.19
tblVehicleTrips	WD_TR	7.32	6.03
tblVehicleTrips	WD_TR	44.32	50.30
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	NumberCatalytic	3.54	0.00

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tblWoodstoves	NumberNoncatalytic	3.54	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					
2023	0.1664	1.5072	1.8262	2.8700e-003	0.1728	0.0743	0.2471	0.0865	0.0699	0.1564	0.0000	246.6696	246.6696	0.0592	0.0000	248.1486
2024	1.4701	0.2153	0.3165	4.9000e-004	0.0000	0.0104	0.0104	0.0000	9.72E-03	9.7200e-003	0.0000	42.1800	42.1800	0.0107	0.0000	42.448
Maximum	**1.4701**	**1.5072**	**1.8262**	**2.8700e-003**	**0.1728**	**0.0743**	**0.2471**	**0.0865**	**0.0699**	**0.1564**	**0.0000**	**246.6696**	**246.6696**	**0.0592**	**0.0000**	**248.1486**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0572	1.2036	1.9593	2.8700e-003	0.0778	8.9000e-003	0.0867	0.0389	8.9000e-003	0.0478	0.0000	246.6694	246.6694	0.0592	0.0000	248.1483
2024	1.4545	0.2103	0.3493	4.9000e-004	0.0000	1.1900e-003	1.1900e-003	0.0000	1.1900e-003	1.1900e-003	0.0000	42.1800	42.1800	0.0107	0.0000	42.4479

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Maximum	**1.4545**	**1.2036**	**1.9593**	**2.8700e-003**	**0.0778**	**8.9000e-003**	**0.0867**	**0.0389**	**8.9000e-003**	**0.0478**	**0.0000**	**246.6694**	**246.6694**	**0.0592**	**0.0000**	**248.1483**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**7.62**	**17.91**	**-7.74**	**0.00**	**55.00**	**88.08**	**65.88**	**55.00**	**87.33**	**70.50**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-2-2023**	**4-1-2023**	0.4690	0.2802
2	**4-2-2023**	**7-1-2023**	0.4001	0.3260
3	**7-2-2023**	**10-1-2023**	0.4045	0.3295
4	**10-2-2023**	**1-1-2024**	0.4043	0.3295
5	**1-2-2024**	**4-1-2024**	1.6729	1.6541
		Highest	1.6729	1.6541

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.0113	0.0152	1.3158	7.0000e-005		7.3000e-003	7.3000e-003		7.3000e-003	7.3000e-003	0.0000	2.1522	2.1522	2.0700e-003	0.0000	2.2039
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	87.1236	87.1236	0.0240	2.9000e-003	88.5883
Mobile	1.9589	1.4424	10.2598	0.0186	1.5558	0.0201	1.5759	0.3901	0.0190	0.4091	0.0000	1,722.8459	1,722.8459	0.1218	0.1058	1,757.41
Waste						0.0000	0.0000		0.0000	0.0000	22.9217	0.0000	22.9217	1.3546	0.0000	56.7876
Water						0.0000	0.0000		0.0000	0.0000	4.8663	5.6946	10.5610	0.0183	0.0108	14.2291

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Total	**2.9703**	**1.4575**	**11.5756**	**0.0187**	**1.5558**	**0.0274**	**1.5832**	**0.3901**	**0.0263**	**0.4164**	**27.7881**	**1,817.8163**	**1,845.6044**	**1.5208**	**0.1194**	**1,919.2186**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.0113	0.0152	1.3158	7.0000e-005		7.3000e-003	7.3000e-003		7.3000e-003	7.3000e-003	0.0000	2.1522	2.1522	2.0700e-003	0.0000	2.2039
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	87.1236	87.1236	0.0240	2.9000e-003	88.5883
Mobile	1.9589	1.4424	10.2598	0.0186	1.5558	0.0201	1.5759	0.3901	0.0190	0.4091	0.0000	1,722.8459	1,722.8459	0.1218	0.1058	1,757.4096
Waste						0.0000	0.0000		0.0000	0.0000	22.9217	0.0000	22.9217	1.3546	0.0000	56.7876
Water						0.0000	0.0000		0.0000	0.0000	4.8663	5.6946	10.5610	0.0183	0.0108	14.2291
Total	**2.9703**	**1.4575**	**11.5756**	**0.0187**	**1.5558**	**0.0274**	**1.5832**	**0.3901**	**0.0263**	**0.4164**	**27.7881**	**1,817.8163**	**1,845.6044**	**1.5208**	**0.1194**	**1,919.2186**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/2/2023	1/15/2023	5	10	

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2	Grading	Grading	1/16/2023	2/13/2023	5	21	
3	Trenching	Trenching	2/14/2023	3/14/2023	5	21	
4	Building Construction	Building Construction	3/15/2023	1/26/2024	5	228	
5	Architectural Coating	Architectural Coating	1/27/2024	2/23/2024	5	20	
6	Paving	Paving	2/24/2024	3/22/2024	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 21

Acres of Paving: 0

Residential Indoor: 364,445; Residential Outdoor: 121,482; Non-Residential Indoor: 45,000; Non-Residential Outdoor: 15,000; Striped Parking Area: 6,504

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
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
Building Construction	Cranes	0	0.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	8.00	78	0.48
Trenching	Excavators	1	8.00	158	0.38

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Trenching	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
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
Building Construction	8	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	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

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0983	0.0000	0.0983	0.0505	0.0000	0.0505	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0133	0.1376	0.0912	1.9000e-004		6.3300e-003	6.3300e-003		5.8200e-003	5.8200e-003	0.0000	16.7254	16.7254	5.4100e-003	0.0000	16.8606
Total	**0.0133**	**0.1376**	**0.0912**	**1.9000e-004**	**0.0983**	**6.3300e-003**	**0.1046**	**0.0505**	**5.8200e-003**	**0.0563**	**0.0000**	**16.7254**	**16.7254**	**5.4100e-003**	**0.0000**	**16.8606**

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Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0442	0.0000	0.0442	0.0227	0.0000	0.0227	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.4800e-003	0.0608	0.1148	1.9000e-004		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	16.7253	16.7253	5.4100e-003	0.0000	16.8606
Total	**3.4800e-003**	**0.0608**	**0.1148**	**1.9000e-004**	**0.0442**	**3.1000e-004**	**0.0445**	**0.0227**	**3.1000e-004**	**0.0230**	**0.0000**	**16.7253**	**16.7253**	**5.4100e-003**	**0.0000**	**16.8606**

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Mitigated Construction Off-Site

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

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0745	0.0000	0.0745	0.0360	0.0000	0.0360	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0180	0.1883	0.1549	3.1000e-004		8.1400e-003	8.1400e-003		7.4900e-003	7.4900e-003	0.0000	27.3636	27.3636	8.8500e-003	0.0000	27.5849
Total	**0.0180**	**0.1883**	**0.1549**	**3.1000e-004**	**0.0745**	**8.1400e-003**	**0.0827**	**0.0360**	**7.4900e-003**	**0.0435**	**0.0000**	**27.3636**	**27.3636**	**8.8500e-003**	**0.0000**	**27.5849**

Unmitigated Construction Off-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					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0335	0.0000	0.0335	0.0162	0.0000	0.0162	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4600e-003	0.1085	0.1994	3.1000e-004		5.1000e-004	5.1000e-004		5.1000e-004	5.1000e-004	0.0000	27.3636	27.3636	8.8500e-003	0.0000	27.5849
Total	**5.4600e-003**	**0.1085**	**0.1994**	**3.1000e-004**	**0.0335**	**5.1000e-004**	**0.0340**	**0.0162**	**5.1000e-004**	**0.0167**	**0.0000**	**27.3636**	**27.3636**	**8.8500e-003**	**0.0000**	**27.5849**

Mitigated Construction Off-Site

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

3.4 Trenching - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.5700e-003	0.0324	0.0576	9.0000e-005		1.5900e-003	1.5900e-003		1.4600e-003	1.4600e-003	0.0000	7.6364	7.6364	2.4700e-003	0.0000	7.6981
Total	**3.5700e-003**	**0.0324**	**0.0576**	**9.0000e-005**		**1.5900e-003**	**1.5900e-003**		**1.4600e-003**	**1.4600e-003**	**0.0000**	**7.6364**	**7.6364**	**2.4700e-003**	**0.0000**	**7.6981**

Unmitigated Construction Off-Site

Cotati Village, Cotati - Sonoma-San Francisco County, Annual

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

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.4000e-003	0.0381	0.0657	9.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	7.6364	7.6364	2.4700e-003	0.0000	7.6981
Total	**1.4000e-003**	**0.0381**	**0.0657**	**9.0000e-005**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**	**0.0000**	**7.6364**	**7.6364**	**2.4700e-003**	**0.0000**	**7.6981**

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					

Cotati Village, Cotati - Sonoma-San Francisco County, Annual

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

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

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1316	1.1488	1.5224	2.2800e-003		0.0583	0.0583		0.0551	0.0551	0.0000	194.9443	194.9443	0.0424	0.0000	196.0050
Total	**0.1316**	**1.1488**	**1.5224**	**2.2800e-003**		**0.0583**	**0.0583**		**0.0551**	**0.0551**	**0.0000**	**194.9443**	**194.9443**	**0.0424**	**0.0000**	**196.0050**

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

Cotati Village, Cotati - Sonoma-San Francisco County, Annual

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

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

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	0.0469	0.9962	1.5793	2.2800e-003		7.9400e-003	7.9400e-003		7.9400e-003	7.9400e-003	0.0000	194.9440	194.9440	0.0424	0.0000	196.0048
Total	**0.0469**	**0.9962**	**1.5793**	**2.2800e-003**		**7.9400e-003**	**7.9400e-003**		**7.9400e-003**	**7.9400e-003**	**0.0000**	**194.9440**	**194.9440**	**0.0424**	**0.0000**	**196.0048**

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**

Cotati Village, Cotati - Sonoma-San Francisco County, Annual

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

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0118	0.1038	0.1461	2.2000e-004		4.8600e-003	4.8600e-003		4.6000e-003	4.6000e-003	0.0000	18.7492	18.7492	4.0500e-003	0.0000	18.8504
Total	**0.0118**	**0.1038**	**0.1461**	**2.2000e-004**		**4.8600e-003**	**4.8600e-003**		**4.6000e-003**	**4.6000e-003**	**0.0000**	**18.7492**	**18.7492**	**4.0500e-003**	**0.0000**	**18.8504**

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**

Cotati Village, Cotati - Sonoma-San Francisco County, Annual

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.5100e-003	0.0958	0.1519	2.2000e-004		7.6000e-004	7.6000e-004		7.6000e-004	7.6000e-004	0.0000	18.7492	18.7492	4.0500e-003	0.0000	18.8504
Total	**4.5100e-003**	**0.0958**	**0.1519**	**2.2000e-004**		**7.6000e-004**	**7.6000e-004**		**7.6000e-004**	**7.6000e-004**	**0.0000**	**18.7492**	**18.7492**	**4.0500e-003**	**0.0000**	**18.8504**

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 Architectural Coating - 2024

Unmitigated Construction On-Site

Cotati Village, Cotati - Sonoma-San Francisco County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.4459					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4100e-003	0.0163	0.0241	4.0000e-005		8.1000e-004	8.1000e-004		8.1000e-004	8.1000e-004	0.0000	3.4043	3.4043	1.9000e-004	0.0000	3.4091
Total	**1.4484**	**0.0163**	**0.0241**	**4.0000e-005**		**8.1000e-004**	**8.1000e-004**		**8.1000e-004**	**8.1000e-004**	**0.0000**	**3.4043**	**3.4043**	**1.9000e-004**	**0.0000**	**3.4091**

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

Cotati Village, Cotati - Sonoma-San Francisco County, Annual

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

Category	tons/yr										MT/yr					
Archit. Coating	1.4459					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.3000e-004	0.0141	0.0244	4.0000e-005		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	3.4043	3.4043	1.9000e-004	0.0000	3.4091
Total	**1.4467**	**0.0141**	**0.0244**	**4.0000e-005**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**	**0.0000**	**3.4043**	**3.4043**	**1.9000e-004**	**0.0000**	**3.4091**

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 - 2024

Unmitigated Construction On-Site

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

Cotati Village, Cotati - Sonoma-San Francisco County, Annual

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

Off-Road	9.8800e-003	0.0953	0.1463	2.3000e-004		4.6900e-003	4.6900e-003		4.3100e-003	4.3100e-003	0.0000	20.0265	20.0265	6.4800e-003	0.0000	20.1885
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.8800e-003**	**0.0953**	**0.1463**	**2.3000e-004**		**4.6900e-003**	**4.6900e-003**		**4.3100e-003**	**4.3100e-003**	**0.0000**	**20.0265**	**20.0265**	**6.4800e-003**	**0.0000**	**20.1885**

Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

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

Cotati Village, Cotati - Sonoma-San Francisco County, Annual

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

Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.3400e-003**	**0.1004**	**0.1730**	**2.3000e-004**		**3.7000e-004**	**3.7000e-004**		**3.7000e-004**	**3.7000e-004**	**0.0000**	**20.0265**	**20.0265**	**6.4800e-003**	**0.0000**	**20.1884**

Mitigated Construction Off-Site

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

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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					
Mitigated	1.9589	1.4424	10.2598	0.0186	1.5558	0.0201	1.5759	0.3901	0.0190	0.4091	0.0000	1,722.8459	1,722.8459	0.1218	0.1058	1,757.4096
Unmitigated	1.9589	1.4424	10.2598	0.0186	1.5558	0.0201	1.5759	0.3901	0.0190	0.4091	0.0000	1,722.8459	1,722.8459	0.1218	0.1058	1,757.4096

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	1,067.31	1,187.67	916.86	2,455,139	2,455,139
Parking Lot	0.00	0.00	0.00		
Strip Mall	1,509.00	1,431.30	695.70	2,127,886	2,127,886
Total	2,576.31	2,618.97	1,612.56	4,583,025	4,583,025

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.467361	0.051994	0.211970	0.145720	0.047541	0.012328	0.017909	0.007915	0.001016	0.000422	0.029481	0.001480	0.004862
Parking Lot	0.467361	0.051994	0.211970	0.145720	0.047541	0.012328	0.017909	0.007915	0.001016	0.000422	0.029481	0.001480	0.004862
Strip Mall	0.467361	0.051994	0.211970	0.145720	0.047541	0.012328	0.017909	0.007915	0.001016	0.000422	0.029481	0.001480	0.004862

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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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					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	87.1236	87.1236	0.0240	2.9000e-003	88.5883
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	87.1236	87.1236	0.0240	2.9000e-003	88.5883
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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
Strip Mall	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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
Strip Mall	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	1.23068e+006	66.9759	0.0184	2.2300e-003	68.1018
Parking Lot	37940	2.0648	5.7000e-004	7.0000e-005	2.0995
Strip Mall	332274	18.0830	4.9700e-003	6.0000e-004	18.3870
Total		**87.1236**	**0.0240**	**2.9000e-003**	**88.5883**

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

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	1.23068e+006	66.9759	0.0184	2.2300e-003	68.1018
Parking Lot	37940	2.0648	5.7000e-004	7.0000e-005	2.0995
Strip Mall	332274	18.0830	4.9700e-003	6.0000e-004	18.3870
Total		**87.1236**	**0.0240**	**2.9000e-003**	**88.5883**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.0113	0.0152	1.3158	7.0000e-005		7.3000e-003	7.3000e-003		7.3000e-003	7.3000e-003	0.0000	2.1522	2.1522	2.0700e-003	0.0000	2.2039
Unmitigated	1.0113	0.0152	1.3158	7.0000e-005		7.3000e-003	7.3000e-003		7.3000e-003	7.3000e-003	0.0000	2.1522	2.1522	2.0700e-003	0.0000	2.2039

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

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	0.1446					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8271					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	0.0397	0.0152	1.3158	7.0000e-005		7.3000e-003	7.3000e-003		7.3000e-003	7.3000e-003	0.0000	2.1522	2.1522	2.0700e-003	0.0000	2.2039
Total	**1.0113**	**0.0152**	**1.3158**	**7.0000e-005**		**7.3000e-003**	**7.3000e-003**		**7.3000e-003**	**7.3000e-003**	**0.0000**	**2.1522**	**2.1522**	**2.0700e-003**	**0.0000**	**2.2039**

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	0.1446					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8271					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	0.0397	0.0152	1.3158	7.0000e-005		7.3000e-003	7.3000e-003		7.3000e-003	7.3000e-003	0.0000	2.1522	2.1522	2.0700e-003	0.0000	2.2039

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

Total	**1.0113**	**0.0152**	**1.3158**	**7.0000e-005**		**7.3000e-003**	**7.3000e-003**		**7.3000e-003**	**7.3000e-003**	**0.0000**	**2.1522**	**2.1522**	**2.0700e-003**	**0.0000**	**2.2039**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	10.5610	0.0183	0.0108	14.2291
Unmitigated	10.5610	0.0183	0.0108	14.2291

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	11.5323 / 7.27034	8.8610	0.0154	9.0300e-003	11.9366
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	2.22218 / 1.36198	1.7000	2.9600e-003	1.7400e-003	2.2925

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

Total	**10.5610**	**0.0183**	**0.0108**	**14.2291**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	11.5323 / 7.27034	8.8610	0.0154	9.0300e-003	11.9366
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	2.22218 / 1.36198	1.7000	2.9600e-003	1.7400e-003	2.2925
Total		**10.5610**	**0.0183**	**0.0108**	**14.2291**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			

Mitigated	22.9217	1.3546	0.0000	56.7876
Unmitigated	22.9217	1.3546	0.0000	56.7876

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	81.42	16.5275	0.9768	0.0000	40.9462
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	31.5	6.3942	0.3779	0.0000	15.8414
Total		**22.9217**	**1.3546**	**0.0000**	**56.7876**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	81.42	16.5275	0.9768	0.0000	40.9462
Parking Lot	0	0.0000	0.0000	0.0000	0.0000

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

Strip Mall	31.5	6.3942	0.3779	0.0000	15.8414
Total		**22.9217**	**1.3546**	**0.0000**	**56.7876**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment 3 - Emfac2021 Modeling

Summary of Construction Traffic Emissions (EMFAC2021)

Pollutants	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	NBio- CO2	CH4	N2O	CO2e
YEAR						*Tons*						*Metric Tons*		
Criteria Pollutants														
2023-2024	0.0901	0.3012	0.9478	0.0030	0.1831	0.0209	0.2041	0.0276	0.0085	0.0360	283.4425	0.0115	0.0262	291.5464
Toxic Air Contaminants (0.5 Mile Trip Length)														
2023-2024	0.0765	0.0847	0.3060	0.0002	0.0089	0.0012	0.0101	0.0013	0.0006	0.0019	23.1024	0.0058	0.0038	24.3942

CalEEMod Construction Inputs

Phase	CalEEMod WORKER TRIPS	CalEEMod VENDOR TRIPS	Total Worker Trips	Total Vendor Trips	CalEEMod HAULING TRIPS	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class	*Worker VMT*	*Vendor VMT*	*Hauling VMT*
Site Preparation	18	0	180	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	1944	0	0
Grading	15	0	315	0	325	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	3402	0	6500
Trenching	5	0	105	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	1134	0	0
Building Construction	183	42	41724	9576	280	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	450619.2	69904.8	5600
Architectural Coating	37	0	740	0	0	10.8	7.3	7.3	LD_Mix	HDT_Mix	HHDT	7992	0	0
Paving	15	0	300	0	264	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	3240	0	5280

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

Phase	**Start Date**	**End Date**	**Days/Week**	**Workdays**
Site Preparation	1/2/2023	1/15/2023	5	10
Grading	1/16/2023	2/13/2023	5	21
Trenching	2/14/2023	3/14/2023	5	21
Building Construction	3/15/2023	1/26/2024	5	228
Architectural Coating	1/27/2024	2/23/2024	5	20
Paving	2/24/2024	3/22/2024	5	20

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

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Populatior	Total VMT	CVMT	EVMT	Trips	NOx RUN	NOx IDLE	NOx STRE	PM2.5 RU	PM2.5 IDI	PM2.5 STI	PM2.5 PM	PM2.5 PM
Sonoma	2023	HHDT	Aggregate	Aggregate	Gasoline	2.14109	64.1498	64.1498	0	42.8389	19.3746	0	1.96614	0.00627	0	0.00217	0.005	0.03874
Sonoma	2023	HHDT	Aggregate	Aggregate	Diesel	2320.14	228315	228315	0	27466	2.33015	48.969	2.83581	0.0248	0.0384	0	0.00845	0.02766
Sonoma	2023	HHDT	Aggregate	Aggregate	Electricity	1.42959	82.3007	0	82.3007	19.6434	0	0	0	0	0	0	0.00851	0.01298
Sonoma	2023	HHDT	Aggregate	Aggregate	Natural Ga	161.989	10833.9	10833.9	0	1287.2	0.90363	11.1533	0	0.00225	0.01962	0	0.009	0.0489
Sonoma	2023	LDA	Aggregate	Aggregate	Gasoline	140202	5262439	5262439	0	644522	0.05929	0	0.29841	0.0013	0	0.00208	0.002	0.00311
Sonoma	2023	LDA	Aggregate	Aggregate	Diesel	988.504	29470.8	29470.8	0	4150.25	0.34821	0	0	0.02313	0	0	0.002	0.00317
Sonoma	2023	LDA	Aggregate	Aggregate	Electricity	7093.83	326993	0	326993	35219.6	0	0	0	0	0	0	0.002	0.00153
Sonoma	2023	LDA	Aggregate	Aggregate	Plug-in Hy	3231.76	148549	75529.2	73020	13363.3	0.00352	0	0.11755	0.00067	0	0.00211	0.002	0.00145
Sonoma	2023	LDT1	Aggregate	Aggregate	Gasoline	19002.8	581600	581600	0	81413.1	0.21453	0	0.53156	0.00233	0	0.00359	0.002	0.00378
Sonoma	2023	LDT1	Aggregate	Aggregate	Diesel	22.8706	279.834	279.834	0	65.8365	1.63948	0	0	0.24655	0	0	0.002	0.00426
Sonoma	2023	LDT1	Aggregate	Aggregate	Electricity	32.1997	1244.43	0	1244.43	151.079	0	0	0	0	0	0	0.002	0.00154
Sonoma	2023	LDT1	Aggregate	Aggregate	Plug-in Hy	8.80171	439.43	202.957	236.473	36.3951	0.0032	0	0.11754	0.00041	0	0.00143	0.002	0.00145
Sonoma	2023	LDT2	Aggregate	Aggregate	Gasoline	68762.8	2538989	2538989	0	318048	0.09657	0	0.4097	0.00137	0	0.00211	0.002	0.0036
Sonoma	2023	LDT2	Aggregate	Aggregate	Diesel	299.097	11473.6	11473.6	0	1402.42	0.07336	0	0	0.00763	0	0	0.002	0.0036
Sonoma	2023	LDT2	Aggregate	Aggregate	Electricity	217.558	8209.68	0	8209.68	1114.71	0	0	0	0	0	0	0.002	0.00152
Sonoma	2023	LDT2	Aggregate	Aggregate	Plug-in Hy	348.423	16752.7	8071.67	8681.02	1440.73	0.00333	0	0.11754	0.00053	0	0.00178	0.002	0.00145
Sonoma	2023	LHDT1	Aggregate	Aggregate	Gasoline	8377.04	299542	299542	0	124805	0.29022	0.03897	0.68029	0.00197	0	0.00043	0.002	0.0273
Sonoma	2023	LHDT1	Aggregate	Aggregate	Diesel	8519.4	304773	304773	0	107163	2.64687	2.32973	0	0.05222	0.02712	0	0.003	0.0273
Sonoma	2023	LHDT2	Aggregate	Aggregate	Gasoline	1284.78	48628.5	48628.5	0	19141.2	0.17776	0.03796	0.65236	0.00141	0	0.00025	0.002	0.03185
Sonoma	2023	LHDT2	Aggregate	Aggregate	Diesel	2964.59	114170	114170	0	37290.8	1.72543	2.22617	0	0.04149	0.02671	0	0.003	0.03185
Sonoma	2023	MCY	Aggregate	Aggregate	Gasoline	10151.8	54897.6	54897.6	0	20303.7	0.69963	0	0.18259	0.0019	0	0.00379	0.001	0.0042
Sonoma	2023	MDV	Aggregate	Aggregate	Gasoline	47948.7	1673482	1673482	0	217257	0.14616	0	0.56966	0.00142	0	0.00238	0.002	0.0037
Sonoma	2023	MDV	Aggregate	Aggregate	Diesel	1034.81	39273.1	39273.1	0	4829.98	0.08741	0	0	0.00754	0	0	0.002	0.00368
Sonoma	2023	MDV	Aggregate	Aggregate	Electricity	227.351	8624.23	0	8624.23	1167.1	0	0	0	0	0	0	0.002	0.00152
Sonoma	2023	MDV	Aggregate	Aggregate	Plug-in Hy	240.2	11159.6	5611.93	5547.64	993.227	0.00348	0	0.11755	0.00072	0	0.00231	0.002	0.00145
Sonoma	2023	MH	Aggregate	Aggregate	Gasoline	1193.56	10262.6	10262.6	0	119.404	0.56226	0	0.42277	0.00186	0	0.00043	0.003	0.01576
Sonoma	2023	MH	Aggregate	Aggregate	Diesel	585.802	5566.11	5566.11	0	58.5802	4.70809	0	0	0.12322	0	0	0.004	0.01568
Sonoma	2023	MHDT	Aggregate	Aggregate	Gasoline	672.653	33092.1	33092.1	0	13458.4	0.64793	0.08775	0.45248	0.00153	0	0.00065	0.003	0.01576
Sonoma	2023	MHDT	Aggregate	Aggregate	Diesel	5073.93	223350	223350	0	59664.4	1.21362	13.0584	1.68603	0.01485	0.03616	0	0.003	0.01584
Sonoma	2023	MHDT	Aggregate	Aggregate	Electricity	1.94229	44.5629	0	44.5629	23.0753	0	0	0	0	0	0	0.003	0.00792
Sonoma	2023	MHDT	Aggregate	Aggregate	Natural Ga	30.62	1584.18	1584.18	0	322.952	0.14252	6.00231	0	0.00106	0.01599	0	0.003	0.01589
Sonoma	2023	OBUS	Aggregate	Aggregate	Gasoline	175.925	8189.99	8189.99	0	3519.9	0.67139	0.06485	0.41813	0.00104	0	0.00033	0.003	0.01568
Sonoma	2023	OBUS	Aggregate	Aggregate	Diesel	166.053	12485	12485	0	1898.86	1.56398	11.4532	1.60599	0.0319	0.01579	0	0.003	0.01949
Sonoma	2023	OBUS	Aggregate	Aggregate	Natural Ga	1.00698	68.108	68.108	0	8.96213	0.21217	1.54503	0	0.00096	0.00372	0	0.003	0.01615
Sonoma	2023	SBUS	Aggregate	Aggregate	Gasoline	58.9814	3054.82	3054.82	0	235.925	0.21339	0.92635	0.70553	0.0008	0	0.00054	0.002	0.01572
Sonoma	2023	SBUS	Aggregate	Aggregate	Diesel	392.462	9102.48	9102.48	0	5682.85	3.77299	22.2099	0.44831	0.01966	0.0184	0	0.003	0.01572
Sonoma	2023	SBUS	Aggregate	Aggregate	Electricity	0.08885	1.03215	0	1.03215	1.28649	0	0	0	0	0	0	0.003	0.00786
Sonoma	2023	SBUS	Aggregate	Aggregate	Natural Ga	26.8764	687.811	687.811	0	389.17	0.65347	5.32454	0	0.00338	0.01008	0	0.003	0.01572
Sonoma	2023	UBUS	Aggregate	Aggregate	Gasoline	49.0102	3621.42	3621.42	0	196.041	0.08961	0	0.61579	0.00101	0	0.00032	0.00229	0.03377
Sonoma	2023	UBUS	Aggregate	Aggregate	Diesel	43.3724	3876.51	3876.51	0	173.49	0.35277	0	0	0.00641	0	0	0.00766	0.0385
Sonoma	2023	UBUS	Aggregate	Aggregate	Electricity	1.00935	26.8883	0	26.8883	4.03741	0	0	0	0	0	0	0.003	0.01925
Sonoma	2023	UBUS	Aggregate	Aggregate	Natural Ga	45.4703	5664.46	5664.46	0	181.881	0.4431	0	0	0.00015	0	0	0.00813	0.0385

Vehicle Ca	Fuel	PM10 RU	PM10 IDL	PM10 STR	PM10 PM	PM10 PM	CO2 RUN	CO2 IDLE	CO2 STRE	CH4 RUN	CH4 IDLE	CH4 STRE	N2O RUN	N2O IDLE	N2O STRE	ROG RUN	ROG IDLE
HHDT	Gasoline	0.00682	0	0.00236	0.02	0.1107	2630.84	0	50.4499	0.65189	0	5.9E-05	0.43362	0	0.0353	4.29319	0
HHDT	Diesel	0.02592	0.04014	0	0.0338	0.07902	1728.77	9030.51	0	0.00102	0.17377	0	0.27237	1.42276	0	0.02192	3.74132
HHDT	Electricity	0	0	0	0.03406	0.03707	0	0	0	0	0	0	0	0	0	0	0
HHDT	Natural Ga	0.00244	0.02133	0	0.036	0.13972	1391.28	9052.59	0	1.42662	29.2962	0	0.28362	1.84543	0	0.04728	0.46702
LDA	Gasoline	0.00141	0	0.00226	0.008	0.00888	282.774	0	73.2389	0.00321	0	0.08491	0.00578	0	0.03571	0.01303	0
LDA	Diesel	0.02417	0	0	0.008	0.00904	243.039	0	0	0.00176	0	0	0.03829	0	0	0.038	0
LDA	Electricity	0	0	0	0.008	0.00437	0	0	0	0	0	0	0	0	0	0	0
LDA	Plug-in Hy	0.00073	0	0.00229	0.008	0.00413	145.476	0	66.166	0.00048	0	0.04397	0.00064	0	0.02129	0.00151	0
LDT1	Gasoline	0.00253	0	0.00391	0.008	0.0108	340.096	0	95.0279	0.01025	0	0.14908	0.01418	0	0.04549	0.04733	0
LDT1	Diesel	0.2577	0	0	0.008	0.01216	422.43	0	0	0.0144	0	0	0.06655	0	0	0.31004	0
LDT1	Electricity	0	0	0	0.008	0.0044	0	0	0	0	0	0	0	0	0	0	0
LDT1	Plug-in Hy	0.00044	0	0.00155	0.008	0.00414	132.239	0	71.0701	0.00043	0	0.0439	0.00058	0	0.02123	0.00137	0
LDT2	Gasoline	0.00149	0	0.00229	0.008	0.01029	352.047	0	92.1962	0.00376	0	0.09886	0.00742	0	0.04132	0.01554	0
LDT2	Diesel	0.00797	0	0	0.008	0.01028	326.034	0	0	0.00082	0	0	0.05137	0	0	0.01764	0
LDT2	Electricity	0	0	0	0.008	0.00436	0	0	0	0	0	0	0	0	0	0	0
LDT2	Plug-in Hy	0.00058	0	0.00194	0.008	0.00413	137.927	0	77.2841	0.00045	0	0.04392	0.0006	0	0.02125	0.00143	0
LHDT1	Gasoline	0.00214	0	0.00047	0.008	0.078	922.546	121.778	25.9992	0.01411	0.11811	0.03816	0.01561	0.00301	0.05168	0.07246	0.44597
LHDT1	Diesel	0.05458	0.02835	0	0.012	0.078	643.13	137.315	0	0.01115	0.0051	0	0.10133	0.02163	0	0.23998	0.10976
LHDT2	Gasoline	0.00154	0	0.00028	0.008	0.091	1004.82	139.369	25.7647	0.0072	0.11947	0.03399	0.01064	0.00313	0.0522	0.03428	0.43523
LHDT2	Diesel	0.04337	0.02791	0	0.012	0.091	782.581	217.007	0	0.00897	0.0051	0	0.1233	0.03419	0	0.19306	0.10976
MCY	Gasoline	0.00202	0	0.00401	0.004	0.012	192.747	0	57.2624	0.20632	0	0.22519	0.04524	0	0.01036	1.43511	0
MDV	Gasoline	0.00155	0	0.00259	0.008	0.01059	430.281	0	113.783	0.0054	0	0.13155	0.01	0	0.04779	0.02387	0
MDV	Diesel	0.00788	0	0	0.008	0.0105	424.266	0	0	0.00071	0	0	0.06684	0	0	0.01534	0
MDV	Electricity	0	0	0	0.008	0.00435	0	0	0	0	0	0	0	0	0	0	0
MDV	Plug-in Hy	0.00078	0	0.00251	0.008	0.00413	143.905	0	97.89	0.00047	0	0.04397	0.00063	0	0.02129	0.0015	0
MH	Gasoline	0.00202	0	0.00047	0.012	0.04502	1949.17	0	32.0855	0.02022	0	0.03933	0.03185	0	0.04245	0.09186	0
MH	Diesel	0.12879	0	0	0.016	0.0448	1080.32	0	0	0.00639	0	0	0.17021	0	0	0.13763	0
MHDT	Gasoline	0.00166	0	0.0007	0.012	0.04502	1815.99	538.967	47.767	0.02162	0.25248	0.04965	0.02935	0.00695	0.03162	0.11104	1.00861
MHDT	Diesel	0.01552	0.03779	0	0.012	0.04526	1140.09	2263.28	0	0.00147	0.01256	0	0.17962	0.35658	0	0.03169	0.27048
MHDT	Electricity	0	0	0	0.012	0.02264	0	0	0	0	0	0	0	0	0	0	0
MHDT	Natural Ga	0.00115	0.01739	0	0.012	0.0454	965.092	4864.2	0	0.68858	16.2618	0	0.19674	0.9916	0	0.00984	0.23235
OBUS	Gasoline	0.00113	0	0.00036	0.012	0.04481	1787	381.239	32.3663	0.01785	0.19334	0.03774	0.02953	0.00521	0.03031	0.08881	0.74314
OBUS	Diesel	0.03334	0.01651	0	0.012	0.05568	1380.13	2402.41	0	0.00303	0.03695	0	0.21744	0.3785	0	0.06524	0.79544
OBUS	Natural Ga	0.00104	0.00404	0	0.012	0.04614	1037.04	1216.05	0	0.77819	4.3309	0	0.21141	0.2479	0	0.01112	0.06188
SBUS	Gasoline	0.00087	0	0.00058	0.008	0.04492	812.663	2598.49	56.0748	0.00413	2.50519	0.0648	0.01625	0.09044	0.06867	0.01903	10.6389
SBUS	Diesel	0.02055	0.01924	0	0.012	0.04492	1174.81	2276.37	0	0.0029	0.00817	0	0.18509	0.35864	0	0.06239	0.1758
SBUS	Electricity	0	0	0	0.012	0.02246	0	0	0	0	0	0	0	0	0	0	0
SBUS	Natural Ga	0.00367	0.01096	0	0.012	0.04492	1276.87	3943.68	0	3.66897	15.9189	0	0.2603	0.80395	0	0.05242	0.22745
UBUS	Gasoline	0.0011	0	0.00034	0.00915	0.09647	1192.44	0	59.3622	0.00254	0	0.07082	0.00924	0	0.07531	0.00772	0
UBUS	Diesel	0.0067	0	0	0.03066	0.11	1164.17	0	0	0.003	0	0	0.18341	0	0	0.06454	0
UBUS	Electricity	0	0	0	0.012	0.055	0	0	0	0	0	0	0	0	0	0	0
UBUS	Natural Ga	0.00016	0	0	0.0325	0.11	1473.84	0	0	1.36682	0	0	0.30045	0	0	0.01953	0

Vehicle Ca	Fuel	ROG STRE	ROG HOT	ROG RUN	ROG DIUR	TOG RUN	TOG IDLE	TOG STRE	TOG HOT	TOG RUN	TOG DIUR	NH3 RUN	CO RUNEX	CO_IDLEX	CO_STREX	SOx RUNE	SOx IDLEX	SOx_STREX
HHDT	Gasoline	0.00032	0.1425	1.30458	9.98397	6.26462	0	0.00035	0.1425	1.30458	9.98397	0.03928	149.662	0	1.06588	0.02601	0	0.0005
HHDT	Diesel	0	0	0	0	0.02496	4.25921	0	0	0	0	0.21038	0.10752	53.1213	0	0.01637	0.08551	0
HHDT	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HHDT	Natural Ga	0	0	0	0	1.48662	29.9541	0	0	0	0	0.8391	10.2004	65.6635	0	0	0	0
LDA	Gasoline	0.40367	0.1081	0.28858	1.70631	0.01901	0	0.44196	0.1081	0.28858	1.70631	0.0334	0.90573	0	3.89994	0.0028	0	0.00072
LDA	Diesel	0	0	0	0	0.04326	0	0	0	0	0	0.0031	0.4183	0	0	0.0023	0	0
LDA	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LDA	Plug-in Hy	0.1789	0.04137	0.03684	0.4427	0.00221	0	0.19588	0.04137	0.03684	0.4427	0.01944	0.22685	0	1.39349	0.00144	0	0.00065
LDT1	Gasoline	0.81908	0.24804	0.75551	3.91471	0.06904	0	0.89679	0.24804	0.75551	3.91471	0.03709	2.14481	0	8.00268	0.00336	0	0.00094
LDT1	Diesel	0	0	0	0	0.35296	0	0	0	0	0	0.0031	1.62946	0	0	0.004	0	0
LDT1	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LDT1	Plug-in Hy	0.17888	0.02451	0.02194	0.28127	0.002	0	0.19585	0.02451	0.02194	0.28127	0.0194	0.20654	0	1.39324	0.00131	0	0.0007
LDT2	Gasoline	0.47738	0.10059	0.27602	1.65078	0.02267	0	0.52267	0.10059	0.27602	1.65078	0.03485	1.02779	0	4.51002	0.00348	0	0.00091
LDT2	Diesel	0	0	0	0	0.02009	0	0	0	0	0	0.0031	0.16279	0	0	0.00309	0	0
LDT2	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LDT2	Plug-in Hy	0.17888	0.02611	0.02461	0.31232	0.00209	0	0.19585	0.02611	0.02461	0.31232	0.02018	0.21534	0	1.39322	0.00136	0	0.00076
LHDT1	Gasoline	0.19517	0.0628	0.35795	3.61791	0.10574	0.65076	0.21368	0.0628	0.35795	3.61791	0.04483	1.65865	3.7388	3.10832	0.00912	0.0012	0.00026
LHDT1	Diesel	0	0	0	0	0.27321	0.12495	0	0	0	0	0.13824	0.72371	0.90975	0	0.00609	0.0013	0
LHDT2	Gasoline	0.16658	0.04334	0.23012	2.43647	0.05003	0.63508	0.18239	0.04334	0.23012	2.43647	0.04497	0.99677	3.76249	3.0956	0.00993	0.00138	0.00025
LHDT2	Diesel	0	0	0	0	0.21979	0.12495	0	0	0	0	0.16807	0.53045	0.90975	0	0.00742	0.00206	0
MCY	Gasoline	1.72727	3.55027	3.89025	4.85392	1.68944	0	1.87668	3.55027	3.89025	4.85392	0.00847	16.4308	0	8.78915	0.00191	0	0.00057
MDV	Gasoline	0.69441	0.12806	0.37432	2.15406	0.03477	0	0.76028	0.12806	0.37432	2.15406	0.03436	1.26624	0	5.27112	0.00425	0	0.00112
MDV	Diesel	0	0	0	0	0.01746	0	0	0	0	0	0.0031	0.24465	0	0	0.00402	0	0
MDV	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV	Plug-in Hy	0.1789	0.0307	0.02938	0.36544	0.00218	0	0.19587	0.0307	0.02938	0.36544	0.02112	0.22448	0	1.39341	0.00142	0	0.00097
MH	Gasoline	0.1706	14.203	0.33576	5.27711	0.13405	0	0.18678	14.203	0.33576	5.27711	0.04472	2.31687	0	3.7471	0.01927	0	0.00032
MH	Diesel	0	0	0	0	0.15669	0	0	0	0	0	0.13094	0.47019	0	0	0.01024	0	0
MHDT	Gasoline	0.28464	0.04186	0.35263	3.35694	0.16204	1.47176	0.31165	0.04186	0.35263	3.35694	0.0449	2.37291	15.277	6.33509	0.01795	0.00533	0.00047
MHDT	Diesel	0	0	0	0	0.03607	0.30793	0	0	0	0	0.21146	0.11935	7.65789	0	0.0108	0.02143	0
MHDT	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MHDT	Natural Ga	0	0	0	0	0.70275	16.5964	0	0	0	0	1.06	2.90867	30.4156	0	0	0	0
OBUS	Gasoline	0.20422	0.03548	0.16405	2.93052	0.12959	1.08439	0.2236	0.03548	0.16405	2.93052	0.04493	1.98325	5.75582	4.36831	0.01767	0.00377	0.00032
OBUS	Diesel	0	0	0	0	0.07428	0.90555	0	0	0	0	0.21385	0.20823	12.387	0	0.01307	0.02275	0
OBUS	Natural Ga	0	0	0	0	0.7942	4.42	0	0	0	0	1.06	3.22306	6.94359	0	0	0	0
SBUS	Gasoline	0.356	0.09021	0.15851	1.10411	0.02777	15.5243	0.38977	0.09021	0.15851	1.10411	0.045	0.4503	82.2252	9.1181	0.00803	0.02569	0.00055
SBUS	Diesel	0	0	0	0	0.07103	0.20014	0	0	0	0	0.13992	0.18591	4.49134	0	0.01112	0.02156	0
SBUS	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SBUS	Natural Ga	0	0	0	0	3.74446	16.2464	0	0	0	0	1.06	12.7422	17.8622	0	0	0	0
UBUS	Gasoline	0.27932	0.04654	0.1008	0.52458	0.01127	0	0.30582	0.04654	0.1008	0.52458	0.045	0.50283	0	7.46065	0.01179	0	0.00059
UBUS	Diesel	0	0	0	0	0.07348	0	0	0	0	0	0.22	0.07256	0	0	0.01103	0	0
UBUS	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UBUS	Natural Ga	0	0	0	0	1.39494	0	0	0	0	0	0.97	22.7426	0	0	0	0	0

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: Sonoma
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Populatior	Total VMT	CVMT	EVMT	Trips	NOx RUN	NOx IDLE)	NOx STRE	PM2.5 RU	PM2.5 IDI	PM2.5 STI	PM2.5 PN	PM2.5 PN
Sonoma	2025	HHDT	Aggregate	Aggregate	Gasoline	1.21518	48.5936	48.5936	0	24.3133	13.7303	0	1.44005	0.00423	0	0.00181	0.005	0.03645
Sonoma	2025	HHDT	Aggregate	Aggregate	Diesel	2421.53	231305	231305	0	28846.8	2.15516	47.0717	2.93078	0.02412	0.03263	0	0.00845	0.02746
Sonoma	2025	HHDT	Aggregate	Aggregate	Electricity	15.7456	1540.8	0	1540.8	176.675	0	0	0	0	0	0	0.00829	0.01396
Sonoma	2025	HHDT	Aggregate	Aggregate	Natural Ga	179.875	11562.8	11562.8	0	1413.56	0.75464	10.5312	0	0.00205	0.02013	0	0.009	0.05038
Sonoma	2025	LDA	Aggregate	Aggregate	Gasoline	140486	5322382	5322382	0	646120	0.04682	0	0.26745	0.00121	0	0.00194	0.002	0.00311
Sonoma	2025	LDA	Aggregate	Aggregate	Diesel	851.598	24681.3	24681.3	0	3537.92	0.2862	0	0	0.01962	0	0	0.002	0.00318
Sonoma	2025	LDA	Aggregate	Aggregate	Electricity	9242.16	448815	0	448815	45524.9	0	0	0	0	0	0	0.002	0.00153
Sonoma	2025	LDA	Aggregate	Aggregate	Plug-in Hy	4032.02	183395	89021.7	94373.7	16672.4	0.00336	0	0.11755	0.00058	0	0.00193	0.002	0.00145
Sonoma	2025	LDT1	Aggregate	Aggregate	Gasoline	17121.9	524067	524067	0	73108.5	0.17719	0	0.47999	0.00206	0	0.00321	0.002	0.00379
Sonoma	2025	LDT1	Aggregate	Aggregate	Diesel	18.6751	214.079	214.079	0	51.6483	1.63443	0	0	0.2458	0	0	0.002	0.00425
Sonoma	2025	LDT1	Aggregate	Aggregate	Electricity	40.4955	1768.49	0	1768.49	192.379	0	0	0	0	0	0	0.002	0.00154
Sonoma	2025	LDT1	Aggregate	Aggregate	Plug-in Hy	19.6577	968.323	420.905	547.418	81.2844	0.00301	0	0.11754	0.00037	0	0.00137	0.002	0.00146
Sonoma	2025	LDT2	Aggregate	Aggregate	Gasoline	68880.9	2550114	2550114	0	317954	0.07804	0	0.36053	0.00129	0	0.00202	0.002	0.00361
Sonoma	2025	LDT2	Aggregate	Aggregate	Diesel	298.158	11304.4	11304.4	0	1392.49	0.05527	0	0	0.00556	0	0	0.002	0.00363
Sonoma	2025	LDT2	Aggregate	Aggregate	Electricity	425.625	15763.3	0	15763.3	2163.86	0	0	0	0	0	0	0.002	0.00153
Sonoma	2025	LDT2	Aggregate	Aggregate	Plug-in Hy	519.255	24355.5	11146.4	13209.1	2147.12	0.00317	0	0.11755	0.00046	0	0.00163	0.002	0.00145
Sonoma	2025	LHDT1	Aggregate	Aggregate	Gasoline	7783.07	278514	278514	0	115956	0.24721	0.03764	0.65911	0.00183	0	0.00039	0.002	0.0273
Sonoma	2025	LHDT1	Aggregate	Aggregate	Diesel	7905.64	276368	276368	0	99443	2.38005	2.25172	0	0.04945	0.02681	0	0.003	0.0273
Sonoma	2025	LHDT1	Aggregate	Aggregate	Electricity	38.8974	2805.45	0	2805.45	543.972	0	0	0	0	0	0	0.002	0.01365
Sonoma	2025	LHDT2	Aggregate	Aggregate	Gasoline	1205.28	44313.2	44313.2	0	17956.8	0.15387	0.03684	0.63758	0.00134	0	0.00022	0.002	0.03185
Sonoma	2025	LHDT2	Aggregate	Aggregate	Diesel	2862.92	106709	106709	0	36012	1.5711	2.13868	0	0.04019	0.02675	0	0.003	0.03185
Sonoma	2025	LHDT2	Aggregate	Aggregate	Electricity	9.9936	684.93	0	684.93	132.526	0	0	0	0	0	0	0.002	0.01593
Sonoma	2025	MCY	Aggregate	Aggregate	Gasoline	9752.79	51929.5	51929.5	0	19505.6	0.66769	0	0.17084	0.00187	0	0.00347	0.001	0.0042
Sonoma	2025	MDV	Aggregate	Aggregate	Gasoline	46410.8	1625367	1625367	0	209910	0.11239	0	0.4872	0.0013	0	0.00216	0.002	0.00371
Sonoma	2025	MDV	Aggregate	Aggregate	Diesel	994.282	35964.1	35964.1	0	4563.95	0.07666	0	0	0.00717	0	0	0.002	0.00376
Sonoma	2025	MDV	Aggregate	Aggregate	Electricity	453.793	16839.5	0	16839.5	2308.75	0	0	0	0	0	0	0.002	0.00153
Sonoma	2025	MDV	Aggregate	Aggregate	Plug-in Hy	348.036	16050.5	7542.26	8508.19	1439.13	0.00325	0	0.11755	0.00057	0	0.00197	0.002	0.00145
Sonoma	2025	MH	Aggregate	Aggregate	Gasoline	1039.79	8984.9	8984.9	0	104.02	0.48055	0	0.44298	0.0017	0	0.0004	0.003	0.01576
Sonoma	2025	MH	Aggregate	Aggregate	Diesel	568.762	5212.42	5212.42	0	56.8762	4.577	0	0	0.11818	0	0	0.004	0.01568
Sonoma	2025	MHDT	Aggregate	Aggregate	Gasoline	625.589	30798.3	30798.3	0	12516.8	0.49521	0.08707	0.43048	0.00143	0	0.00057	0.003	0.01576
Sonoma	2025	MHDT	Aggregate	Aggregate	Diesel	5226.13	224489	224489	0	61547.5	1.05337	12.1358	1.70486	0.01137	0.02456	0	0.003	0.01584
Sonoma	2025	MHDT	Aggregate	Aggregate	Electricity	36.9151	1962.41	0	1962.41	452.887	0	0	0	0	0	0	0.003	0.00792
Sonoma	2025	MHDT	Aggregate	Aggregate	Natural Ga	36.1437	1770.6	1770.6	0	380.426	0.12565	5.97255	0	0.00115	0.01704	0	0.003	0.0159
Sonoma	2025	OBUS	Aggregate	Aggregate	Gasoline	159.532	7078.74	7078.74	0	3191.92	0.59652	0.06436	0.42182	0.00105	0	0.00031	0.003	0.01568
Sonoma	2025	OBUS	Aggregate	Aggregate	Diesel	174.637	12508.4	12508.4	0	2006.7	1.4748	11.0974	1.60456	0.02976	0.01359	0	0.003	0.01952
Sonoma	2025	OBUS	Aggregate	Aggregate	Electricity	0.52921	46.1494	0	46.1494	10.5885	0	0	0	0	0	0	0.003	0.00784
Sonoma	2025	OBUS	Aggregate	Aggregate	Natural Ga	1.28879	85.2843	85.2843	0	11.4702	0.16443	1.52531	0	0.00119	0.00419	0	0.003	0.01615
Sonoma	2025	SBUS	Aggregate	Aggregate	Gasoline	61.3242	3195.38	3195.38	0	245.297	0.21702	0.91461	0.73545	0.00081	0	0.00055	0.002	0.01572
Sonoma	2025	SBUS	Aggregate	Aggregate	Diesel	398.754	9054.59	9054.59	0	5773.96	3.46695	21.2497	0.47123	0.01826	0.01645	0	0.003	0.01572
Sonoma	2025	SBUS	Aggregate	Aggregate	Electricity	1.94015	57.8998	0	57.8998	25.3931	0	0	0	0	0	0	0.00277	0.00786
Sonoma	2025	SBUS	Aggregate	Aggregate	Natural Ga	27.7498	692.216	692.216	0	401.817	0.63435	5.31306	0	0.00338	0.01035	0	0.003	0.01572
Sonoma	2025	UBUS	Aggregate	Aggregate	Gasoline	49.3005	3642.86	3642.86	0	197.202	0.09536	0	0.55634	0.00117	0	0.00034	0.00229	0.03377
Sonoma	2025	UBUS	Aggregate	Aggregate	Diesel	54.5346	5217.37	5217.37	0	218.139	0.37041	0	0	0.00673	0	0	0.008	0.0385
Sonoma	2025	UBUS	Aggregate	Aggregate	Electricity	1.00935	26.8883	0	26.8883	4.03741	0	0	0	0	0	0	0.003	0.01925
Sonoma	2025	UBUS	Aggregate	Aggregate	Natural Ga	34.8402	4380.25	4380.25	0	139.361	0.36356	0	0	0.00017	0	0	0.00786	0.0385

Vehicle Ca	Fuel	PM10 RU	PM10 IDL	PM10 STF	PM10 PM	PM10 PM	CO2 RUN	CO2 IDLE	CO2 STRE	CH4 RUN	CH4 IDLE	CH4 STRE	N2O RUN	N2O IDLE	N2O STRE	ROG RUN	ROG IDLE	ROG STRE	ROG HOT	ROG RUN	ROG DIUF
HHDT	Gasoline	0.00461	0	0.00196	0.02	0.10413	2397.08	0	50.8003	0.42541	0	8.7E-05	0.33134	0	0.02668	2.69401	0	0.00047	0.1278	1.17177	9.03112
HHDT	Diesel	0.02521	0.03411	0	0.0338	0.07847	1684.8	8766.19	0	0.00094	0.17352	0	0.26544	1.38112	0	0.0202	3.73583	0	0	0	0
HHDT	Electricity	0	0	0	0.03315	0.03989	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HHDT	Natural Ga	0.00223	0.02189	0	0.036	0.14393	1370.04	8965.81	0	1.28112	27.51	0	0.27929	1.82774	0	0.0391	0.42905	0	0	0	0
LDA	Gasoline	0.00132	0	0.00211	0.008	0.00888	271.548	0	69.8613	0.00256	0	0.07489	0.005	0	0.03378	0.01	0	0.34642	0.09881	0.2671	1.59562
LDA	Diesel	0.02051	0	0	0.008	0.0091	239.356	0	0	0.00153	0	0	0.03771	0	0	0.03302	0	0	0	0	0
LDA	Electricity	0	0	0	0.008	0.00438	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LDA	Plug-in Hy	0.00063	0	0.0021	0.008	0.00415	138.876	0	64.2014	0.00045	0	0.04367	0.0006	0	0.02101	0.00144	0	0.1789	0.04147	0.03834	0.43894
LDT1	Gasoline	0.00224	0	0.00349	0.008	0.01082	330.384	0	91.2041	0.00843	0	0.13284	0.01212	0	0.04314	0.0385	0	0.71763	0.229	0.68027	3.61012
LDT1	Diesel	0.25691	0	0	0.008	0.01215	422.21	0	0	0.01436	0	0	0.06652	0	0	0.30911	0	0	0	0	0
LDT1	Electricity	0	0	0	0.008	0.00439	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LDT1	Plug-in Hy	0.0004	0	0.00149	0.008	0.00416	124.443	0	67.9393	0.0004	0	0.04351	0.00053	0	0.02087	0.00129	0	0.17888	0.02374	0.02047	0.27148
LDT2	Gasoline	0.0014	0	0.00219	0.008	0.01031	336.323	0	87.7536	0.00316	0	0.08885	0.00644	0	0.03863	0.01275	0	0.42052	0.09478	0.266	1.60419
LDT2	Diesel	0.00581	0	0	0.008	0.01038	314.978	0	0	0.00069	0	0	0.04962	0	0	0.01475	0	0	0	0	0
LDT2	Electricity	0	0	0	0.008	0.00436	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LDT2	Plug-in Hy	0.0005	0	0.00177	0.008	0.00415	130.992	0	74.4045	0.00043	0	0.04352	0.00056	0	0.02088	0.00136	0	0.17888	0.026	0.02358	0.30045
LHDT1	Gasoline	0.00199	0	0.00042	0.008	0.078	896.633	120.384	26.0969	0.01182	0.11513	0.03626	0.01331	0.00298	0.05093	0.06018	0.4309	0.18465	0.05858	0.33884	3.45685
LHDT1	Diesel	0.05168	0.02802	0	0.012	0.078	641.69	135.985	0	0.01054	0.0051	0	0.1011	0.02142	0	0.22689	0.10976	0	0	0	0
LHDT1	Electricity	0	0	0	0.008	0.039	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LHDT2	Gasoline	0.00145	0	0.00024	0.008	0.091	987.671	138.233	25.5198	0.00601	0.11631	0.0325	0.00936	0.00306	0.05117	0.02822	0.42256	0.15826	0.04206	0.22658	2.44955
LHDT2	Diesel	0.04201	0.02796	0	0.012	0.091	776.24	214.79	0	0.00859	0.0051	0	0.1223	0.03384	0	0.18485	0.10976	0	0	0	0
LHDT2	Electricity	0	0	0	0.008	0.0455	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MCY	Gasoline	0.002	0	0.00368	0.004	0.012	191.532	0	55.3066	0.19537	0	0.21555	0.04386	0	0.00974	1.33986	0	1.64597	3.55364	3.93014	4.93383
MDV	Gasoline	0.00142	0	0.00235	0.008	0.01059	412.312	0	108.635	0.00427	0	0.11476	0.00827	0	0.04385	0.01832	0	0.59164	0.12068	0.3631	2.11755
MDV	Diesel	0.00749	0	0	0.008	0.01073	416.92	0	0	0.00069	0	0	0.06569	0	0	0.01476	0	0	0	0	0
MDV	Electricity	0	0	0	0.008	0.00436	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV	Plug-in Hy	0.00062	0	0.00214	0.008	0.00415	134.467	0	93.0795	0.00044	0	0.04357	0.00058	0	0.02093	0.0014	0	0.17889	0.03095	0.02679	0.33507
MH	Gasoline	0.00185	0	0.00043	0.012	0.04502	1948.19	0	31.7377	0.01661	0	0.03862	0.02852	0	0.04551	0.07335	0	0.16352	13.2376	0.31941	5.16809
MH	Diesel	0.12352	0	0	0.016	0.0448	1080.55	0	0	0.00634	0	0	0.17024	0	0	0.13639	0	0	0	0	0
MHDT	Gasoline	0.00156	0	0.00062	0.012	0.04502	1787.22	532.971	46.535	0.01575	0.25803	0.04759	0.02367	0.00715	0.03161	0.07925	1.01464	0.26732	0.03588	0.29692	2.92341
MHDT	Diesel	0.01188	0.02567	0	0.012	0.04526	1130.74	2233.33	0	0.00114	0.01107	0	0.17815	0.35186	0	0.02445	0.23825	0	0	0	0
MHDT	Electricity	0	0	0	0.012	0.02262	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MHDT	Natural Ga	0.00125	0.01854	0	0.012	0.04543	955.661	4891.01	0	0.70388	15.7699	0	0.19482	0.99706	0	0.01006	0.22532	0	0	0	0
OBUS	Gasoline	0.00114	0	0.00034	0.012	0.04481	1762.86	378.425	32.0385	0.01499	0.19363	0.03756	0.02648	0.00518	0.03058	0.07381	0.74459	0.2037	0.0352	0.16863	3.07427
OBUS	Diesel	0.0311	0.01421	0	0.012	0.05576	1356.91	2385.13	0	0.00282	0.03734	0	0.21378	0.37578	0	0.06064	0.80393	0	0	0	0
OBUS	Electricity	0	0	0	0.012	0.02241	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OBUS	Natural Ga	0.00129	0.00455	0	0.012	0.04614	1003.07	1208.67	0	0.80427	4.08751	0	0.20448	0.24639	0	0.01149	0.0584	0	0	0	0
SBUS	Gasoline	0.00088	0	0.0006	0.008	0.04492	807.888	2584.35	55.7166	0.0039	2.50783	0.0655	0.01648	0.08858	0.07081	0.01791	10.6401	0.35964	0.10659	0.20491	1.38483
SBUS	Diesel	0.01909	0.0172	0	0.012	0.04492	1166.69	2258.11	0	0.00281	0.0081	0	0.18381	0.35577	0	0.06054	0.17432	0	0	0	0
SBUS	Electricity	0	0	0	0.01108	0.02246	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SBUS	Natural Ga	0.00367	0.01126	0	0.012	0.04492	1268.24	3954.12	0	3.61644	15.7772	0	0.25854	0.80607	0	0.05167	0.22543	0	0	0	0
UBUS	Gasoline	0.00127	0	0.00037	0.00915	0.09647	1150.72	0	58.4779	0.00227	0	0.06633	0.00946	0	0.06783	0.00684	0	0.26127	0.03511	0.0966	0.42505
UBUS	Diesel	0.00704	0	0	0.032	0.11	1187.17	0	0	0.00311	0	0	0.18704	0	0	0.067	0	0	0	0	0
UBUS	Electricity	0	0	0	0.012	0.055	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UBUS	Natural Ga	0.00018	0	0	0.03146	0.11	1418.21	0	0	1.79914	0	0	0.28911	0	0	0.02571	0	0	0	0	0

Vehicle Ca	Fuel	TOG RUN	TOG IDLE	TOG STRE	TOG HOT	TOG RUN	TOG DIUR	NH3 RUN	CO RUNE	CO_IDLEX	CO_STREX	SOx RUNE	SOx IDLEX	SOx_STREX
HHDT	Gasoline	3.9311	0	0.00052	0.1278	1.17177	9.03112	0.04115	92.9499	0	1.65246	0.0237	0	0.0005
HHDT	Diesel	0.023	4.25296	0	0	0	0	0.21189	0.0978	53.5337	0	0.01595	0.08301	0
HHDT	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0
HHDT	Natural Ga	1.33117	28.117	0	0	0	0	0.82369	9.76792	65.6845	0	0	0	0
LDA	Gasoline	0.0146	0	0.37929	0.09881	0.2671	1.59562	0.03518	0.78574	0	3.42507	0.00268	0	0.00069
LDA	Diesel	0.03759	0	0	0	0	0	0.0031	0.39317	0	0	0.00227	0	0
LDA	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0
LDA	Plug-in Hy	0.00211	0	0.19587	0.04147	0.03834	0.43894	0.01906	0.21653	0	1.39343	0.00137	0	0.00063
LDT1	Gasoline	0.05617	0	0.78571	0.229	0.68027	3.61012	0.03715	1.83452	0	7.03748	0.00327	0	0.0009
LDT1	Diesel	0.35191	0	0	0	0	0	0.0031	1.62496	0	0	0.004	0	0
LDT1	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0
LDT1	Plug-in Hy	0.00189	0	0.19585	0.02374	0.02047	0.27148	0.01826	0.19432	0	1.39325	0.00123	0	0.00067
LDT2	Gasoline	0.0186	0	0.46042	0.09478	0.266	1.60419	0.0364	0.90549	0	4.02691	0.00332	0	0.00087
LDT2	Diesel	0.01679	0	0	0	0	0	0.0031	0.15386	0	0	0.00298	0	0
LDT2	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0
LDT2	Plug-in Hy	0.00199	0	0.19585	0.026	0.02358	0.30045	0.01919	0.20444	0	1.39327	0.00129	0	0.00074
LHDT1	Gasoline	0.08781	0.62877	0.20217	0.05858	0.33884	3.45685	0.04491	1.4839	3.74398	3.17089	0.00886	0.00119	0.00026
LHDT1	Diesel	0.2583	0.12495	0	0	0	0	0.14702	0.67974	0.90975	0	0.00608	0.00129	0
LHDT1	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0
LHDT2	Gasoline	0.04118	0.6166	0.17327	0.04206	0.22658	2.44955	0.04497	0.90546	3.7666	3.0807	0.00976	0.00137	0.00025
LHDT2	Diesel	0.21044	0.12495	0	0	0	0	0.17391	0.51046	0.90975	0	0.00736	0.00204	0
LHDT2	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0
MCY	Gasoline	1.58693	0	1.78862	3.55364	3.93014	4.93383	0.00858	15.5304	0	8.72836	0.00189	0	0.00055
MDV	Gasoline	0.02672	0	0.64777	0.12068	0.3631	2.11755	0.0357	1.06233	0	4.59172	0.00408	0	0.00107
MDV	Diesel	0.01681	0	0	0	0	0	0.0031	0.24742	0	0	0.00395	0	0
MDV	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV	Plug-in Hy	0.00204	0	0.19586	0.03095	0.02679	0.33507	0.01974	0.20975	0	1.39337	0.00133	0	0.00092
MH	Gasoline	0.10704	0	0.17903	13.2376	0.31941	5.16809	0.04484	1.75319	0	3.54284	0.01926	0	0.00031
MH	Diesel	0.15528	0	0	0	0	0	0.1361	0.46428	0	0	0.01024	0	0
MHDT	Gasoline	0.11565	1.48056	0.29268	0.03588	0.29692	2.92341	0.04498	1.6679	15.3393	5.87732	0.01767	0.00527	0.00046
MHDT	Diesel	0.02784	0.27123	0	0	0	0	0.2137	0.10084	7.585	0	0.01071	0.02115	0
MHDT	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0
MHDT	Natural Ga	0.71836	16.0944	0	0	0	0	1.06	2.90962	32.7758	0	0	0	0
OBUS	Gasoline	0.10771	1.0865	0.22303	0.0352	0.16863	3.07427	0.045	1.625	5.76449	4.28261	0.01743	0.00374	0.00032
OBUS	Diesel	0.06904	0.91521	0	0	0	0	0.21429	0.19475	12.5951	0	0.01285	0.02259	0
OBUS	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0
OBUS	Natural Ga	0.82082	4.1716	0	0	0	0	1.06	3.29333	8.00378	0	0	0	0
SBUS	Gasoline	0.02613	15.526	0.39376	0.10659	0.20491	1.38483	0.045	0.42592	82.232	9.03358	0.00799	0.02555	0.00055
SBUS	Diesel	0.06892	0.19845	0	0	0	0	0.14646	0.18228	4.65234	0	0.01105	0.02138	0
SBUS	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0
SBUS	Natural Ga	3.69084	16.1018	0	0	0	0	1.06	12.495	18.4793	0	0	0	0
UBUS	Gasoline	0.00999	0	0.28606	0.03511	0.0966	0.42505	0.045	0.50812	0	7.55003	0.01138	0	0.00058
UBUS	Diesel	0.07628	0	0	0	0	0	0.22	0.07615	0	0	0.01125	0	0
UBUS	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0
UBUS	Natural Ga	1.83616	0	0	0	0	0	0.97	26.1815	0	0	0	0	0

CalEEMod EMFAC2021 Fleet Mix Input

Year 2025

FleetMixLandUseSubType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.467361	0.051994	0.21197	0.14572	0.047541	0.012328	0.017909	0.007915	0.001016	0.000422	0.029481	0.00148	0.004862
Parking Lot	0.467361	0.051994	0.21197	0.14572	0.047541	0.012328	0.017909	0.007915	0.001016	0.000422	0.029481	0.00148	0.004862
Strip Mall	0.467361	0.051994	0.21197	0.14572	0.047541	0.012328	0.017909	0.007915	0.001016	0.000422	0.029481	0.00148	0.004862

CalEEMod EMFAC2021 Emission Factors Input — Year 2025

Season	EmissionType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
A	CH4_IDLEX	0	0	0	0	0.004336	0.002868	0.010538	0.176241154	0.008175	0	0	0.092273	0
A	CH4_RUNEX	0.002303	0.008386	0.003109	0.004115	0.011126	0.007794	0.007669	0.061569324	0.010646	0.595837346	0.195372	0.195483	0.012838
A	CH4_STREX	0.068995	0.132298	0.087569	0.110677	0.019472	0.010812	0.007953	6.92229E-08	0.022966	0.023411516	0.215552	0.002492	0.024971
A	CO_IDLEX	0	0	0	0	0.168247	0.132379	0.673198	4.643527769	0.599443	0	0	1.149583	0
A	CO_RUNEX	0.707686	1.825264	0.890179	1.026391	1.077926	0.623534	0.305601	0.573042397	0.721138	8.813333273	15.5304	0.896966	1.279979
A	CO_STREX	3.141427	7.007848	3.965194	4.426019	1.702692	1.02503	0.98221	0.001318944	2.618387	2.66471502	8.728359	0.34374	2.290465
A	CO2_NBIO_IDLEX	0	0	0	0	9.317312	14.48127	162.6472	749.8111198	91.64692	0	0	181.284	0
A	CO2_NBIO_RUNEX	246.9633	328.9345	332.2698	405.6799	765.7831	834.4938	1199.033	1659.433495	1497.935	1251.032329	191.5324	1078.712	1629.642
A	CO2_NBIO_STREX	64.91372	90.8753	86.70078	105.1107	14.01341	8.491098	7.77686	0.040547226	19.5883	20.63927465	55.30658	2.12009	20.51856
A	NOX_IDLEX	0	0	0	0	0.083792	0.114275	0.850408	3.804151121	0.373562	0	0	1.345998	0
A	NOX_RUNEX	0.042963	0.17687	0.076763	0.109482	1.302918	1.150039	0.972678	2.077630497	1.150386	0.291877272	0.667685	2.501862	1.984525
A	NOX_STREX	0.245501	0.477998	0.354953	0.46942	0.353928	0.212139	1.472916	2.77658869	0.874656	0.196353842	0.170836	0.450051	0.286387
A	PM10_IDLEX	0	0	0	0	0.001026	0.001483	0.0018	0.002840805	0.000476	0	0	0.001112	0
A	PM10_PMBW	0.008398	0.010785	0.010215	0.010467	0.077804	0.090795	0.045061	0.081323905	0.051709	0.106400292	0.012	0.044817	0.044941
A	PM10_PMTW	0.008	0.008	0.008	0.008	0.009982	0.010814	0.012	0.03389725	0.012	0.025554966	0.004	0.011013	0.013469
A	PM10_RUNEX	0.001277	0.002337	0.001405	0.001524	0.026605	0.029974	0.010493	0.023958744	0.020144	0.003174417	0.001998	0.013706	0.04652
A	PM10_STREX	0.001964	0.003473	0.002165	0.002276	0.000226	8.09E-05	0.000104	1.56829E-06	0.000208	0.000131139	0.003683	2.27E-05	0.000278
A	PM25_IDLEX	0	0	0	0	0.000981	0.001419	0.001722	0.002713094	0.000456	0	0	0.001062	0
A	PM25_PMBW	0.002939	0.003775	0.003575	0.003663	0.027231	0.031778	0.015771	0.028463367	0.018098	0.037240102	0.0042	0.015686	0.015729
A	PM25_PMTW	0.002	0.002	0.002	0.002	0.002496	0.002703	0.003	0.008474312	0.003	0.006388742	0.001	0.002753	0.003367
A	PM25_RUNEX	0.001177	0.002153	0.001293	0.001407	0.025417	0.028661	0.010032	0.022918326	0.019257	0.003024111	0.001873	0.013097	0.044464
A	PM25_STREX	0.001806	0.003193	0.001991	0.002092	0.000207	7.44E-05	9.55E-05	1.44199E-06	0.000191	0.000120578	0.003472	2.08E-05	0.000256
A	ROG_DIURN	0.317387	0.841811	0.341885	0.450889	0.124593	0.054705	0.024418	0.000360273	0.093943	0.037503974	4.933833	0.013174	33.39857
A	ROG_HTSK	0.090661	0.228016	0.093283	0.116287	0.031458	0.013994	0.005996	0.000102007	0.021521	0.012393092	3.55364	0.004056	8.558151
A	ROG_IDLEX	0	0	0	0	0.019549	0.01526	0.025208	0.299513318	0.04966	0	0	0.11297	0
A	ROG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
A	ROG_RUNEX	0.009085	0.038409	0.012571	0.017899	0.142494	0.138266	0.030686	0.021497505	0.065015	0.036714064	1.339862	0.049319	0.096499
A	ROG_RUNLS	0.243336	0.677282	0.261467	0.34945	0.181947	0.07539	0.04962	0.000935273	0.103103	0.034092953	3.930139	0.007797	0.2065
A	ROG_STREX	0.31862	0.714649	0.4143	0.570286	0.099155	0.052656	0.044674	3.75532E-07	0.124542	0.092213413	1.645974	0.013685	0.105717
A	SO2_IDLEX	0	0	0	0	9.01E-05	0.000138	0.00152	0.006598922	0.00087	0	0	0.001566	0
A	SO2_RUNEX	0.002441	0.003252	0.003284	0.004007	0.00744	0.008026	0.011381	0.015100394	0.014407	0.0075472	0.001893	0.009658	0.015948
A	SO2_STREX	0.000642	0.000898	0.000857	0.001039	0.000139	8.39E-05	7.69E-05	4.00851E-07	0.000194	0.00020404	0.000547	2.1E-05	0.000203
A	TOG_DIURN	0.317387	0.841811	0.341885	0.450889	0.124593	0.054705	0.024418	0.000360273	0.093943	0.037503974	0.145453	0.013174	33.39857
A	TOG_HTSK	0.090661	0.228016	0.093283	0.116287	0.031458	0.013994	0.005996	0.000102007	0.021521	0.012393092	3.55364	0.004056	8.558151
A	TOG_IDLEX	0	0	0	0	0.027237	0.020399	0.039059	0.504120262	0.064846	0	0	0.229284	0
A	TOG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
A	TOG_RUNEX	0.013213	0.056006	0.018322	0.026014	0.17186	0.160051	0.042789	0.085503999	0.086008	0.638947864	1.586926	0.250951	0.124749
A	TOG_RUNLS	0.243336	0.677282	0.261467	0.34945	0.181947	0.07539	0.04962	0.000935273	0.103103	0.034092953	3.930139	0.007797	0.2065
A	TOG_STREX	0.348849	0.782451	0.453606	0.62439	0.108562	0.057652	0.048912	4.1116E-07	0.136358	0.10096208	1.788617	0.014983	0.115747
A	N2O_IDLEX	0	0	0	0	0.000892	0.001864	0.025093	0.120584645	0.012789	0	0	0.026319	0
A	N2O_RUNEX	0.004629	0.012084	0.006536	0.009333	0.056746	0.088756	0.158545	0.264435998	0.146001	0.171601889	0.043862	0.145842	0.08055
A	N2O_STREX	0.031154	0.042976	0.038089	0.042315	0.027349	0.017026	0.005283	2.12927E-05	0.018698	0.023940172	0.009742	0.002694	0.029424

Category		Mix %	Adj	ROG_DIURN	ROG_HTSK	ROG_IDLEX	ROG_RESTL	ROG_RUNEX	ROG_RUNLS	ROG_STREX	NOX_IDLEX	NOX_RUNEX	NOX_STREX
Hauling	HHDT	100.0	1	0.000741838	0.000211844	0.303863589	0	0.02420687	0.00193946	4.74416E-07	4.0055149	2.269330847	2.705905625
	MHD	0.0	0	0.030734896	0.007668171	0.028011533	0	0.04172275	0.06459724	0.052142032	0.9051515	1.134297839	1.45212331
Vendor	HHDT	50.0	0.5	0.000370919	0.000105922	0.151931795	0	0.01210343	0.00096973	2.37208E-07	2.0027575	1.134665424	1.352952812
	MHD	50.0	0.5	0.015367448	0.003834085	0.014005767	0	0.02086137	0.03229862	0.026071016	0.4525758	0.567148919	0.726061655
			1	0.015738367	0.003940007	0.165937561	0	0.03296481	0.03326835	0.026071253	2.4553332	1.701814343	2.079014467
Worker	LDA	50.0	0.5	0.172575506	0.050358605	0	0	0.00606092	0.13373101	0.188283968	0	0.027986233	0.139049065
	LDT1	25.0	0.25	0.22773403	0.061819273	0	0	0.01183001	0.18829411	0.204155356	0	0.053649624	0.13249075
	LDT2	25.0	0.25	0.08821366	0.024867495	0	0	0.00385144	0.06818437	0.118077351	0	0.023887884	0.101297306
			1	0.488523195	0.137045374	0	0	0.02174236	0.39020948	0.510516675	0	0.105523742	0.372837121

Category		Mix %	Adj	CO_IDLEX	CO_RUNEX	CO_STREX	SO2_IDLEX	SO2_RUNEX	SO2_STREX	Road Dust PM10	PM10_PMBW	PM10_PMTW	PM10_IDLEX	PM10_RUNEX	PM10_STREX
Hauling	HHDT	100.0	1	4.646278	0.6045265	0.001585	0.0068853	0.015626195	7.41465E-07		0.08176	0.033892	0.003352	0.024841	3.50988E-06
	MHD	0.0	0	0.681419	0.4254233	1.160498	0.0015289	0.011645535	8.65049E-05	0.299	0.045227	0.012	0.002617	0.013651	0.000128753
Vendor	HHDT	50.0	0.5	2.323139	0.3022632	0.000792	0.0034426	0.007813097	3.70733E-07		0.04088	0.016946	0.001676	0.012421	1.75494E-06
	MHD	50.0	0.5	0.34071	0.2127116	0.580249	0.0007645	0.005822768	4.32524E-05		0.022613	0.006	0.001309	0.006825	6.43764E-05
			1	2.663849	0.5149749	0.581041	0.0042071	0.013635865	4.36232E-05	0.299	0.063493	0.022946	0.002984	0.019246	6.61313E-05
Worker	LDA	50.0	0.5	0	0.4172006	1.815846	0	0.001299767	0.000340909		0.004253	0.004	0	0.000714	0.001066762
	LDT1	25.0	0.25	0	0.5346329	1.994619	0	0.000838447	0.000234212		0.002695	0.002	0	0.000662	0.000974213
	LDT2	25.0	0.25	0	0.2538428	1.115206	0	0.000863435	0.000225917		0.002558	0.002	0	0.000376	0.000568145
			1	0	1.2056764	4.925671	0	0.003001649	0.000801038	0.299	0.009506	0.008	0	0.001752	0.002609119

		Mix %	Adj	Road Dust PM25	PM25_PMBW	PM25_PMTW	PM25_IDLEX	PM25_RUNEX	PM25_STREX	CO2_NBIO_IDLEX	CO2_NBIO_RUNEX	CO2_NBIO_STREX	CH4_IDLEX	CH4_RUNEX	CH4_STREX	N2O IDLE	N2O_RUNEX	N2O_STREX
Category							19	22	23	8	9	10						
Hauling	HHDT	100.0	1		0.028616	0.008473	0.003202	0.0237622	3.23E-06	777.99525	1713.1359	0.0750014	0.178682	0.065735542	8.74504E-08	0.12493	0.272827183	5.2475E-05
	MHD	0.0	0	0.04499	0.015829	0.003	0.002504	0.0130518	0.000118	163.26936	1225.4861	8.7502217	0.009957	0.008273052	0.009095163	0.025103	0.160426256	0.00579314
Vendor	HHDT	50.0	0.5		0.014308	0.004236	0.001601	0.0118811	1.61E-06	388.99763	856.56796	0.0375007	0.089341	0.032867771	4.37252E-08	0.062465	0.136413591	2.6237E-05
	MHD	50.0	0.5		0.007915	0.0015	0.001252	0.0065259	5.92E-05	81.634679	612.74305	4.3751109	0.004978	0.004136526	0.004547581	0.012552	0.080213128	0.00289657
			1	0.04499	0.022223	0.005736	0.002853	0.018407	6.08E-05	470.6323	1469.311	4.4126116	0.09432	0.037004297	0.004547625	0.075017	0.216626719	0.00292281
Worker	LDA	50.0	0.5		0.001489	0.001	0	0.0006593	0.000981	0	131.50107	34.483986	0	0.001476826	0.039665787	0	0.002741236	0.01670784
	LDT1	25.0	0.25		0.000943	0.0005	0	0.0006096	0.000896	0	84.813489	23.691213	0	0.002555692	0.037159126	0	0.003541985	0.01133945
	LDT2	25.0	0.25		0.000895	0.0005	0	0.0003462	0.000522	0	87.354074	22.852183	0	0.000929058	0.024460589	0	0.001886042	0.01022637
			1	0.04499	0.003327	0.002	0	0.001615	0.002399	0	303.66863	81.027382	0	0.004961576	0.101285503	0	0.008169263	0.03827366

Adjustment Factors	Vehicle Category	Fuel	Population	Pop Fract	VMT (miles/day)	VMT Fract	Trips/day	Trip Fract
	HHDT	GAS	1.2151795	3.98925E-05	48.5936489	0.0001988	24.31331147	0.000798
	HHDT	DSL	2421.52513	0.079494933	231305.2785	0.9461983	28846.82575	0.946997
	HHDT	ELEC	15.7455594	0.000516902	1540.802121	0.0063029	176.6747977	0.0058
	HHDT	NG	179.87493	0.005905016	11562.84596	0.0473	1413.563371	0.046405
			2618.3608		244457.5202		30461.37723	
	LDA	GAS	140486.44	0.197352549	5322382.077	0.8901385	646120.033	0.907657
	LDA	DSL	851.598414	0.001196308	24681.27408	0.0041278	3537.916603	0.00497
	LDA	ELEC	9242.16269	0.012983206	448815.2976	0.0750618	45524.87197	0.063952
	LDA	PIH	4032.01652	0.005664096	183395.3635	0.0306718	16672.38832	0.023421
			154612.217		5979274.012		711855.2099	
	LDT1	GAS	17121.9004	0.233160835	524067.3804	0.9944008	73108.54982	0.99557
	LDT1	DSL	18.6750907	0.000254312	214.0793578	0.0004062	51.64826665	0.000703
	LDT1	ELEC	40.4955351	0.000551456	1768.492593	0.0033557	192.3787342	0.00262
	LDT1	PIH	19.6576521	0.000267692	968.3232407	0.0018374	81.28439158	0.001107
			17200.7287		527018.2756		73433.86121	
	LDT2	GAS	68880.9289	0.212820243	2550114.049	0.9802335	317954.3242	0.982378
	LDT2	DSL	298.157621	0.000921213	11304.39919	0.0043453	1392.485933	0.004302
	LDT2	ELEC	425.624798	0.001315046	15763.31851	0.0060592	2163.858749	0.006686
	LDT2	PIH	519.254797	0.001604333	24355.5289	0.009362	2147.118584	0.006634
			70123.9661		2601537.296		323657.7875	
	LHDT1	GAS	7783.0741	0.036042232	278514.2659	0.4994086	115956.2072	0.536976
	LHDT1	DSL	7905.63961	0.036609814	276368.433	0.4955609	99443.00106	0.460505
	LHDT1	ELEC	38.8973596	0.000180128	2805.449012	0.0050305	543.9716396	0.002519
			15727.6111	0.072832173	557688.1479		215943.1799	
	LHDT2	GAS	1205.2765	0.022332843	44313.23583	0.2920975	17956.82403	0.332726
	LHDT2	DSL	2862.92273	0.053047747	106708.834	0.7033877	36011.96636	0.667274
	LHDT2	ELEC	9.99360496	0.000185174	684.929516	0.0045148	132.5255851	0.002456
			4078.19284	0.075565763	151706.9993		53968.79039	
	MCY	GAS	9752.7919	0.029480701	51929.54011	1	19505.58379	1
	MDV	GAS	46410.7917	0.212677484	1625367.342	0.9593595	209909.633	0.961911
	MDV	DSL	994.281632	0.004556296	35964.13738	0.0212275	4563.94808	0.020914
	MDV	ELEC	453.792547	0.002079505	16839.49623	0.0099394	2308.752823	0.01058
	MDV	PIH	348.036217	0.001594876	16050.45353	0.0094736	1439.129755	0.006595
			48206.9021		1694221.429		218221.4637	
	MH	GAS	1039.78709	6.462461202	8984.902516	0.6328591	104.0203003	0.646505
	MH	DSL	568.761532	3.534953813	5212.417376	0.3671409	56.87615318	0.353495
			1608.54862		14197.31989		160.8964535	
	MHDT	GAS	625.588856	0.008352592	30798.27141	0.1189029	12516.78183	0.167119
	MHDT	DSL	5226.12981	0.069777026	224489.1592	0.8666851	61547.47771	0.821755
	MHDT	ELEC	36.9150694	0.000492874	1962.405717	0.0075763	452.8868297	0.006047
	MHDT	NG	36.1437051	0.000482575	1770.603965	0.0068358	380.4256174	0.005079
			5924.77744		259020.4403		74897.57199	
	OBUS	GAS	159.532119	0.03055774	7078.737296	0.3589884	3191.918627	0.611399
	OBUS	DSL	174.636682	0.033450958	12508.39468	0.6343461	2006.700685	0.384375
	OBUS	ELEC	0.52921149	0.000101368	46.14940461	0.0023404	10.58846346	0.002028
	OBUS	NG	1.28878674	0.000246862	85.28426282	0.0043251	11.47020195	0.002197
			335.986799		19718.56565		5220.677978	
	SBUS	GAS	61.3241697	0.00951283	3195.38172	0.2457969	245.2966787	0.038051
	SBUS	DSL	398.754343	0.061856234	9054.594556	0.6965023	5773.962885	0.895678
	SBUS	ELEC	1.94015486	0.000300964	57.89982095	0.0044538	25.3930828	0.003939
	SBUS	NG	27.7498011	0.004304651	692.2158193	0.053247	401.8171192	0.062331
			489.768468		13000.09192		6446.469765	
	UBUS	GAS	49.3004546	0.088235294	3642.862605	0.274573	197.2018185	0.352941
	UBUS	DSL	54.5346253	0.09760313	5217.373013	0.3932483	218.1385011	0.390413
	UBUS	ELEC	1.00935139	0.007242723	26.88825669	0.0061385	4.037405551	0.028971
	UBUS	NG	34.8401902	0.062355093	4380.251631	0.3301521	139.3607607	0.24942
			139.684621		13267.37551		558.7384859	

Attachment 4: Project Construction Emissions and Health Risk Calculations

Cotati Village

Unmitigated DPM

Year	CalEEMod DPM	DPM EMFAC2021	Unmitigated Emissions		CalEEMod Fug PM2.5	Fug PM2.5 EMFAC2021	Unmitigated Emissions
2023-2024	0.0847	0.0012	0.0859		0.0865	0.0013	0.0878

Mitigated DPM

Year	CalEEMod DPM	DPM EMFAC2021	Mitigated Emissions		CalEEMod Fug PM2.5	Fug PM2.5 EMFAC2021	Mitigated Emissions
2023-2024	0.0110	0.0012	0.0122		0.0389	0.0013	0.0402

Cotati Village - Cotati, CA

DPM Emissions and Modeling Emission Rates - Uncontrolled

Emissions Model Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2023-2024	Construction	0.0859	DPM	171.8	0.05230	6.59E-03	28,461	**2.32E-07**

Modeled Operation Hours

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

PM2.5 Fugitive Dust Emissions for Modeling - Uncontrolled

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	PM2.5 Emissions (lb/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (g/s)	Modeled Area (m^2)	PM2.5 Emission Rate $g/s/m^2$
2023-2024	Construction	FUG	0.0878	175.6	0.05346	6.74E-03	28,461	**2.37E-07**

Modeled Operation Hours

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

Cotati Village - Cotati, CA
DPM Construction Emissions and Modeling Emission Rates - With Controls

Emissions Model Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	(lb/hr)	(g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2023-2024	Construction	0.0122	DPM	24.4	0.00743	9.36E-04	28,461	**3.29E-08**

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

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

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	(lb/yr)	(lb/hr)	(g/s)	Modeled Area (m^2)	PM2.5 Emission Rate $g/s/m^2$
2023-2024	Construction	FUG	0.0402	80.4	0.02447	3.08E-03	28,461	**1.08E-07**

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

Cotati Village - Cotati, CA
Construction Health Impacts Summary

Maximum Impacts at Construction MEI Location* - Uncontrolled

Emissions Year	Maximum Concentrations: Exhaust PM10/DPM ($\mu g/m^3$)	Fugitive PM2.5 ($\mu g/m^3$)	Cancer Risk (per million): Child	Adult	Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu g/m^3$)
2023-2024	0.1772	0.1840	**31.51**	**0.51**	**0.035**	**0.36**

* MEI at 2nd floor receptor level

Maximum Impacts at Construction MEI Location* - With Mitigation

Emissions Year	Maximum Concentrations: Exhaust PM10/DPM ($\mu g/m^3$)	Fugitive PM2.5 ($\mu g/m^3$)	Cancer Risk (per million): Child	Adult	Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu g/m^3$)
2023-2024	0.0251	0.0838	**4.47**	**0.07**	**0.005**	**0.11**

* MEI at 2nd floor receptor level

Cotati Village - Cotati, CA - Uncontrolled Emissions
Maximum DPM Cancer Risk Calculations From Construction
Impacts at Off-Site Receptors-1.5 meter receptor height

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

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

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

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

Values

	Infant/Child				Adult
Age -->	**3rd Trimester**	**0 - 2**	**2 - 9**	**2 - 16**	**16 - 30**
Parameter					
ASF =	10	10	3	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	631	572	261
A =	1	1	1	1	1
EF =	350	350	350	350	350
AT =	70	70	70	70	70
FAH =	1.00	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: DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age Sensitivity Factor	Infant/Child Cancer Risk (per million)	Adult - Exposure Information: Modeled DPM Conc (ug/m3) Year	Modeled DPM Conc (ug/m3) Annual	Age Sensitivity Factor	Adult Cancer Risk (per million)	Fugitive PM2.5	Total PM2.5
0	0.25	-0.25 - 0*	2023	0.1281	10	1.74	-	-	-	-		
1	1	0 - 1	2023-2024	0.1281	10	21.03	2023-2024	0.1281	1	0.37	0.2828	0.411
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						**22.77**				**0.37**		

* Third trimester of pregnancy

Cotati Village - Cotati, CA - Mitigated Emissions
Maximum DPM Cancer Risk Calculations From Construction
Impacts at Off-Site Receptors-1.5 meter receptor height

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

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

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

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

Values

	Infant/Child				Adult
Age -->	**3rd Trimester**	**0 - 2**	**2 - 9**	**2 - 16**	**16 - 30**
Parameter					
ASF =	10	10	3	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	631	572	261
A =	1	1	1	1	1
EF =	350	350	350	350	350
AT =	70	70	70	70	70
FAH =	1.00	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 DPM Conc (ug/m3) Year	Annual	Age Sensitivity Factor	Infant/Child Cancer Risk (per million)	Adult - Exposure Information Modeled DPM Conc (ug/m3) Year	Annual	Age Sensitivity Factor	Adult Cancer Risk (per million)	Fugitive PM2.5	Total PM2.5
0	0.25	-0.25 - 0*	2023	0.0182	10	0.25	-	-	-	-		
1	1	0 - 1	2023-2024	0.0182	10	2.98	2023-2024	0.0182	1	0.05	0.1289	0.147
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		0.00000	1	0.00		
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00		
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00		
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00		
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00		
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00		
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00		
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00		
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00		
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00		
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00		
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00		
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00		
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00		
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00		
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00		
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00		
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00		
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00		
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00		
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00		
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00		
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00		
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00		
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00		
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00		
Total Increased Cancer Risk						**3.23**				**0.05**		

* Third trimester of pregnancy

Cotati Village - Cotati, CA - Uncontrolled Emissions
Maximum DPM Cancer Risk Calculations From Construction
Impacts at Off-Site Receptors-4.5 meter receptor height

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

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

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

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

Values

	Infant/Child				Adult
Age -->	**3rd Trimester**	**0 - 2**	**2 - 9**	**2 - 16**	**16 - 30**
Parameter					
ASF =	10	10	3	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	631	572	261
A =	1	1	1	1	1
EF =	350	350	350	350	350
AT =	70	70	70	70	70
FAH =	1.00	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 DPM Conc (ug/m3) Year	Annual	Age Sensitivity Factor	Infant/Child Cancer Risk (per million)	Adult - Exposure Information Modeled DPM Conc (ug/m3) Year	Annual	Age Sensitivity Factor	Adult Cancer Risk (per million)	Fugitive PM2.5	Total PM2.5
0	0.25	-0.25 - 0*	2023	0.1772	10	2.41	-	-	-	-		
1	1	0 - 1	2023-2024	0.1772	10	29.10	2023-2024	0.1772	1	0.51	0.1840	0.361
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						**31.51**				**0.51**		

* Third trimester of pregnancy

Cotati Village - Cotati, CA - Mitigated Emissions
Maximum DPM Cancer Risk Calculations From Construction
Impacts at Off-Site Receptors-4.5 meter receptor height

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

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

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

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

Values

	Infant/Child				Adult
Age -->	**3rd Trimester**	**0 - 2**	**2 - 9**	**2 - 16**	**16 - 30**
Parameter					
ASF =	10	10	3	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	631	572	261
A =	1	1	1	1	1
EF =	350	350	350	350	350
AT =	70	70	70	70	70
FAH =	1.00	1.00	1.00	1.00	0.73

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information			Infant/Child	Adult - Exposure Information			Adult		
	Exposure				Age	Cancer	Modeled		Age	Cancer		
Exposure	Duration		DPM Conc (ug/m3)		Sensitivity	Risk	DPM Conc (ug/m3)		Sensitivity	Risk	Fugitive	Total
Year	(years)	Age	Year	Annual	Factor	(per million)	Year	Annual	Factor	(per million)	PM2.5	PM2.5
0	0.25	-0.25 - 0*	2023	0.0251	10	0.34	-	-	-	-		
1	1	0 - 1	2023-2024	0.0251	10	4.13	2023-2024	0.0251	1	0.07	0.0838	0.109
2	1	1 - 2		0.0018	10	0.30		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		0.00000	3	0.00		0.00000	1	0.00		
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00		
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00		
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00		
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00		
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00		
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00		
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00		
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00		
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00		
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00		
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00		
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00		
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00		
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00		
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00		
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00		
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00		
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00		
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00		
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00		
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00		
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00		
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00		
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00		
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00		
Total Increased Cancer Risk						**4.77**				**0.07**		

* Third trimester of pregnancy

Attachment 5: Community Risk Modeling Information and Calculations

File Name: Sonoma (NC) - 2025 - Annual-SR116 Trucks.EF
CT-EMFAC2017 Version: 1.0.2.27401
Run Date: 10/26/2022 12:31
Area: Sonoma (NC)
Analysis Year: 2025
Season: Annual
===

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category	Gas VMT Fraction Within Category
Truck 1	0.015	0.63	0.37
Truck 2	0.02	0.941	0.059
Non-Truck	0.965	0.017	0.957

===

Road Type: Major/Collector
Silt Loading Factor: CARB 0.032 g/m2
Precipitation Correction: CARB P = 75 days N = 365 days
===

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

Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph
PM2.5	0.010552	0.006965	0.00478	0.003448	0.00264	0.002143	0.001841	0.001675	0.00161	0.001631
TOG	0.244475	0.159561	0.107401	0.076031	0.057388	0.045697	0.038246	0.033636	0.031087	0.030196
Diesel PM	0.001905	0.001592	0.001199	0.000932	0.000778	0.000691	0.000649	0.000656	0.000691	0.000752
DEOG	0.016124	0.012382	0.007	0.003899	0.002842	0.002304	0.001945	0.001753	0.001644	0.00161

===

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

Pollutant Name	Emission Factor
TOG	2.700823

===

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

Pollutant Name	Emission Factor
PM2.5	0.002097

===

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

Pollutant Name	Emission Factor
PM2.5	0.016664

===

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

Pollutant Name	Emission Factor
PM2.5	0.014637

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

Cotati Village, Cotati, CA - Roadway Modeling Emissions

SR-116 (Gravenstein Highway) Traffic

DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions

Year = 2025

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_SR116	State Route 116	E-W	2	820	0.51	13.3	43.7	3.4	40	23,625

Emission Factors - DPM

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle (g/VMT)	0.00066			

Emisson Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and DPM Emissions - DPM_SR116

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	4.15%	981	9.11E-05	9	6.84%	1617	1.50E-04	17	5.68%	1342	1.25E-04
2	3.49%	824	7.65E-05	10	7.99%	1888	1.75E-04	18	4.04%	954	8.86E-05
3	3.49%	824	7.65E-05	11	6.16%	1456	1.35E-04	19	2.69%	636	5.91E-05
4	1.99%	471	4.37E-05	12	7.34%	1735	1.61E-04	20	1.01%	240	2.22E-05
5	1.66%	392	3.65E-05	13	6.35%	1499	1.39E-04	21	3.01%	710	6.60E-05
6	2.33%	549	5.10E-05	14	6.18%	1460	1.36E-04	22	4.17%	985	9.15E-05
7	4.67%	1103	1.02E-04	15	5.18%	1225	1.14E-04	23	3.17%	750	6.96E-05
8	3.52%	832	7.73E-05	16	4.02%	950	8.82E-05	24	0.85%	200	1.86E-05
								Total		23,625	

Analysis Year = ***2025***

Vehicle Type	2020 Caltrans Vehicles (veh/day)	2025 Vehicles (veh/day)
Truck 1 (MDT)	338	354
Truck 2 (HDT)	450	473
Non-Truck	21,713	22,798
All	**22,500**	**23,625**

Increase From 2020	1.05
Vehicles/Direction	**11,813**
Avg Vehicles/Hour/Direction	492

Traffic Data Year = ***2020***

Caltrans 2020 Truck AADT	AADT Total	Total Truck	Trucks by Axle 2	3	4	5
SR116 A Junction Route 101	22,500	1,485	723	171	67	525
			48.68%	11.51%	4.49%	35.32%
	Percent of Total Vehicles	6.60%	3.21%	0.76%	0.30%	2.33%

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

Cotati Village, Cotati, CA - Roadway Modeling Emissions
SR-116 (Gravenstein Highway) Traffic
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2025

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
PM25_SR116	State Route 116	E-W	2	820	0.51	13.3	44	1.3	40	23,625

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle (g/VMT)	0.001675			

Emisson Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and PM2.5 Emissions - PM25_SR116

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.17%	277	6.56E-05	9	7.18%	1697	4.02E-04	17	7.46%	1762	4.18E-04
2	0.47%	110	2.62E-05	10	4.49%	1060	2.51E-04	18	8.17%	1930	4.58E-04
3	0.52%	123	2.92E-05	11	4.71%	1113	2.64E-04	19	5.64%	1332	3.16E-04
4	0.24%	58	1.37E-05	12	5.93%	1401	3.32E-04	20	4.23%	999	2.37E-04
5	0.50%	118	2.81E-05	13	6.13%	1449	3.44E-04	21	3.20%	756	1.79E-04
6	0.91%	216	5.12E-05	14	6.04%	1426	3.38E-04	22	3.27%	772	1.83E-04
7	3.72%	878	2.08E-04	15	6.97%	1647	3.91E-04	23	2.46%	580	1.38E-04
8	7.61%	1799	4.27E-04	16	7.13%	1684	3.99E-04	24	1.85%	438	1.04E-04
								Total		23,625	

Cotati Village, Cotati, CA - Roadway Modeling Emissions
SR-116 (Gravenstein Highway) Traffic
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2025

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_SR116	State Route 116	E-W	2	820	0.51	13.3	44	1.3	40	23,625

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	40			
All Vehicles TOG Emissions per Vehicle (g/VMT)	0.03364			
Diesel Vehicles TOG Emissions per Vehicle (g/VMT)	0.00175			
Gasoline Vehicles Emissions per Vehicle (g/VMT)	0.03188			

Emisson Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_SR116

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.17%	277	1.25E-03	9	7.18%	1697	7.66E-03	17	7.46%	1762	7.95E-03
2	0.47%	110	4.98E-04	10	4.49%	1060	4.79E-03	18	8.17%	1930	8.71E-03
3	0.52%	123	5.56E-04	11	4.71%	1113	5.02E-03	19	5.64%	1332	6.01E-03
4	0.24%	58	2.60E-04	12	5.93%	1401	6.32E-03	20	4.23%	999	4.51E-03
5	0.50%	118	5.34E-04	13	6.13%	1449	6.54E-03	21	3.20%	756	3.41E-03
6	0.91%	216	9.74E-04	14	6.04%	1426	6.44E-03	22	3.27%	772	3.49E-03
7	3.72%	878	3.96E-03	15	6.97%	1647	7.43E-03	23	2.46%	580	2.62E-03
8	7.61%	1799	8.12E-03	16	7.13%	1684	7.60E-03	24	1.85%	438	1.98E-03
								Total		23,625	

Cotati Village, Cotati, CA - Roadway Modeling Emissions
SR-116 (Gravenstein Highway) Traffic
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2025

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_SR116	State Route 116	E-W	2	820	0.51	13.3	44	1.3	40	23,625

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle per Hour (g/hour)	2.70082			
Emissions per Vehicle per Mile (g/VMT)	0.06752			

Emisson Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_SR116

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.17%	277	2.64E-03	9	7.18%	1697	1.62E-02	17	7.46%	1762	1.68E-02
2	0.47%	110	1.05E-03	10	4.49%	1060	1.01E-02	18	8.17%	1930	1.85E-02
3	0.52%	123	1.18E-03	11	4.71%	1113	1.06E-02	19	5.64%	1332	1.27E-02
4	0.24%	58	5.50E-04	12	5.93%	1401	1.34E-02	20	4.23%	999	9.55E-03
5	0.50%	118	1.13E-03	13	6.13%	1449	1.38E-02	21	3.20%	756	7.23E-03
6	0.91%	216	2.06E-03	14	6.04%	1426	1.36E-02	22	3.27%	772	7.38E-03
7	3.72%	878	8.39E-03	15	6.97%	1647	1.57E-02	23	2.46%	580	5.55E-03
8	7.61%	1799	1.72E-02	16	7.13%	1684	1.61E-02	24	1.85%	438	4.19E-03
								Total		23,625	

Cotati Village, Cotati, CA - Roadway Modeling Emissions
SR-116 (Gravenstein Highway) Traffic
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2025

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_SR116	State Route 116	E-W	2	820	0.51	13.3	44	1.3	40	23,625

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00210			
Brake Wear - Emissions per Vehicle (g/VMT)	0.01666			
Road Dust - Emissions per Vehicle (g/VMT)	0.01464			
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.03340			

Emisson Factors from CT-EMFAC2017

2025 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_SR116

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.17%	277	1.31E-03	9	7.18%	1697	8.02E-03	17	7.46%	1762	8.33E-03
2	0.47%	110	5.22E-04	10	4.49%	1060	5.01E-03	18	8.17%	1930	9.13E-03
3	0.52%	123	5.82E-04	11	4.71%	1113	5.26E-03	19	5.64%	1332	6.30E-03
4	0.24%	58	2.72E-04	12	5.93%	1401	6.62E-03	20	4.23%	999	4.73E-03
5	0.50%	118	5.60E-04	13	6.13%	1449	6.85E-03	21	3.20%	756	3.58E-03
6	0.91%	216	1.02E-03	14	6.04%	1426	6.74E-03	22	3.27%	772	3.65E-03
7	3.72%	878	4.15E-03	15	6.97%	1647	7.79E-03	23	2.46%	580	2.74E-03
8	7.61%	1799	8.51E-03	16	7.13%	1684	7.96E-03	24	1.85%	438	2.07E-03
								Total		23,625	

Cotati Village - SR-116 Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
Construction MEI Residential Health Risk Receptor (4.5 meter receptor height)

Emissions Year	2025
Receptor Information	
Number of Receptors	1
Receptor Height =	4.5 meters above ground level
Receptor distances =	at constructin MEI receptor
Meteorological Conditions	
BAAQMD Valley Ford Station	1990-1994
Land Use Classification	rural
Wind speed =	variable
Wind direction =	variable

MEI Maximum Concentrations

	Concentration (µg/m^3)		
Emission Years	**DPM**	**Exhaust TOG**	**Evaporative TOG**
2025	0.00188	0.0975	0.2066

	PM2.5 Concentrations (µg/m^3)
Emission Years	**Total PM2.5**
2025	0.1071

Cotati Village - SR-116 Traffic Maximum Cancer Risks
Construction MEI Residential Health Risk Receptor (4.5 meter receptor height)
30-Year Residential Exposure

Cancer Risk Calculation Method

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

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

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

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

Values

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

	Infant/Child			Adult
Age -->	3rd Trimester	0 - <2	2 - <16	16 - 30
Parameter				
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates

Road Traffic Cancer Risk by Year - Maximum Impact Receptor Location

				Maximum - Exposure Information				Cancer Risk (per million)			
		Exposure		Age	Annual TAC Conc (ug/m3)						
Exposure		Duration		Sensitivity		Exhaust	Evaporative		Exhaust	Evaporative	
Year	Year	(years)	Age	Factor	DPM	TOG	TOG	DPM	TOG	TOG	Total
0	2025	0.25	-0.25 - 0*	10	0.0019	0.0975	0.2066	0.026	0.008	0.001	0.03
1	2025	1	1	10	0.0019	0.0975	0.2066	0.31	0.091	0.011	0.41
2	2026	1	2	10	0.0019	0.0975	0.2066	0.31	0.091	0.011	0.41
3	2027	1	3	3	0.0019	0.0975	0.2066	0.05	0.014	0.002	0.06
4	2028	1	4	3	0.0019	0.0975	0.2066	0.05	0.014	0.002	0.06
5	2029	1	5	3	0.0019	0.0975	0.2066	0.05	0.014	0.002	0.06
6	2030	1	6	3	0.0019	0.0975	0.2066	0.05	0.014	0.002	0.06
7	2031	1	7	3	0.0019	0.0975	0.2066	0.05	0.014	0.002	0.06
8	2032	1	8	3	0.0019	0.0975	0.2066	0.05	0.014	0.002	0.06
9	2033	1	9	3	0.0019	0.0975	0.2066	0.05	0.014	0.002	0.06
10	2034	1	10	3	0.0019	0.0975	0.2066	0.05	0.014	0.002	0.06
11	2035	1	11	3	0.0019	0.0975	0.2066	0.05	0.014	0.002	0.06
12	2036	1	12	3	0.0019	0.0975	0.2066	0.05	0.014	0.002	0.06
13	2037	1	13	3	0.0019	0.0975	0.2066	0.05	0.014	0.002	0.06
14	2038	1	14	3	0.0019	0.0975	0.2066	0.05	0.014	0.002	0.06
15	2039	1	15	3	0.0019	0.0975	0.2066	0.05	0.014	0.002	0.06
16	2040	1	16	3	0.0019	0.0975	0.2066	0.05	0.014	0.002	0.06
17	2041	1	17	1	0.0019	0.0975	0.2066	0.01	0.002	0.000	0.007
18	2042	1	18	1	0.0019	0.0975	0.2066	0.01	0.002	0.000	0.007
19	2043	1	19	1	0.0019	0.0975	0.2066	0.01	0.002	0.000	0.007
20	2044	1	20	1	0.0019	0.0975	0.2066	0.01	0.002	0.000	0.007
21	2045	1	21	1	0.0019	0.0975	0.2066	0.01	0.002	0.000	0.007
22	2046	1	22	1	0.0019	0.0975	0.2066	0.01	0.002	0.000	0.007
23	2047	1	23	1	0.0019	0.0975	0.2066	0.01	0.002	0.000	0.007
24	2048	1	24	1	0.0019	0.0975	0.2066	0.01	0.002	0.000	0.007
25	2049	1	25	1	0.0019	0.0975	0.2066	0.01	0.002	0.000	0.007
26	2050	1	26	1	0.0019	0.0975	0.2066	0.01	0.002	0.000	0.007
27	2051	1	27	1	0.0019	0.0975	0.2066	0.01	0.002	0.000	0.007
28	2052	1	28	1	0.0019	0.0975	0.2066	0.01	0.002	0.000	0.007
29	2053	1	29	1	0.0019	0.0975	0.2066	0.01	0.002	0.000	0.007
30	2054	1	30	1	0.0019	0.0975	0.2066	0.01	0.002	0.000	0.007
Total Increased Cancer Risk			**Total**					1.40	0.414	0.052	**1.87**

* Third trimester of pregnancy

Cotati Village - SR-116 Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
On-Site Maximum 1st Floor Residential Health Risk Receptor (1.5 m receptor height)

Emissions Year	2025
Receptor Information	
Number of Receptors	101
Receptor Height =	1.5 meters above ground level
Receptor distances =	7 m grid spacing in proposed residential buildings
Meteorological Conditions	
BAAQMD Valley Ford Station	1990-1994
Land Use Classification	rural
Wind speed =	variable
Wind direction =	variable

MEI Maximum Concentrations

	Concentration (μg/m³)		
Emission Years	**DPM**	**Exhaust TOG**	**Evaporative TOG**
2025	0.00371	0.2238	0.4743

	PM2.5 Concentrations (μg/m³)
Emission Years	**Total PM2.5**
2025	0.2458

Cotati Village - SR-116 Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
On-Site Maximum 2nd Floor Residential Health Risk Receptor (4.85 m receptor height)

Emissions Year	2025
Receptor Information	
Number of Receptors	167
Receptor Height =	4.85 meters above ground level
Receptor distances =	7 m grid spacing in proposed residential buildings
Meteorological Conditions	
BAAQMD Valley Ford Station	1990-1994
Land Use Classification	rural
Wind speed =	variable
Wind direction =	variable

MEI Maximum Concentrations

	Concentration (μg/m³)		
Emission Years	**DPM**	**Exhaust TOG**	**Evaporative TOG**
2025	0.00607	0.2630	0.5574

	PM2.5 Concentrations (μg/m³)
Emission Years	**Total PM2.5**
2025	0.2889

Cotati Village - SR-116 Traffic Maximum Cancer Risks
On-Site Maximum 1st Floor Residential Health Risk Receptor (1.5 m receptor height)
30-Year Residential Exposure

Cancer Risk Calculation Method

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

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

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

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

Values

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

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

	Infant/Child			Adult
Age -->	3rd Trimester	0 - <2	2 - <16	16 - 30
Parameter				
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates

Road Traffic Cancer Risk by Year - Maximum Impact Receptor Location

				Maximum - Exposure Information				Cancer Risk (per million)			
					Annual TAC Conc (ug/m3)						
Exposure Year	Year	Exposure Duration (years)	Age	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	Total
0	2025	0.25	-0.25 - 0*	10	0.0037	0.2238	0.4743	0.050	0.017	0.002	0.07
1	2025	1	1	10	0.0037	0.2238	0.4743	0.61	0.210	0.026	0.85
2	2026	1	2	10	0.0037	0.2238	0.4743	0.61	0.210	0.026	0.85
3	2027	1	3	3	0.0037	0.2238	0.4743	0.10	0.033	0.004	0.13
4	2028	1	4	3	0.0037	0.2238	0.4743	0.10	0.033	0.004	0.13
5	2029	1	5	3	0.0037	0.2238	0.4743	0.10	0.033	0.004	0.13
6	2030	1	6	3	0.0037	0.2238	0.4743	0.10	0.033	0.004	0.13
7	2031	1	7	3	0.0037	0.2238	0.4743	0.10	0.033	0.004	0.13
8	2032	1	8	3	0.0037	0.2238	0.4743	0.10	0.033	0.004	0.13
9	2033	1	9	3	0.0037	0.2238	0.4743	0.10	0.033	0.004	0.13
10	2034	1	10	3	0.0037	0.2238	0.4743	0.10	0.033	0.004	0.13
11	2035	1	11	3	0.0037	0.2238	0.4743	0.10	0.033	0.004	0.13
12	2036	1	12	3	0.0037	0.2238	0.4743	0.10	0.033	0.004	0.13
13	2037	1	13	3	0.0037	0.2238	0.4743	0.10	0.033	0.004	0.13
14	2038	1	14	3	0.0037	0.2238	0.4743	0.10	0.033	0.004	0.13
15	2039	1	15	3	0.0037	0.2238	0.4743	0.10	0.033	0.004	0.13
16	2040	1	16	3	0.0037	0.2238	0.4743	0.10	0.033	0.004	0.13
17	2041	1	17	1	0.0037	0.2238	0.4743	0.01	0.004	0.000	0.015
18	2042	1	18	1	0.0037	0.2238	0.4743	0.01	0.004	0.000	0.015
19	2043	1	19	1	0.0037	0.2238	0.4743	0.01	0.004	0.000	0.015
20	2044	1	20	1	0.0037	0.2238	0.4743	0.01	0.004	0.000	0.015
21	2045	1	21	1	0.0037	0.2238	0.4743	0.01	0.004	0.000	0.015
22	2046	1	22	1	0.0037	0.2238	0.4743	0.01	0.004	0.000	0.015
23	2047	1	23	1	0.0037	0.2238	0.4743	0.01	0.004	0.000	0.015
24	2048	1	24	1	0.0037	0.2238	0.4743	0.01	0.004	0.000	0.015
25	2049	1	25	1	0.0037	0.2238	0.4743	0.01	0.004	0.000	0.015
26	2050	1	26	1	0.0037	0.2238	0.4743	0.01	0.004	0.000	0.015
27	2051	1	27	1	0.0037	0.2238	0.4743	0.01	0.004	0.000	0.015
28	2052	1	28	1	0.0037	0.2238	0.4743	0.01	0.004	0.000	0.015
29	2053	1	29	1	0.0037	0.2238	0.4743	0.01	0.004	0.000	0.015
30	2054	1	30	1	0.0037	0.2238	0.4743	0.01	0.004	0.000	0.015
Total Increased Cancer Risk			**Total**					2.76	0.951	0.119	**3.83**

* Third trimester of pregnancy

Cotati Village - SR-116 Traffic Maximum Cancer Risks
On-Site Maximum 2nd Floor Residential Health Risk Receptor (4.85 m receptor height)
30-Year Residential Exposure

Cancer Risk Calculation Method

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

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

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

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

Values

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

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

	Infant/Child			Adult
Age -->	3rd Trimester	0 - <2	2 - <16	16 - 30
Parameter				
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates

Road Traffic Cancer Risk by Year - Maximum Impact Receptor Location

				Maximum - Exposure Information				Cancer Risk (per million)			
		Exposure		Age	Annual TAC Conc (ug/m3)						
Exposure		Duration		Sensitivity		Exhaust	Evaporative		Exhaust	Evaporative	
Year	Year	(years)	Age	Factor	DPM	TOG	TOG	DPM	TOG	TOG	Total
0	2025	0.25	-0.25 - 0*	10	0.0061	0.2630	0.5574	0.083	0.020	0.003	0.11
1	2025	1	1	10	0.0061	0.2630	0.5574	1.00	0.247	0.031	1.27
2	2026	1	2	10	0.0061	0.2630	0.5574	1.00	0.247	0.031	1.27
3	2027	1	3	3	0.0061	0.2630	0.5574	0.16	0.039	0.005	0.20
4	2028	1	4	3	0.0061	0.2630	0.5574	0.16	0.039	0.005	0.20
5	2029	1	5	3	0.0061	0.2630	0.5574	0.16	0.039	0.005	0.20
6	2030	1	6	3	0.0061	0.2630	0.5574	0.16	0.039	0.005	0.20
7	2031	1	7	3	0.0061	0.2630	0.5574	0.16	0.039	0.005	0.20
8	2032	1	8	3	0.0061	0.2630	0.5574	0.16	0.039	0.005	0.20
9	2033	1	9	3	0.0061	0.2630	0.5574	0.16	0.039	0.005	0.20
10	2034	1	10	3	0.0061	0.2630	0.5574	0.16	0.039	0.005	0.20
11	2035	1	11	3	0.0061	0.2630	0.5574	0.16	0.039	0.005	0.20
12	2036	1	12	3	0.0061	0.2630	0.5574	0.16	0.039	0.005	0.20
13	2037	1	13	3	0.0061	0.2630	0.5574	0.16	0.039	0.005	0.20
14	2038	1	14	3	0.0061	0.2630	0.5574	0.16	0.039	0.005	0.20
15	2039	1	15	3	0.0061	0.2630	0.5574	0.16	0.039	0.005	0.20
16	2040	1	16	3	0.0061	0.2630	0.5574	0.16	0.039	0.005	0.20
17	2041	1	17	1	0.0061	0.2630	0.5574	0.02	0.004	0.001	0.022
18	2042	1	18	1	0.0061	0.2630	0.5574	0.02	0.004	0.001	0.022
19	2043	1	19	1	0.0061	0.2630	0.5574	0.02	0.004	0.001	0.022
20	2044	1	20	1	0.0061	0.2630	0.5574	0.02	0.004	0.001	0.022
21	2045	1	21	1	0.0061	0.2630	0.5574	0.02	0.004	0.001	0.022
22	2046	1	22	1	0.0061	0.2630	0.5574	0.02	0.004	0.001	0.022
23	2047	1	23	1	0.0061	0.2630	0.5574	0.02	0.004	0.001	0.022
24	2048	1	24	1	0.0061	0.2630	0.5574	0.02	0.004	0.001	0.022
25	2049	1	25	1	0.0061	0.2630	0.5574	0.02	0.004	0.001	0.022
26	2050	1	26	1	0.0061	0.2630	0.5574	0.02	0.004	0.001	0.022
27	2051	1	27	1	0.0061	0.2630	0.5574	0.02	0.004	0.001	0.022
28	2052	1	28	1	0.0061	0.2630	0.5574	0.02	0.004	0.001	0.022
29	2053	1	29	1	0.0061	0.2630	0.5574	0.02	0.004	0.001	0.022
30	2054	1	30	1	0.0061	0.2630	0.5574	0.02	0.004	0.001	0.022
Total Increased Cancer Risk			Total					4.52	1.118	0.140	**5.78**

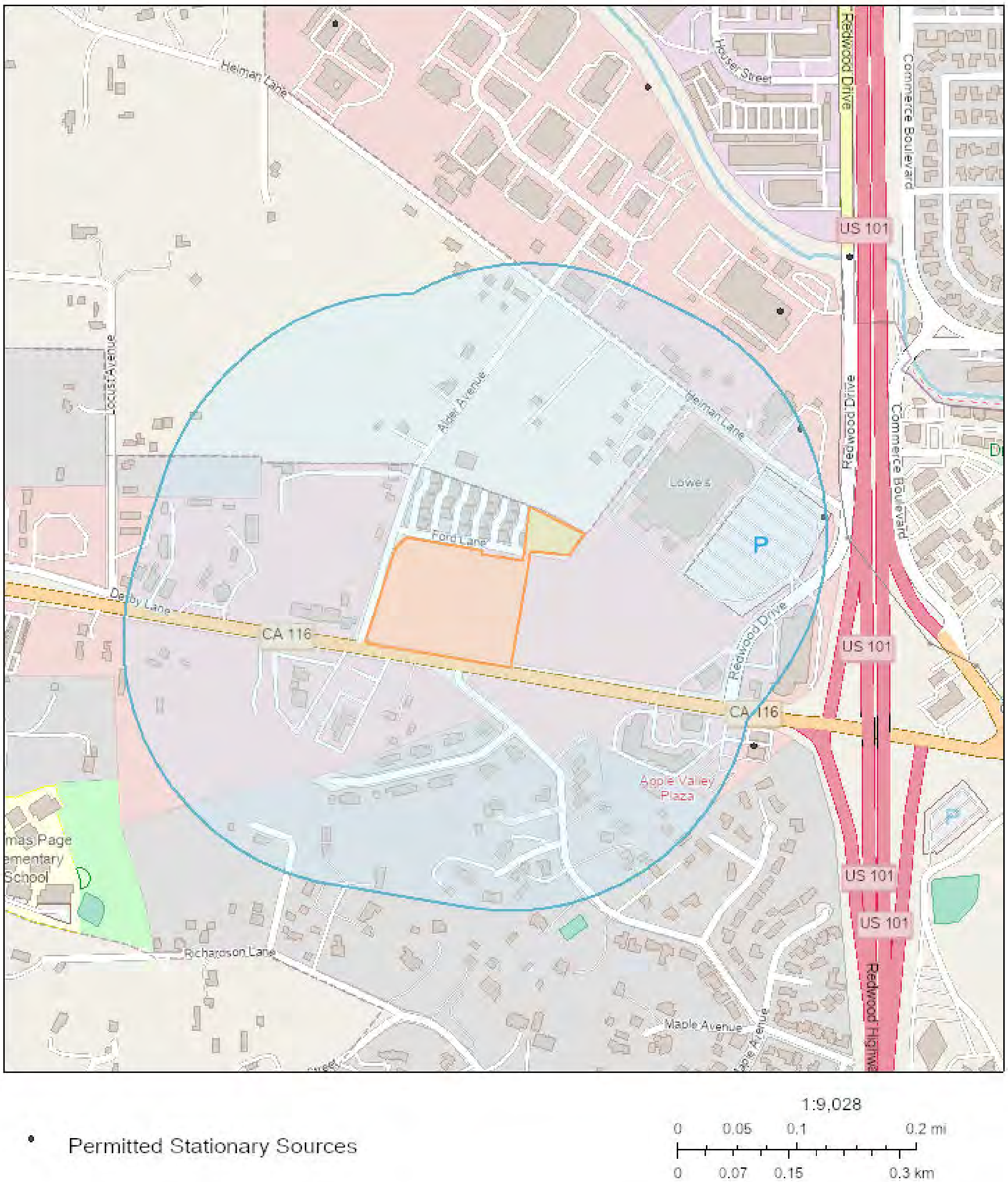
* Third trimester of pregnancy

Screening Report

Area of Interest (AOI) Information

Area : 6,912,436.36 ft²

Sep 12 2022 16:02:28 Pacific Daylight Time



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Summary

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

Permitted Stationary Sources

#	FacID	FacName	Address	City	Street
1	13661	Nor-Cal Truckbodys	141 Helman Ln	Cotati	CA
2	16825	Lowe's HIW, Inc #1901	7921 Redwood Drive	Cotati	CA

#	Zip	County	Latitude	Longitude	Details
1	94,931.00	Sonoma	38.33	-122.71	*No Data*
2	94,931.00	Sonoma	38.33	-122.71	Generator

#	NAICS	Sector	Sub_Sector	Industry	ChronicHI
1	811,121.00	Other Services (except Public Administration)	Repair and Maintenance	Automotive Body, Paint, and Interior Repair and Maintenance	0.0006939
2	339,113.00	Manufacturing	Miscellaneous Manufacturing	Surgical Appliance and Supplies Manufacturing	0.0235395

#	PM2_5	Cancer Risk {expression/expr0}	Chronic Hazard Index {expression/expr1}	PM2.5 {expression/expr2}	Count
1	0.0000000	*No Data*	0.001	*No Data*	1
2	0.0194006	15.213	0.024	0.019	1

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