

# ***REDWOOD ROW AIR QUALITY AND GREENHOUSE GAS ASSESSMENT***

***Cotati, California***

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**I&R Project#: 24-004**

## **Introduction**

The purpose of this report is to determine whether the proposed Redwood Row mixed-use project located north of State Route 116 and west of Redwood Drive in Cotati, California, would have any peculiar potential air quality, health risk, and greenhouse gas (GHG) impacts. The project is consistent with the development density established by the general plan, for which an EIR was certified. CEQA Guideline section 15183 states that such a project “shall not require additional environmental review, except as might be necessary to examine whether there are project-specific significant effects which are peculiar to the project or its site.” (14 Cal. Code Regs. § 15183(a).)

Air quality and GHG impacts would be associated with construction of the new buildings and infrastructure, and operation of the project. Air pollutant emissions were estimated using appropriate computer models. In addition, the potential health risks associated with construction and operation of the project 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).<sup>1</sup>

## **Project Description**

The 10.62-acre project site is currently vacant. The project proposes to construct 134 condominiums totaling approximately 312,836 square feet (sf) and 44 affordable apartment units, totaling 34,400-sf. There would also be 10,032-sf of commercial space, and 90 parking spaces. Construction is expected to begin as early as January 2025 and be completed by July 2026.

## **Setting**

### Ambient Air Quality Standards

The Federal and California Clean Air Acts have established ambient air quality standards for different pollutants. National ambient air quality standards (NAAQS) were established by the Federal Clean Air Act of 1970 (amended in 1977 and 1990) for six "criteria" pollutants. These criteria pollutants now include carbon monoxide (CO), ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>), respirable particulate matter with a diameter less than 10 microns (PM<sub>10</sub>), sulfur dioxide (SO<sub>2</sub>), and lead (Pb). In 1997, The Environmental Protection Agency (EPA) added fine particulate matter (PM<sub>2.5</sub>) as a criteria pollutant. The air pollutants for which standards have been established are considered the most prevalent air pollutants known to be hazardous to human health. California ambient air quality standards (CAAQS) include the NAAQS pollutants and also hydrogen sulfide, sulfates, vinyl chloride, and visibility reducing particles. These additional CAAQS pollutants tend to have unique sources and are not typically included in environmental air quality assessments. In addition, lead concentrations have decreased dramatically since it was removed from motor vehicle fuels. The Bay Area has attained the CO standard and monitoring data from the last 30 years show relatively low concentrations throughout the Bay Area. Therefore, CO is not an air quality issue for land use type projects such as this one.

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<sup>1</sup> Bay Area Air Quality Management District, *CEQA Guidelines*, April 2023.

## Air Pollutants of Concern

The project is located in the portion of Sonoma County that is part of the San Francisco Bay Area Air Basin. High ozone concentrations in the air basin are caused by the cumulative emissions of reactive organic gases (ROG) and nitrogen oxides (NO<sub>x</sub>). These precursor pollutants react under certain meteorological conditions to form ozone concentrations. Controlling the emissions of these precursor pollutants is the focus of the Bay Area's attempts to reduce ambient ozone concentrations. The highest ozone concentrations in the Bay Area occur in the eastern and southern inland valleys that are downwind of air pollutant sources. High ozone concentrations aggravate respiratory and cardiovascular diseases, reduced lung function, and increase coughing and chest discomfort.

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

## Toxic Air Contaminants

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

Diesel exhaust is the predominant TAC in urban air and is estimated to represent about seventy percent of the cancer risk from TACs (based on the Bay Area average).<sup>2</sup> 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 from diesel exhaust exposure a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the CARB, and are listed as carcinogens either under the State's Proposition 65 or under the Federal Hazardous Air Pollutants programs. Health risks from TACs are estimated using the Office of Environmental Health Hazard Assessment (OEHHA) risk assessment guidelines, which were published in February of 2015 and incorporated in BAAQMD's current CEQA guidance.<sup>3</sup>

PM<sub>2.5</sub> emissions can include TACs. Due to the adverse health effects caused by PM<sub>2.5</sub> exposure

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<sup>2</sup> CARB, *Summary: Diesel Particulate Matter Health Impacts*, Web: [https://ww2.arb.ca.gov/resources/summary-diesel-particulate-matter-health-impacts#footnote1\\_7yob8j5](https://ww2.arb.ca.gov/resources/summary-diesel-particulate-matter-health-impacts#footnote1_7yob8j5).

<sup>3</sup> 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.

even at low concentrations, BAAQMD developed assessing methods and health risk thresholds to address exposure to increased concentrations caused by project PM<sub>2.5</sub> emissions.<sup>4</sup>

### Project Air Quality Conditions

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<sub>10</sub>) and fine particulate matter (PM<sub>2.5</sub>). In Sonoma County, measured levels of air pollutants are below air quality standards, including ozone, PM<sub>10</sub> and PM<sub>2.5</sub>.

### Sensitive Receptors

There are groups of people more affected by air pollution than others. CARB has identified the following persons who are most likely to be affected by air pollution: children under 16, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, and elementary schools. For cancer risk assessments, infants and small children are the most sensitive receptors, since they are more susceptible to cancer causing TACs. Residential locations are assumed to include infants and small children. The closest sensitive receptors to the project site are located in the multi-family residences adjacent to the northwest and the single-family residences to the south. There are also residences proposed adjacent to the west, known as Cotati Village #1, south of the existing multi-family residences. For this analysis, it is assumed those residences are built and occupied. There are more receptors at further distances. This project would introduce new sensitive receptors (i.e., residents) to the area.

## **Regulatory Setting**

### Federal Regulations

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

In the past decade the EPA has established a number of emission standards for on- and non-road heavy-duty diesel engines used in trucks and other equipment. This was done in part because diesel engines are a significant source of NO<sub>x</sub> and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) 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<sub>x</sub> emissions from diesel engines up to 95 percent in 2030 when the heavy-duty

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<sup>4</sup> BAAQMD, 2022 CEQA Air Quality Guidelines, Appendix A, p40.

vehicle fleet is completely replaced with newer heavy-duty vehicles that comply with these emission standards.<sup>5</sup>

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

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

### State Regulations

To address the issue of diesel emissions in the state, CARB developed the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles.<sup>6</sup> 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<sub>2.5</sub> emissions. 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. Furthermore, CARB has adopted Advanced Clean Cars and Advanced Clean Cars II (ACC II) that will require new all new cars and light trucks sold in California to be zero-emission vehicles by 2035.

CARB has also adopted and implemented regulations to reduce DPM and NO<sub>x</sub> 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

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<sup>5</sup> USEPA, 2000. *Regulatory Announcement, Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements*. EPA420-F-00-057. December.

<sup>6</sup> California Air Resources Board, 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. October.

matter and NO<sub>x</sub> 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<sub>x</sub>.

### Bay Area Air Quality Management District (BAAQMD)

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

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

BAAQMD's Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposures to outdoor TACs in the Bay Area.<sup>7</sup> 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 has been 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 has been used to develop emission reduction activities 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. Seven areas have been identified by BAAQMD as impacted communities. They include Eastern San Francisco, Richmond/San Pablo, Western Alameda, San José, Vallejo, Concord, and Pittsburgh/Antioch. The project site is not located within any of the BAAQMD CARE areas.

Overburdened communities are areas located (i) within a census tract identified by the California Communities Environmental Health Screening Tool (CalEnviroScreen), Version 4.0 implemented by OEHHA, as having an overall score at or above the 70th percentile, or (ii) within 1,000 feet of any such census tract.<sup>8</sup> The BAAQMD has identified several overburdened areas within its

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<sup>7</sup> See BAAQMD: <https://www.baaqmd.gov/community-health/community-health-protection-program/community-air-risk-evaluation-care-program>.

<sup>8</sup> See BAAQMD: [https://www.baaqmd.gov/~/\\_media/dotgov/files/rules/reg-2-permits/2021-amendments/documents/20210722\\_01\\_appendixd\\_mapsofverburdenedcommunities-pdf.pdf?la=en](https://www.baaqmd.gov/~/_media/dotgov/files/rules/reg-2-permits/2021-amendments/documents/20210722_01_appendixd_mapsofverburdenedcommunities-pdf.pdf?la=en).

boundaries. However, the project site is not within an overburdened area as the Project site is scored at the 38<sup>th</sup> percentile on CalEnviroScreen.<sup>9</sup>

### *Clean Air Plan*

The BAAQMD is responsible for developing a Clean Air Plan which guides the region's air quality planning efforts to attain both the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS). The BAAQMD's 2017 *Clean Air Plan* is the current Clean Air Plan which contains district-wide control measures to reduce ozone precursor emissions (i.e., ROG and NO<sub>x</sub>), particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) and greenhouse gas (GHG) emissions.

### *BAAQMD CEQA Air Quality Guidelines*

In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA. In 2023, the BAAQMD revised the *California Environmental Quality Act (CEQA) Air Quality Guidelines* that include significance thresholds to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The current BAAQMD 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 include assessment methodologies for criteria air pollutants, air toxics, odors, and GHG emissions as shown in Table 1.<sup>10</sup> Air quality impacts and health risks are considered potentially significant if they exceed these thresholds.

The BAAQMD recommends all projects include a "basic" set of best management practices (BMPs) to manage fugitive dust and consider impacts from dust (i.e., fugitive PM<sub>10</sub> and PM<sub>2.5</sub>) to be less than significant if BMPs are implemented (listed below). BAAQMD strongly encourages enhanced BMPs for construction sites near schools, residential areas, other sensitive land uses, or if air quality impacts were found to be significant.

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<sup>9</sup> OEHAA, CalEnviroScreen 4.0 Maps <https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40>

<sup>10</sup> Bay Area Air Quality Management District, 2022 *CEQA Guidelines*. April 2023.

**Table 1. BAAQMD CEQA Significance Thresholds**

Criteria Air Pollutant	Construction Thresholds		Operational Thresholds	
	Average Daily Emissions (lbs./day)		Average Daily Emissions (lbs./day)	Annual Average Emissions (tons/year)
ROG	54		54	10
NO <sub>x</sub>	54		54	10
PM <sub>10</sub>	82 (Exhaust)		82	15
PM <sub>2.5</sub>	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 (BMPs)*		Not Applicable	
<b>Health Risks and Hazards</b>	<b>Single Sources/ Individual Project</b>		<b>Combined Sources (Cumulative from all sources within 1000-foot zone of influence)</b>	
Excess Cancer Risk	>10 in a million	OR Compliance with Qualified Community Risk Reduction Plan	>100 in a million	OR Compliance with Qualified Community Risk Reduction Plan
Hazard Index	>1.0		>10.0	
Incremental annual PM <sub>2.5</sub>	>0.3 µg/m <sup>3</sup>		>0.8 µg/m <sup>3</sup>	
<b>Greenhouse Gas Emissions</b>				
Land Use Projects – (Must Include A or B)	<p>A. Projects must include, at a minimum, the following project design elements:</p> <ol style="list-style-type: none"> <li>1. Buildings               <ol style="list-style-type: none"> <li>a. The project will not include natural gas appliances or natural gas plumbing (in both residential and nonresidential development).</li> <li>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.</li> </ol> </li> <li>2. Transportation               <ol style="list-style-type: none"> <li>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:                   <ol style="list-style-type: none"> <li>i. Residential projects: 15 percent below the existing VMT per capita</li> <li>ii. Office projects: 15 percent below the existing VMT per employee</li> <li>iii. Retail projects: no net increase in existing VMT</li> </ol> </li> <li>b. Achieve compliance with off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2.</li> </ol> </li> </ol> <p>B. Be consistent with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b).</p>			
<p>Note: ROG = reactive organic gases, NO<sub>x</sub> = nitrogen oxides, PM<sub>10</sub> = coarse particulate matter or particulates with an aerodynamic diameter of 10 micrometers (µm) or less, PM<sub>2.5</sub> = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less. GHG = greenhouse gases.            * BAAQMD strongly recommends implementing all feasible fugitive dust management practices especially when construction projects are located near sensitive communities, including schools, residential areas, or other sensitive land uses.</p>				

Source: Bay Area Air Quality Management District, 2022

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 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 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.

## AIR QUALITY IMPACTS AND MITIGATION MEASURES

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

BAAQMD is the regional agency responsible for overseeing compliance with State and Federal laws, regulations, and programs within the San Francisco Bay Area Air Basin (SFBAAB). BAAQMD, with assistance from the Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC), prepares and implements specific plans to meet the applicable laws, regulations, and programs. The most recent and comprehensive of which is the *Bay Area 2017 Clean Air Plan*.<sup>11</sup> The primary goals of the Clean Air Plan are to attain air quality standards, reduce population exposure and protect public health, and reduce GHG emissions and protect the climate. The BAAQMD has also developed CEQA guidelines to assist lead agencies in evaluating the significance of air quality and GHG impacts. In formulating compliance strategies, BAAQMD relies on planned land uses established by local general plans. Land use planning affects vehicle travel, which, in turn, affects region-wide emissions of air pollutants and GHGs.

The 2017 Clean Air Plan, adopted by BAAQMD in April 2017, includes control measures that are intended to reduce air pollutant emissions in the Bay Area either directly or indirectly. Guidance provided in the BAAQMD CEQA guidelines recommends that Plans show consistency with the control measures listed within the Clean Air Plan. When the General Plan Environmental Impact Report (“GP EIR”) was prepared and certified in 2015, the City determined that the General Plan would not be inconsistent with the BAAQMD’s Clean Air Plan. The proposed project is consistent with the General Plan and will implement all required policies, goals, and requirements of the General Plan and zoning related to ensuring consistency with the Clean Air Plan. At the project-level, BAAQMD recommends answering the following questions: (1) does the project support the primary goals of the Clean Air Plan; (2) does the project include all applicable control measures; and (3) does the project disrupt or hinder implementation of any Clean Air Plan control measures? . The proposed project supports the primary goals of the Clean Air Plan, which are protecting public health and protecting the climate. As addressed below, emissions from the proposed project would not adversely affect public health and the project has several features that help protect the climate, including its location near employment centers and near transit with regional connections, as well as having less than significant GHG impacts. The Clean Air Plan does not include control measures directly applicable to the project, but measures implemented at the state level such as regulations related to the decarbonization of energy provided by utilities, results in the project having fewer emissions. The project would not disrupt or hinder any Clean Air Plan control measures, and would foster decarbonization of the energy by being all electric.

### **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?**

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<sup>11</sup> Bay Area Air Quality Management District (BAAQMD), 2017. *Final 2017 Clean Air Plan*.

The Bay Area is considered a non-attainment area for ground-level ozone and PM<sub>2.5</sub> under both the NAAQS and the CAAQS. The area is also considered non-attainment for PM<sub>10</sub> under the CAAQS, but not the NAAQS. The area has attained both State and Federal ambient air quality standards for CO. As part of an effort to attain and maintain ambient air quality standards for ozone, PM<sub>2.5</sub> and PM<sub>10</sub>, the BAAQMD has established thresholds of significance for these air pollutants and their precursors. These are the levels above which the BAAQMD has determined that an individual project’s contribution to the cumulative impact (non-attainment) is cumulatively considerable. These levels also are set to be protective of human health. The ozone precursor pollutant thresholds are for ROG and NO<sub>x</sub>, while PM<sub>10</sub>, and PM<sub>2.5</sub> have specific thresholds. The thresholds apply to both construction period emissions and operational period emissions.

**Construction Period Emissions**

The California Emissions Estimator Model (CalEEMod) Version 2022 was used to estimate emissions from on-site construction activity, construction vehicle trips, and evaporative emissions. The project land use types and size were input to CalEEMod. The CalEEMod model output along with construction inputs are included in *Attachment 1*.

CalEEMod Inputs

*Land Uses*

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

**Table 2. Summary of Project Land Use Inputs**

<b>Project Land Uses</b>	<b>Size</b>	<b>Units</b>	<b>Square Feet (sf)</b>	<b>Acreage</b>
Condo/Townhouse	134	Dwelling Unit	312,836	10.62
Apartments Low-Rise	44	Dwelling Unit	34,400	
Regional Shopping Center	10.032	1,000-sf	10,032	
Parking Lot	90	Parking Space	-	

*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 quantities, average hours per day, total number of workdays, and schedule, were based on defaults for a project of this type and size (included in *Attachment 1*). The applicant’s construction schedule provided an estimated start date of January 2025, and the project would be built out over a period of approximately 19 months, or 405 construction workdays. The earliest full year of operation was assumed to be 2027.

### 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 estimated demolition material to be exported, provided soil imported to the site, and the estimate of the number of concrete and asphalt truck trips to and from the site. CalEEMod provides daily estimates of worker and vendor trips for each applicable phase. Daily haul trips for demolition and grading were developed by CalEEMod using the estimated demolition and provided soil import/export volumes. The number of total concrete/asphalt round haul trips were estimated for the project and converted to daily one-way trips, assuming two trips per delivery.

### Summary of Computed Construction Period Emissions

Average daily emissions were annualized for each year of construction by dividing the annual construction emissions by the number of active workdays during that year. Table 3 shows the annualized average daily construction emissions of ROG, NO<sub>x</sub>, PM<sub>10</sub> exhaust, and PM<sub>2.5</sub> exhaust during construction of the project. As indicated in Table 3, predicted annualized project construction emissions would not exceed the BAAQMD significance thresholds during any year of construction.

**Table 3. Construction Period Emissions**

Year	ROG	NO <sub>x</sub>	PM <sub>10</sub> Exhaust	PM <sub>2.5</sub> Exhaust
<i>Construction Emissions Total (Tons)</i>				
2025	0.26	2.18	0.08	0.07
2026	2.59	0.68	0.02	0.02
<i>Average Daily Construction Emissions (pounds/day)</i>				
2025 (261 construction workdays)	1.99	16.72	0.62	0.57
2026 (144 construction workdays)	35.96	9.46	0.33	0.30
<i>BAAQMD Thresholds (pounds per day)</i>	54 lbs./day	54 lbs./day	82 lbs./day	54 lbs./day
<b>Exceed Threshold?</b>	No	No	No	No

Construction activities, particularly during site preparation and grading, would temporarily generate fugitive dust in the form of PM<sub>10</sub> and PM<sub>2.5</sub>. 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 recommends all projects include a “basic” set of best management practices (BMPs) to manage fugitive dust and consider impacts from dust (i.e. fugitive PM<sub>10</sub> and PM<sub>2.5</sub>) to be less than significant BMPs are implemented. Cotati General Plan Policy CON 2.5 requires projects to implement BAAQMD dust control measures. The project would be required to implement the basic BMPs recommended by BAAQMD, which are consistent with and have been adopted by the City as Cotati General Plan policy CON 2.5 during all phases of construction to reduce dust and other particulate matter emissions.

**General Plan Policy CON 2.5: Include measures to control dust and exhaust during construction.**

As required by General Plan Policy CON 2.5, during any construction period ground disturbance, the applicant shall ensure that the project contractor implement BMPs to control dust and exhaust. Implementation of the measures recommended by BAAQMD and listed below would ensure that air quality impacts associated with grading and new construction to a less-than-significant level. The contractor shall implement the following BMPs that are required of all projects, which are specified in the BAAQMD's 2022 CEQA Guidelines:

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 practicable. Building pads shall be laid as soon as practicable after grading unless seeding or soil binders are used.
6. All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
7. All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
8. Unpaved roads providing access to site located 100 feet or further from a paved road shall be treated with a 6- to 12-inch layer of compacted layer of wood chips, mulch, or gravel.
9. Publicly visible signs shall be posted with the telephone number and name of the 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 General Air Pollution Complaints number shall be visible to ensure compliance with applicable regulations.

### **Operational Period Emissions**

ROG, PM, and NO<sub>x</sub> 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 also typical ROG emission sources from these types of uses. CalEEMod was used to estimate emissions from operation of the proposed project assuming full build-out.

## CalEEMod Inputs

### *Land Uses*

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

### *Model Year*

Emissions associated with vehicle travel depend on the year of analysis because emission control technology requirements are phased-in over time. Therefore, the earlier the year analyzed in the model, the higher the emission rates utilized by CalEEMod. The earliest year of full operation would be 2027 if construction begins in 2025. Emissions associated with build-out later than 2027 would be lower.

### *Traffic Information*

CalEEMod allows the user to enter specific vehicle trip generation rates. Therefore, the project-specific daily trip generation rate provided by the traffic consultant was entered into the model.<sup>12</sup> The project would produce approximately 1,746 daily trips. When accounting for the *Internal Capture* and *Pass-By* reductions, the project would produce 1,558 net daily trips. The daily trip generation was calculated using ITE trip generation rates, the size of the project land uses, and the adjusted total automobile trips after reductions. 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.

### *Energy*

CalEEMod defaults for energy use were used, which include the 2019<sup>13</sup> Title 24 Building Standards. GHG emissions modeling includes those indirect emissions from electricity consumption. The CalEEMod default emission factor of 39.46 pounds of CO<sub>2</sub> per megawatt of electricity produced by Sonoma Clean Power was used.

The project will be all electric according to the project applicant, therefore natural gas for the land uses were set to zero and reassigned to electricity use in CalEEMod.

### *Wood-Burning Devices*

CalEEMod default inputs assume new residential construction would include wood-burning fireplaces and stoves. The project would not include wood-burning devices, as these devices are

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<sup>12</sup> Email Correspondence from Barry Bergman, AICP, Senior Planner, W-Trans., November 12, 2024, *RE: Redwood City trip generation*.

<sup>13</sup> The 2022 Title 2024 standards have not been incorporated into the current CalEEMod model, which uses Title 24 standards from 2019 (CalEEMod User Guide). The 2019 standards, and therefore the energy analysis, are more conservative.

prohibited by BAAQMD Regulation 6, Rule 3 and the project will not include natural gas infrastructure.<sup>14</sup> Therefore, the number of woodstoves, woodburning, and natural gas burning fireplaces in CalEEMod were set to zero.

*Other Inputs*

Default model assumptions for emissions associated with solid waste generation were used. Wastewater treatment was changed to 100-percent aerobic conditions to represent the use of city services (i.e., the project would not send wastewater to septic tanks or facultative lagoons).

Summary of Computed Operational Period Emissions

Annual emissions were predicted using CalEEMod. The daily emissions were calculated assuming 365 days of operation. Table 4 shows average daily emissions of ROG, NO<sub>x</sub>, total PM<sub>10</sub>, and total PM<sub>2.5</sub> during operation of the project. The operational period emissions would not exceed the BAAQMD significance thresholds.

**Table 4. Operational Period Emissions**

Scenario	ROG	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
2027 Annual Project Operational Emissions ( <i>tons/year</i> )	2.81	1.04	1.58	0.41
<i>BAAQMD Thresholds (tons /year)</i>	<i>10 tons</i>	<i>10 tons</i>	<i>15 tons</i>	<i>10 tons</i>
<b><i>Exceed Threshold?</i></b>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>
2027 Daily Project Operational Emissions ( <i>pounds/day</i> ) <sup>1</sup>	15.40	5.67	8.63	2.26
<i>BAAQMD Thresholds (pounds/day)</i>	<i>54 lbs.</i>	<i>54 lbs.</i>	<i>82 lbs.</i>	<i>54 lbs.</i>
<b><i>Exceed Threshold?</i></b>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>

Notes: <sup>1</sup>Assumes 365-day operation.

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

Project impacts related to increased health risk can occur by generating emissions of TACs and air pollutants. This project would introduce new sources of TACs during construction (e.g., on-site construction and truck hauling emissions) and operation (e.g., mobile sources). Project construction activity would generate dust and equipment exhaust that would affect nearby sensitive receptors. The project would not include stationary sources but would generate some traffic consisting of mostly light-duty gasoline-powered vehicles, which would produce TAC and air pollutant emissions.

Project impacts to existing sensitive receptors were addressed for temporary construction activities and long-term operational conditions. There are also several sources of existing TACs and localized air pollutants in the vicinity of the project. The impact of the existing sources of TACs

<sup>14</sup> Bay Area Air Quality Management District, [https://www.baaqmd.gov/~/\\_media/dotgov/files/rules/regulation-6-rule-3/documents/20191120\\_r0603\\_final-pdf.pdf?la=en](https://www.baaqmd.gov/~/_media/dotgov/files/rules/regulation-6-rule-3/documents/20191120_r0603_final-pdf.pdf?la=en)

was assessed in terms of the cumulative risk which includes the project contribution, as well as the risk on the new sensitive receptors introduced by the project.

As recognized by the GP EIR, the City's General Plan includes policies that are intended to minimize exposure of TACs to sensitive receptors. Those policies and actions, as summarized below, are consistent with BAAQMD recommendations to reduce health risks associated with TACs.

### Policies

- **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 2.3:** Require discretionary projects involving sensitive receptors such as children, the elderly, or people with respiratory diseases proposed within 500 feet of the Highway 101 corridor to include an analysis of mobile source toxic air contaminant health risks. The analysis, if necessary, shall identify feasible mitigation measures to reduce health risks to acceptable levels.
- **Policy CON 2.5:** Continue to require all construction projects and ground disturbing activities to implement BAAQMD dust control and abatement measures.

### **Health Risk Methodology**

Health risk impacts were addressed by predicting increased cancer risk, the increase in annual PM<sub>2.5</sub> 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,<sup>15</sup> 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<sub>2.5</sub> concentration, and HI values are not additive but based on an annual maximum value 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.

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<sup>15</sup> BAAQMD, 2022. *BAAQMD CEQA Air Quality Guidelines Appendix E*. April 2023.

The methodology for computing health risk impacts is contained in Appendix E of the BAAQMD CEQA Guidelines. TAC and PM<sub>2.5</sub> emissions are calculated, a dispersion model used to estimate ambient pollutant concentrations, and cancer risks and HI calculated using DPM concentrations.

### **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 surrounding the project site and the future Cotati Village #1 residences, as shown in Figure 1.<sup>16</sup> Residential receptors are assumed to include all receptor groups (e.g., third trimester, infants, children, and adults) with almost continuous exposure to project emissions. While there are additional sensitive receptors within 1,000 feet of the project site, the receptors chosen are adequate to identify maximum impacts from the project.

### **Health Risk from Project Construction**

The primary health risk impact issues associated with construction projects are cancer risks associated with diesel exhaust (i.e., DPM), which is a known TAC, and exposure to high ambient concentrations of dust (i.e., PM<sub>2.5</sub>). Both pose 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<sub>2.5</sub>.<sup>17</sup> This assessment included dispersion modeling to predict the offsite concentrations resulting from project construction, so that lifetime cancer risks and non-cancer health effects could be estimated.

#### *Construction Emissions*

The CalEEMod model provided total uncontrolled annual PM<sub>10</sub> exhaust emissions (assumed to be DPM) for the off-road construction equipment and for exhaust emissions from on-road vehicles. Total DPM emissions were estimated to be 0.10 tons (203 pounds) and fugitive dust emissions (PM<sub>2.5</sub>) to be 0.05 tons (91 pounds) from all construction stages. The on-road emissions are a result of haul truck travel during grading activities, worker travel, and vendor deliveries during construction. A trip length of one mile was used to represent vehicle travel while at or near the construction site. It was assumed that the emissions from on-road vehicles traveling at or near the site would occur at the construction site.

#### Dispersion Modeling

The U.S. EPA's AERMOD model is the preferred model for predicting DPM and PM<sub>2.5</sub> concentrations. Due to the relatively rural nature of the surrounding area, the closest representative BAAQMD AERMOD meteorological data set for Sonoma County Airport in Santa Rosa which has very different winds than the Project site area. Meteorological data collected by BAAQMD is available for Valley Ford, which is considered 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

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<sup>16</sup> Cotati Village #1 is anticipated to be almost completely constructed when construction begins.

<sup>17</sup> DPM is identified by California as a toxic air contaminant due to the potential to cause cancer.

dispersion model was used to predict DPM and PM<sub>2.5</sub> 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.<sup>18</sup> Emission sources for the construction site were grouped into two categories: exhaust emissions of DPM and fugitive PM<sub>2.5</sub> dust emissions.

### *Construction Sources*

To represent the construction equipment exhaust emissions, an area source emission release height of 20 feet (6 meters) was used for the area sources.<sup>19</sup> 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<sub>2.5</sub> 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<sub>2.5</sub> emissions from construction activities during the 2025 - 2026 period were modeled as area sources. Concentrations were calculated at nearby residential receptors at receptor heights of 1.5 meters (5 feet above ground) and 4.5 meters (15 feet above ground), representative of the breathing heights of residents in first and second floor levels. Construction was assumed to occur for 9 hours per day (8:00am – 5:00pm).

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<sup>18</sup> BAAQMD, Appendix E of the 2022 *BAAQMD CEQA Guidelines*, April 2023

<sup>19</sup> 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>

## Summary of Construction Health Risk Impacts

The maximum increased cancer risks were calculated using the modeled TAC concentrations combined with BAAQMD CEQA guidance for age-sensitivity factors and exposure parameters. Non-cancer health hazards and maximum PM<sub>2.5</sub> concentrations were also calculated and identified. Age-sensitivity factors reflect the greater sensitivity of infants and small children to cancer causing TACs. Third trimester, infant, child, and adult exposures were assumed to occur at all residences during the entire construction period.

The maximum modeled annual PM<sub>2.5</sub> concentration was calculated based on combined exhaust and fugitive concentrations. The maximum computed HI values was based on the ratio of the maximum DPM concentration modeled and the chronic inhalation DPM reference exposure level of 5 µg/m<sup>3</sup>.

The modeled maximum annual DPM and PM<sub>2.5</sub> concentrations were identified at nearby sensitive receptors to find the MEI from construction activities. Results of this assessment indicated that the cancer risk MEI and annual PM<sub>2.5</sub> concentration MEI occurred at the same location on two different floors. The construction cancer risk MEI was located on the second floor (15 feet) of a residence west of the project site in Cotati Village #1. The annual PM<sub>2.5</sub> concentration MEI was located at the same location on the first floor (5 feet). The location of the MEIs and nearby sensitive receptors are shown in Figure 1. Table 5 lists the health risks from construction at the location of the residential MEIs. *Attachment 2* to this report includes the emission calculations used for the construction modeling and the cancer risk calculations.

## **Health Risks from Project Operation**

The Project would not include stationary sources (e.g., emergency generators) of TACs. Diesel powered vehicles are the primary concern with local traffic-generated TAC impacts. This project would generate 1,746 daily trips or 1,558 net daily trips.<sup>20</sup> The project traffic would be dispersed on the roadway system with a majority of the trips being from light-duty vehicles (e.g., passenger automobiles). In addition, projects with the potential to cause or contribute to increased cancer risk from traffic include those that have high numbers of diesel-powered on road trucks or use off-road diesel equipment on site, such as a warehouse distribution center, a quarry, or a manufacturing facility, may potentially expose existing or future planned receptors to substantial cancer risk levels and/or health hazards. This is not a project of concern for mobile sources given the low trip quantity and type of vehicle trips generated by the project. Therefore, emissions from project traffic are considered negligible and not included within this health risk analysis.

## **Summary of Project-Related Health Risks at the Off-Site Project MEIs**

For this project, the sensitive receptors identified in Figure 1 as the construction MEIs are also the project MEIs. At these locations, the MEIs would be exposed to nineteen months of project construction. The annual PM<sub>2.5</sub> concentration and HI values are based on an annual maximum risk for the entirety of the project. As shown in Table 5, none of the project's construction risk values exceed a BAAQMD single-source significance threshold.

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<sup>20</sup> Email Correspondence from Barry Bergman, AICP, Senior Planner, W-Trans., November 12, 2024, *RE: Redwood City trip generation*.

**Table 5. Health Risk Impacts at the Off-Site Project MEIs**

Source		Cancer Risk <sup>1</sup> (per million)	Annual PM <sub>2.5</sub> <sup>1</sup> (µg/m <sup>3</sup> )	Hazard Index
Project Construction	Unmitigated	5.68 (infant)	0.06	0.01
<b>BAAQMD Single-Source Threshold</b>		<b>10</b>	<b>0.3</b>	<b>1.0</b>
<b>Exceed Threshold?</b>	Unmitigated	No	No	No

Notes: <sup>1</sup> Maximum cancer risk and PM<sub>2.5</sub> concentration occur at the same receptor on different floors.

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



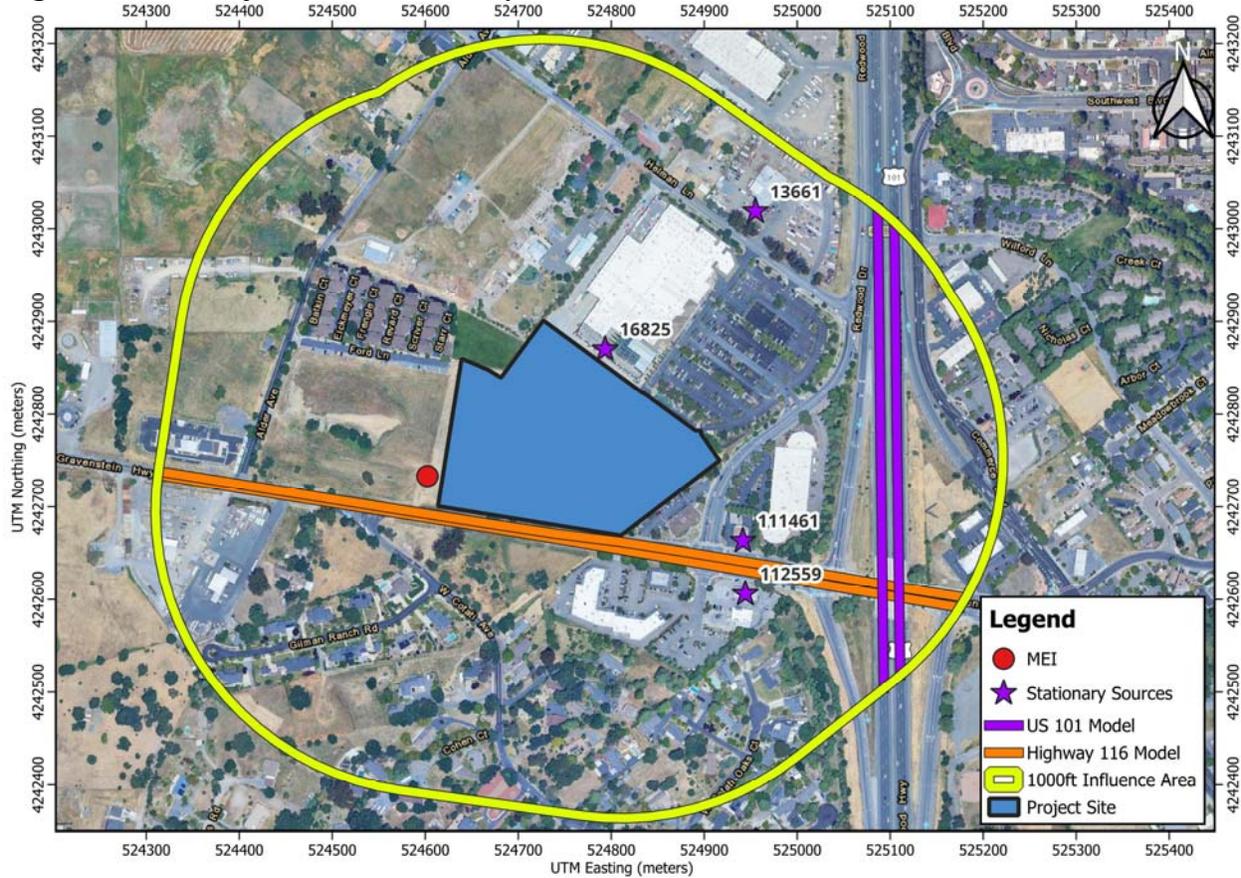
**Cumulative Health Risks of all TAC Sources at the Off-Site Project MEIs**

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

A review of the project area using BAAQMD’s geographic information systems (GIS) screening maps identified the existing health risks from nearby sources at the MEIs. Highway 101 (U.S. 101), State Route 116 (S.R. 116), and five existing stationary sources were identified as potential TAC sources within the influence area which could affect the project MEIs. Figure 2 shows the

location of the sources affecting the MEIs. Health risk impacts from these sources upon the MEIs are reported in Table 6. Details of the cumulative screening and health risk calculations are included in *Attachment 3*.

**Figure 2. Project Site and Nearby TAC and PM<sub>2.5</sub> Sources**



### Highways – U.S. 101 and S.R. 116

The project MEIs are located near U.S. 101 and S.R. 116. A refined analysis of the impacts of TACs and PM<sub>2.5</sub> to the MEI receptors is necessary to evaluate potential cancer risks and PM<sub>2.5</sub> concentrations from both highways. A review of the traffic information reported by Caltrans indicated that U.S. 101 traffic included 108,000 vehicles per day (based on an annual average)<sup>21</sup> that are about 5.71 percent trucks, of which 3.4 percent are considered diesel heavy duty trucks and 2.3 percent are medium duty trucks.<sup>22</sup> The same Caltrans data indicated that S.R. 116 traffic included 23,600 vehicles per day (based on an annual average) that are about 6.66 percent trucks, of which 3.4 percent are considered diesel heavy duty trucks and 3.2 percent are medium duty trucks.

<sup>21</sup> Caltrans. 2022. *2022 Traffic Volumes California State Highways*.

<sup>22</sup> Caltrans. 2022. *2022 Annual Average Daily Truck Traffic on the California State Highway System*.

## *Traffic Emissions Modeling*

This analysis involved the development of DPM, organic TACs, and PM<sub>2.5</sub> emissions for traffic on U.S. 101 and S.R. 116 using the Caltrans version of the CARB EMFAC2021 emissions model, known as CT-EMFAC2021. CT-EMFAC2021 provides emission factors for mobile source criteria pollutants and TACs, including DPM. Emission processes modeled include running exhaust for DPM, PM<sub>2.5</sub> and total organic compounds (TOG), running evaporative losses for TOG, and tire and brake wear and fugitive road dust for PM<sub>2.5</sub>. All PM<sub>2.5</sub> emissions from all vehicles were used, rather than just the PM<sub>2.5</sub> fraction from diesel powered vehicles, because all vehicle types (i.e., gasoline and diesel powered) produce PM<sub>2.5</sub>. Additionally, PM<sub>2.5</sub> emissions from vehicle tire and brake wear from re-entrained roadway dust were included in these emissions. DPM emissions are projected to decrease in the future and are reflected in the CT-EMFAC2021 emissions data. Inputs to the model include region (Sonoma County), type of road (freeway and major/collector), traffic mix assigned by CT-EMFAC2021 for the county, adjusted for the local truck mix on U.S. 101 and S.R. 116, year of analysis (2025 – construction start year), and season (annual).

To estimate TAC and PM<sub>2.5</sub> emissions over the 30-year exposure period used for calculating the increased cancer risks for sensitive receptors at the MEIs, the CT-EMFAC2021 model was used to develop vehicle emission factors for the year 2025 (construction start year). Emissions associated with vehicle travel depend on the year of analysis because emission control technology requirements are phased-in over time. Therefore, the earlier the year analyzed in the model, the higher the emission rates utilized by CT-EMFAC2021. Year 2025 emissions were conservatively assumed as being representative of future conditions over the time period that cancer risks are evaluated since, as discussed above, overall vehicle emissions, and in particular diesel truck emissions, will decrease in the future.

The average daily traffic (ADT) volumes and truck percentages were based on Caltrans data for U.S. 101 and S.R. 116. Traffic volumes were assumed to increase 1 percent per year for a total of 111,239 vehicles on U.S. 101 and 24,408 vehicles on S.R. 116. Hourly traffic distributions specific to these segments of U.S. 101 were obtained from Caltrans Performance Measurement System (PeMS). PeMS data is collected in real-time from nearly 48,000 individual detectors spanning the freeway system across all major metropolitan areas of California.<sup>23</sup> The fraction of traffic volume each hour was calculated and applied to the 2025 average daily traffic volumes estimate to estimate hourly traffic emission rates for U.S. 101. The Caltrans PeMS hourly traffic distributions are not measured for S.R. 116. For S.R. 116, average hourly traffic distributions for Sonoma County roadways were developed using the EMFAC model,<sup>24</sup> which were then applied to the ADT volumes to obtain estimated hourly traffic volumes and emissions.

Based on traffic data from the Caltrans PeMS, traffic speeds during the daytime and nighttime periods were identified. For northbound traffic on U.S. 101, the following was assumed for all vehicles:

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<sup>23</sup> Caltrans Performance Measurement System (PeMS) Data Source. URL: <https://dot.ca.gov/programs/traffic-operations/mpr/pems-source>

<sup>24</sup> The Burden output from EMFAC2007, a previous version of CARB's EMFAC model, was used for this since the current web-based version of EMFAC2021 does not include Burden type output with hour by hour traffic volume information.

- 70 mph – From 12:00 a.m. until 1:00 a.m. and 7:00 p.m. until 12:00 a.m.
- 65 mph – From 1:00 a.m. until 11:00 a.m. and 12:00 p.m. until 7:00 p.m.
- 60 mph – From 11:00 a.m. until 12:00 p.m.

For southbound traffic on U.S. 101, the following was assumed for all vehicles:

- 70 mph – From 12:00 a.m. until 1:00 a.m., 4:00 a.m. until 6:00 a.m., and 7:00 p.m. until 12:00 a.m.
- 65 mph – From 1:00 a.m. until 4:00 a.m. and 6:00 a.m. until 7:00 p.m.

An average travel speed of 45 mph was used for all hours of the day based on posted speed limit signs on S.R. 116.

This analysis involved the development of DPM, organic TACs, and PM<sub>2.5</sub> emissions for future traffic on U.S. 101 and S.R. 116 and using these emissions with an air quality dispersion model to calculate TAC and PM<sub>2.5</sub> concentrations at the project MEIs. Maximum increased lifetime cancer risks and annual PM<sub>2.5</sub> concentrations for the MEIs were then computed using modeled TAC and PM<sub>2.5</sub> concentrations and BAAQMD methods and exposure parameters.<sup>25,26,27</sup>

### *Dispersion Modeling*

Dispersion modeling of TAC and PM<sub>2.5</sub> emissions was conducted using the EPA ISCST3 air quality dispersion model, which is recommended by the BAAQMD for this type of analysis.<sup>28</sup> TAC and PM<sub>2.5</sub> emissions from traffic on U.S. 101 and S.R. 116 within 1,000 feet of the project site were evaluated. Vehicle traffic on the roadways was modeled using a series of area sources along a line (line area sources); with line segments used for travel on the roadways in opposing directions. The same meteorological data and off-site sensitive receptors used in the previous construction site dispersion modeling scenario were used in the roadway modeling. Other inputs to the model included road geometry, hourly traffic emissions, and receptor locations. Annual TAC and PM<sub>2.5</sub> concentrations using 2025 emissions from traffic on both roadways were calculated using the model. Concentrations were calculated at the MEIs with receptor heights of 5 feet (1.5 meters) and 15 feet (4.5 meters) to represent the breathing heights on the first and second floors of residents at the MEIs.

### *Computed Cancer and Non-Cancer Health Impacts*

The cancer risk, PM<sub>2.5</sub> concentration, and HI impacts from each roadway on the off-site MEIs are shown in Table 6. Figure 2 shows the roadway links modeled and receptor locations where

<sup>25</sup> BAAQMD, 2022. *BAAQMD CEQA Air Quality Guidelines Appendix E*. April 2023.

<sup>26</sup> BAAQMD. *Recommended Methods for Screening and Modeling Local Risks and Hazards*. May 2012. Web: <https://www.baaqmd.gov/~media/files/planning-and-research/ceqa/risk-modeling-approach-may-2012.pdf?la=en>

<sup>27</sup> BAAQMD, Reg 2, Rule 5 New Source Review of TACs. Web: [https://www.baaqmd.gov/~media/dotgov/files/rules/reg-2-permits/2021-amendments/documents/20211215\\_rg0205-pdf.pdf?rev=ddf72e12b699400e953b9b8dc24d2c34&sc\\_lang=en](https://www.baaqmd.gov/~media/dotgov/files/rules/reg-2-permits/2021-amendments/documents/20211215_rg0205-pdf.pdf?rev=ddf72e12b699400e953b9b8dc24d2c34&sc_lang=en)

<sup>28</sup> BAAQMD, 2022. *BAAQMD CEQA Air Quality Guidelines Appendix E*. April 2023.

concentrations were calculated. Details of the emission calculations, dispersion modeling, and cancer risk calculations for the receptors with the maximum cancer risk from traffic on each roadway are provided in *Attachment 3*.

### BAAQMD Permitted Stationary Sources

Permitted stationary sources of air pollution near the project site were identified using BAAQMD's *Permitted Stationary Sources 2022* GIS website,<sup>29</sup> which identifies the location of nearby stationary sources and their estimated risk and hazard impacts, including emissions and adjustments that reflect OEHHA guidance for cancer risk calculations.<sup>30</sup> Five sources were identified using this tool, two gas dispensing facilities, one generator, and two have no data and were treated as a "generic case" for worst-case risk screening purposes. However, source #5274 (a generic source) was found to be over 1,500 feet away from the project site and was excluded from the analysis, leaving four remaining stationary sources. The BAAQMD GIS website provided screening risks and hazards for the diesel generator and generic sources. A stationary source information request was submitted to BAAQMD in order to estimate health risk impacts from the gasoline dispensing facilities.<sup>31</sup>

The screening level risks and hazards provided by BAAQMD for the stationary sources were adjusted for distance using BAAQMD's *Distance Adjustment Multiplier Tool for Diesel Internal Combustion Engines and Generic Equipment* and CARB's *Gasoline Station Risk Screening Tool*. BAAQMD provided the gasoline throughputs for each gas dispensing facility near the project site.<sup>32</sup> The provided throughputs, along with the distance between the MEIs and the gas dispensing facility and the region (i.e., San Jose) for each gas station, was input into the CARB tool to calculate the cancer risk and hazard index. Health risk impacts from the stationary sources upon the MEIs are reported in Table 6.

### Construction Risk Impacts from Nearby Developments

The Cotati Village #1 is a potential project located within 1,000 feet of the proposed Project. It would include the construction of six, three-story mixed-use buildings that would consist of 177 residential units, approximately 29,415-sf of retail and office space, and 271 parking spaces. The controlled construction risks and hazard values for the nearby development were available from its air quality technical report conducted by *Illingworth & Rodin, Inc.* Construction of this project is anticipated to be all or almost fully completed prior to construction of the proposed Project. As a result, the risk impacts from construction of Cotati Village #1 are not included in this cumulative analysis. Instead, residents living in Cotati Village #1 were included as sensitive receptors for this analysis, as shown in Figure 1.

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<sup>29</sup> BAAQMD,

<https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=845658c19eae4594b9f4b805fb9d89a3>

<sup>30</sup> 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.

<sup>31</sup> Correspondence with BAAQMD CEQA, January 24, 2024

<sup>32</sup> Email correspondence from BAAQMD CEQA Team, January 24, 2024. Subject: "Re\_ Public Records Number 2024-01-0092Stationary Source Request for 24-004 Cotati 2\_Cotati SSIF".

## Summary of Health Risks at the Project MEIs

Table 6 reports both the project and cumulative health risk impacts at the sensitive receptors most affected by the project (i.e., the MEIs). The project’s risk values do not exceed any BAAQMD single-source or cumulative source threshold.

**Table 6. Cumulative Health Risk Impacts at the Location of the Project MEIs**

Source		Cancer Risk (per million)	Annual PM <sub>2.5</sub> (µg/m <sup>3</sup> )	Hazard Index
<b>Project Impacts</b>				
Project Construction	Unmitigated	5.68 (infant)	0.06	0.01
<b>BAAQMD Single-Source Threshold</b>		<b>10</b>	<b>0.3</b>	<b>1.0</b>
<b>Exceed Threshold?</b>		<i>No</i>	<i>No</i>	<i>No</i>
<b>Cumulative Sources</b>				
U.S. 101, ADT 111,239		1.27	0.02	<0.01
S.R. 116, ADT 24,408		3.70	0.16	<0.01
Nor-Cal Truckbodies (Facility ID #13661, Automotive Repair), MEIs at 1000+ feet.		0.00	0.00	0.00
Lowe's HIW Inc #1901 (Facility ID # 16825, Generator), MEIs at 650 feet.		0.88	<0.01	0.00
Save On Gas Inc. dba Cotati Gas Mart (Facility ID #111461, Gas Dispensing Facility), MEIs at 1000+ feet.		1.00	0.00	0.03
APRO LLC dba United Pacific #5426 (Facility ID #112559, Gas Dispensing Facility), MEIs at 1000+ feet.		0.22	0.00	0.01
<i>Combined Sources Unmitigated</i>		12.75	<0.25	<0.07
<b>BAAQMD Cumulative Source Threshold</b>		<b>100</b>	<b>0.8</b>	<b>10.0</b>
<b>Exceed Threshold?</b>		<i>No</i>	<i>No</i>	<i>No</i>

## On-Site Health Risk Assessment for TAC Sources - New Project Residences

The BAAQMD CEQA Air Quality Guidelines recommend that proposed projects that include sensitive receptors address the impacts of nearby sources upon them. In addition, Cotati’s General Plan *Policy CON 2.2* requires that projects minimize exposure of sensitive receptors to air pollutants and toxic air contaminants. Therefore, a health risk assessment was completed to assess the impact that the existing TAC sources would have on the new proposed sensitive receptors (i.e., residents) introduced by the project. The same TAC sources identified above were used in this health risk assessment.<sup>33</sup> BAAQMD’s recommended thresholds for health risks and hazards, shown in Table 1, are used to evaluate on-site exposure. All on-site health risk results are listed in Table 7. *Attachment 3* includes the screening and risk calculations for TAC source impacts upon the proposed on-site sensitive receptors.

<sup>33</sup> 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.

## Highways – U.S. 101 and S.R. 116

The highway impacts on new project residents was conducted in the same manner as described above for the off-site MEIs. However, year 2027 (operational year) emission factors were conservatively assumed as being representative of future conditions, instead of 2025 (construction year). An analysis based on 2027 resulted in an increased ADT of 113,399 vehicles on U.S. 101 and of 24,780 vehicles on S.R. 116.

On-site receptors were placed throughout the project site with a spacing of 7 meters (23 feet). Roadway impacts were modeled at receptor heights of 5 feet (1.5 meters) and 15 feet (4.5 meters) representing sensitive receptors on the first and second floors of the proposed buildings. The portion of the roadways included in the modeling is 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 infants and adults were assumed to be in the new apartments for 24 hours per day for 350 days per year. The highest impacts from the combined roadways occurred at a receptor on the second floor in the southern corner of the project site. Cancer risks associated with the roadways are greatest closest to the roadways and decrease with distance from the roads. The roadway impacts at the project site are shown in Table 7. Details of the emission calculations, dispersion modeling, and cancer risk calculations are contained in *Attachment 3*.

## Stationary Sources

The stationary source screening analysis of the source for the new project sensitive receptors was conducted in the same manner as described above for the cumulative analysis. Table 7 includes the health risk screening results for the stationary source at the project site.

## Construction Risk Impacts from Nearby Development

As described above, the Cotati Village #1 project is located within 1,000 feet of the proposed Project. The risk impacts from Cotati Village #1 were not included in the offsite analysis. However, for conservatism and in the event that construction of Cotati Village #1 gets delayed, the controlled construction risks and hazard values for the nearby development were included in this onsite analysis from its air quality technical report conducted by *Illingworth & Rodin, Inc.*

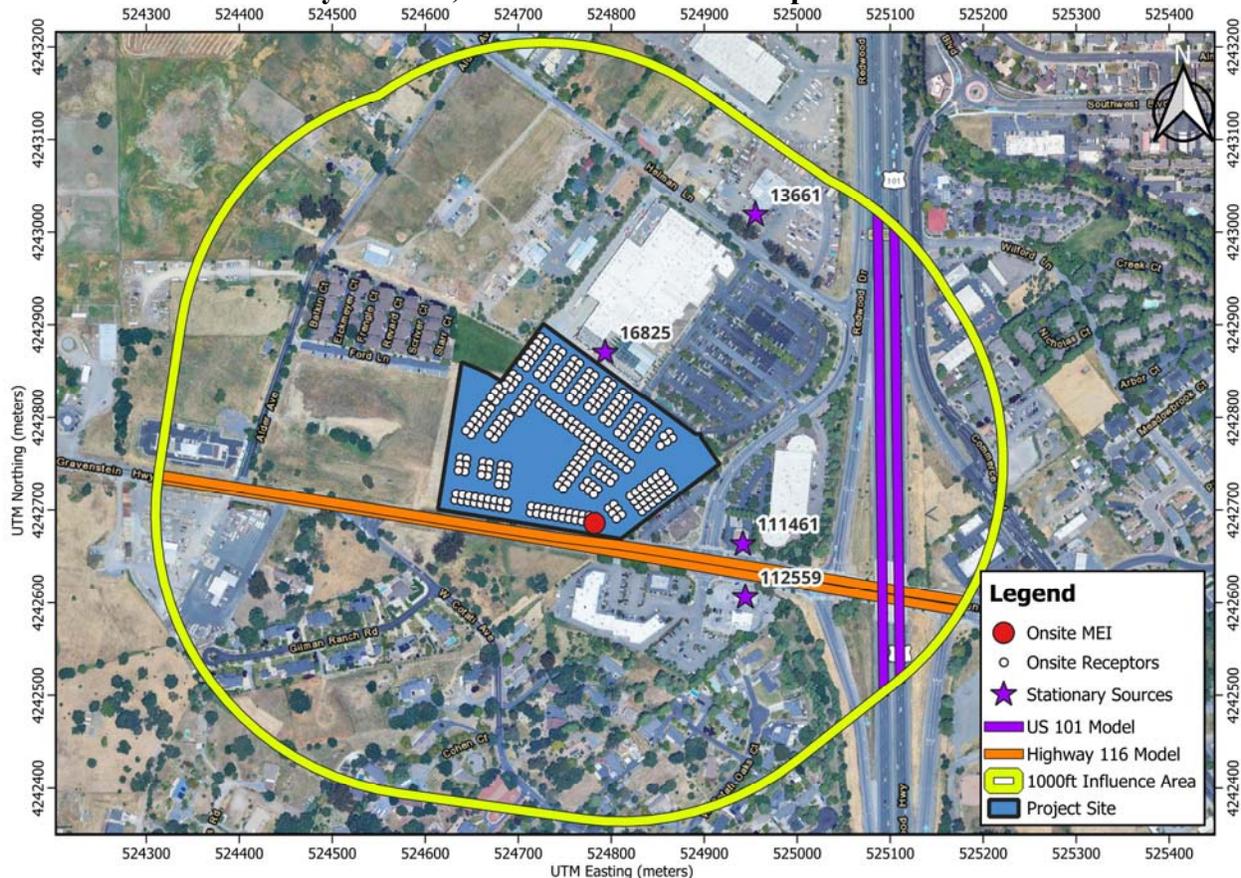
## Summary of Cumulative Health Risks at the Project Site

Health risk impacts from the existing TAC sources upon the project site are reported in Table 7. The risks from the TAC sources are compared against both the BAAQMD single-source threshold and the cumulative source threshold. As shown, existing sources of TAC emissions do not exceed the BAAQMD single-source or cumulative-source thresholds for cancer risk, annual PM<sub>2.5</sub> concentration, or HI.

**Table 7. Cumulative Health Risk Impacts Upon the On-site Sensitive Receptors**

Source	Cancer Risk (per million)	Annual PM <sub>2.5</sub> (µg/m <sup>3</sup> )	Hazard Index
U.S. 101, ADT 113,399	3.36	0.06	<0.01
S.R. 116, ADT 24,780	4.81	0.20	<0.01
Cotati Village #1 Controlled Construction Impacts	4.50	0.11	<0.01
Nor-Cal Truckbodys (Facility ID #13661, Automotive Repair), Project Site at 695 feet.	0.00	0.00	0.00
Lowe's HIW Inc #1901 (Facility ID #16825, Generator), Project Site is adjacent.	9.78	0.01	<0.01
Save On Gas Inc. dba Cotati Gas Mart (Facility ID #111461, Gas Dispensing Facility), Project Site at 200 feet.	7.17	0.00	0.47
APRO LLC dba United Pacific #5426 (Facility ID #112559, Gas Dispensing Facility), Project Site at 335 feet.	2.37	0.00	0.44
<b>BAAQMD Single-Source Threshold</b>	<b>10</b>	<b>0.3</b>	<b>1.0</b>
Exceed Threshold?	No	No	No
Cumulative Total	31.99	0.38	0.95
<b>BAAQMD Cumulative Source Threshold</b>	<b>100</b>	<b>0.8</b>	<b>10.0</b>
Exceed Threshold?	No	No	No

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



## 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<sub>2</sub>) and water vapor but there are also several others, most importantly methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>). 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<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O are byproducts of fossil fuel combustion.
- N<sub>2</sub>O is associated with agricultural operations such as fertilization of crops.
- CH<sub>4</sub> 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<sub>2</sub> 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<sub>2</sub> equivalents (CO<sub>2</sub>e).

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<sub>2</sub>e).<sup>34</sup> These emissions were lower than peak levels of 7,416 MMT that were emitted in 2007. CARB updates the statewide GHG emission

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<sup>34</sup> 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 2020 emissions.<sup>35</sup> In 2021, GHG emissions from statewide emitting activities were 381.3 MMT CO<sub>2</sub>e. The 2021 emissions have decreased by 18 percent since peak levels in 2004 and are 12.6 MMT CO<sub>2</sub>e higher than 2020 emissions level and almost 50 MMT CO<sub>2</sub>e below the State's 2020 GHG limit of 431 MMT CO<sub>2</sub>e. Per capita GHG emissions in California have dropped from a 2001 peak of 13.8 MT CO<sub>2</sub>e per person to 9.7 MT CO<sub>2</sub>e per person in 2021.

### 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 85 percent below 1990 levels.

The first Scoping Plan for AB 32 was adopted by CARB in December 2008. Its most recent update was completed in December of 2022<sup>36</sup>. It contains the State's main strategies to achieve carbon neutrality by 2045. This plan extends and expands upon the earlier versions with a target of reducing anthropogenic emissions to 85 percent below 1990 levels by 2045. It also takes the step of adding carbon neutrality as a science-based guide and touchstone for California's climate work. Measures to achieve carbon neutrality include rapidly moving to zero emission vehicles (ZEV), removing natural gas as an option for space conditioning, increasing the number of solar arrays and wind turbines, and scaling up renewable hydrogen for hard-to-electrify end uses.

#### *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.

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<sup>35</sup> CARB. 2023. *California Greenhouse Gas Emission for 2000 to 2020*. Web: [https://ww2.arb.ca.gov/sites/default/files/2023-12/2000\\_2021\\_ghg\\_inventory\\_trends.pdf](https://ww2.arb.ca.gov/sites/default/files/2023-12/2000_2021_ghg_inventory_trends.pdf)

<sup>36</sup> CARB. 2022. Final 2022 Scoping Plan Update and Appendices. Web: <https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents>

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., ABAG and MTC) to align their regional transportation, housing, and land use plans to reduce VMT 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.

### *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*.<sup>37</sup> 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.

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<sup>37</sup> 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](https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping_plan_2017.pdf)

- 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 Scoping Plan was updated in 2022 and lays out how the state can get to carbon neutrality by 2045 or earlier. It is the first Scoping Plan that adds carbon neutrality as a science-based guide and touchstone beyond statutorily established emission reduction targets.<sup>38</sup>

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 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 2022 Scoping Plan, CARB recommends:

- 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.

### *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<sup>39</sup>. 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.

<sup>38</sup> <https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents>

<sup>39</sup> Governor’s Office of Planning and Research. 2018. *Technical Advisory on Evaluating Transportation Impacts in CEQA*. December.

### *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 100 – Current Renewable Portfolio Standards*

In September 2018, SB 100 was signed by Governor Brown to revise California’s RPS program goals, furthering California’s focus on using renewable energy and carbon-free power sources for its energy needs. The bill would require all California utilities to supply a specific percentage of their retail sales from renewable resources by certain target years. By December 31, 2024, 44 percent of the retail sales would need to be from renewable energy sources, by December 31, 2026 the target would be 40 percent, by December 31, 2027 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.<sup>40</sup> 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 (2022 California Building Standard Code) was effective as of January 1, 2023.

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 (2022 Energy Code) replaced the 2019 Energy Code as of January 1, 2023. 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.<sup>41</sup>

Requirements for electric vehicle (EV) charging infrastructure are set forth in Title 24 of the California Code of Regulations. The CALGreen standards consist of a set of mandatory standards required for new development, as well as two more voluntary standards known as Tier 1 and Tier 2. The CalGreen 2022 standards require deployment of additional EV chargers in various building

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<sup>40</sup> 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>.

<sup>41</sup> See: [https://www.energy.ca.gov/sites/default/files/2020-03/Title\\_24\\_2019\\_Building\\_Standards\\_FAQ\\_ada.pdf](https://www.energy.ca.gov/sites/default/files/2020-03/Title_24_2019_Building_Standards_FAQ_ada.pdf)

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, installation of EV chargers, and 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.

CEC studies have identified the most aggressive electrification scenario as putting the building sector on track to reach the carbon neutrality goal by 2045.<sup>42</sup> 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.

### *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.

*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 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.<sup>43</sup> Similarly, the City of Cotati’s General Plan Goal CON 2 includes policies, discussed above in the settings section of this report, to reduce greenhouse gas emissions.

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<sup>42</sup> California Energy Commission. 2021. *Final Commission Report: California Building Decarbonization Assessment*. Publication Number CEC-400-2021-006-CMF. August

<sup>43</sup> 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>

## 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.<sup>44</sup> 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 below the existing VMT per capita
      - 2. Office Projects: 15 percent 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.

### **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.

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<sup>44</sup> 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](https://www.baaqmd.gov/~/_media/files/planning-and-research/ceqa/ceqa-thresholds-2022/justification-report-pdf.pdf?la=en)

### CalEEMod Modeling

CalEEMod was used to predict GHG emissions from operation of the site assuming full build-out of the project. The project land use types and size and other project-specific information were input to the model, as described above within the construction and operational period emissions. CalEEMod output is included in *Attachment 1*.

### Construction GHG Emissions

GHG emissions associated with construction were computed at 862 MT of CO<sub>2</sub>e 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. BAAQMD also encourages the incorporation of best management practices to reduce GHG emissions during construction where feasible and applicable, as discussed in the construction criteria emissions section of this report.

### Operational GHG Emissions

The CalEEMod model was used to estimate daily emissions associated with operation of the fully-developed site under the proposed project. For informational purposes, annual GHG emissions resulting from operation of the proposed project in Table 8 are predicted to be 1,689 MT of CO<sub>2</sub>e in 2027.

**Table 8. Annual Project GHG Emissions (CO<sub>2</sub>e) in Metric Tons**

Source Category	Proposed Project in 2027
Mobile	1,599
Area	2
Energy Consumption	38
Water Usage	5
Solid Waste Generation	44
Refrigerants	<1
Total (MT CO <sub>2</sub> e/year)	1,689

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. However, the project has included design elements that will reduce GHG emissions such as Title 24 and Cal Green Tier 1 compliance, and all electric appliances.

The Project 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 buildings,
  - 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 – the project incorporates EV charging infrastructure that meets current CALGreen Tier 2 compliance.
4. Reduce VMT per service population by 15 percent over regional average.
  - Conforms – According to the project’s traffic consultant, the baseline VMT rate in the Cotati area is 18.3. The project’s VMT rate is anticipated to 15.3 which is a 16.4 percent reduction from the baseline rate, meeting the BAAQMD requirement.

The project proposes to meet CALGreen Tier 2 charging infrastructure requirements. It is estimated that the project would need to include Level 2 Electric Vehicle Supply Equipment (EVSE) charging in every residential garage and 9 of the 90 parking lot spaces must be equipped with Level 2 EVSE based on the current CALGreen Tier 2 standard at the time of this analysis. With this quantity of EV charging in place, the project would conform with all four BAAQMD threshold A requirements. To ensure compliance with CALGreen Tier 2 standards, COA GHG-1 is recommended.

**Recommended Condition of Approval (COA) GHG-1**

Install Level 2 EVSE charging in every residential garage and 9 out of the total 90 parking lot spaces that are proposed, or as otherwise required to meet CALGreen Tier 2 EV infrastructure requirements.

**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. Also, the project is proposed on a site which the General Plan proposes for residential development consistent with the proposed project, which is an in-fill location and within close proximity to employment and transit options.

## Conclusions

The purpose of this report is to address air quality, health risk, and greenhouse gas (GHG) impacts associated with the construction and operation of this proposed Redwood Row mixed-use project. 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.
- Construction period emissions of diesel particulate matter, which is a TAC, are below BAAQMD significance thresholds, negating the need for mitigation. Operation of the Project is not anticipated to result in substantial localized TAC emissions that would cause or contribute to significant impacts.
- Emissions of GHG were also considered to be less than significant since the Project will not have significant VMT impacts, will be all electric, and constructed to meet current CalGreen standards that would make it energy efficient. This determination also assumes that COA GHG-1 has been implemented so that the project will meet CalGreen Tier 2 requirements for installation of EV charging infrastructure.

## Supporting Documentation

*Attachment 1* includes the CalEEMod outputs for project construction and operational criteria air pollutants. Also included are any modeling assumptions.

*Attachment 2* 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 3* includes the cumulative health risk screening, modeling results, and health risk calculations from sources affecting the project MEIs and new project sensitive receptors.

**Attachment 1: CalEEMod Input Assumptions and Outputs**

# Air Quality/Noise Construction Information Data Request

<b>Project Name:</b> <b>Cotati 2 DEFAULTS</b>	<b>Complete ALL Portions in Yellow</b>																																	
<small>See Equipment Type TAB for type, horsepower and load factor</small>																																		
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;"><b>Project Size</b></td> <td style="width: 40%;">134 condos, 44 affordat Dwelling Units</td> <td style="width: 40%; text-align: right;">10.62 total project acres disturbed</td> </tr> <tr> <td></td> <td>312,836; 34,400 s.f. residential</td> <td></td> </tr> <tr> <td></td> <td>10,032 s.f. retail</td> <td></td> </tr> <tr> <td></td> <td>s.f. office/commercial</td> <td></td> </tr> <tr> <td></td> <td>s.f. other, specify:</td> <td></td> </tr> <tr> <td></td> <td>s.f. parking garage</td> <td>spaces</td> </tr> <tr> <td></td> <td>s.f. parking lot</td> <td>90 spaces</td> </tr> <tr> <td><b>Construction Days (i.e, M-F)</b></td> <td>Mon</td> <td>Fri</td> </tr> <tr> <td><b>Construction Hours</b></td> <td>8 am</td> <td>5 pm</td> </tr> </table>	<b>Project Size</b>	134 condos, 44 affordat Dwelling Units	10.62 total project acres disturbed		312,836; 34,400 s.f. residential			10,032 s.f. retail			s.f. office/commercial			s.f. other, specify:			s.f. parking garage	spaces		s.f. parking lot	90 spaces	<b>Construction Days (i.e, M-F)</b>	Mon	Fri	<b>Construction Hours</b>	8 am	5 pm	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td><b>Pile Driving? Y/N? N</b></td> </tr> <tr> <td><b>Project include on-site GENERATOR OR FIRE PUMP during project OPERATION (not construction)? Y/N? _N_</b></td> </tr> <tr> <td><b>IF YES (if BOTH separate values) -&gt;</b></td> </tr> <tr> <td><b>Kilowatts/Horsepower: _____</b></td> </tr> <tr> <td><b>Fuel Type: _____</b></td> </tr> <tr> <td><b>Location in project (Plans Desired if Available):</b></td> </tr> </table>	<b>Pile Driving? Y/N? N</b>	<b>Project include on-site GENERATOR OR FIRE PUMP during project OPERATION (not construction)? Y/N? _N_</b>	<b>IF YES (if BOTH separate values) -&gt;</b>	<b>Kilowatts/Horsepower: _____</b>	<b>Fuel Type: _____</b>	<b>Location in project (Plans Desired if Available):</b>
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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
	<b>Demolition</b>							<b>Overall Import/Export Volumes</b>
		<b>Start Date:</b>		<b>Total phase:</b>	<b>20</b>			
		<b>End Date:</b>						
1	Concrete/Industrial Saws	81	0.73	8	20	8	9461	<b>Demolition Volume</b>
3	Excavators	158	0.38	8	20	8	28819	Square footage of buildings to be demolished
2	Rubber-Tired Dozers	247	0.4	8	20	8	31616	(or total tons to be hauled)
	Tractors/Loaders/Backhoes	97	0.37			0	0	2 square feet or
	Other Equipment?							2 Hauling volume (tons)
								Any pavement demolished and hauled? <b>_est 10_ tons</b>
	<b>Site Preparation</b>							
		<b>Start Date:</b>		<b>Total phase:</b>	<b>10</b>			
		<b>End Date:</b>						
	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?							
	<b>Grading / Excavation</b>							<b>Soil Hauling Volume</b>
		<b>Start Date:</b>		<b>Total phase:</b>	<b>30</b>			
		<b>End Date:</b>						
2	Excavators	158	0.38	8	30	8	28819	Export volume = 2 cubic yards?
1	Graders	187	0.41	8	30	8	18401	Import volume = <b>18,000</b> cubic yards?
1	Rubber Tired Dozers	247	0.4	8	30	8	23712	
	Concrete/Industrial Saws	81	0.73			0	0	
2	Tractors/Loaders/Backhoes	97	0.37	8	30	8	17227	
2	Other Equipment? Scrapers	367	0.48	8	30	8	84557	
	<b>Trenching/Foundation</b>							
		<b>Start Date:</b>		<b>Total phase:</b>	<b>30</b>			
		<b>End Date:</b>						
1	Tractor/Loader/Backhoe	97	0.37	8	30	8	8614	
1	Excavators	158	0.38	8	30	8	14410	
	Other Equipment?							
	<b>Building - Exterior</b>							<b>Cement Trucks? _est 550_ Total Round-Trips</b>
		<b>Start Date:</b>		<b>Total phase:</b>	<b>300</b>			
		<b>End Date:</b>						
1	Cranes	231	0.29	7	300	7	140679	Electric? (Y/N) Otherwise assumed diesel
3	Forklifts	89	0.2	8	300	8	128160	Liquid Propane (LPG)? (Y/N) Otherwise Assumed diesel
1	Generator Sets	84	0.74	8	300	8	149184	Or temporary line power? (Y/N)
3	Tractors/Loaders/Backhoes	97	0.37	7	300	7	226107	
1	Welders	46	0.45	8	300	8	49680	
	Other Equipment?							
	<b>Building - Interior/Architectural Coating</b>							
		<b>Start Date:</b>		<b>Total phase:</b>	<b>20</b>			
		<b>End Date:</b>						
1	Air Compressors	78	0.48	6	20	6	4493	
	Aerial Lift	62	0.31			0	0	
	Other Equipment?							
	<b>Paving</b>							<b>Asphalt? ___ cubic yards or ___est 118__ round trips?</b>
		<b>Start Date:</b>		<b>Total phase:</b>	<b>20</b>			
		<b>Start Date:</b>						
	Cement and Mortar Mixers	9	0.56			0	0	
2	Pavers	130	0.42	8	20	8	17472	
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?							
	<b>Additional Phases</b>							
		<b>Start Date:</b>		<b>Total phase:</b>				
		<b>Start Date:</b>						
						#DIV/0!	0	
						#DIV/0!	0	
						#DIV/0!	0	
						#DIV/0!	0	
						#DIV/0!	0	

Equipment types listed in "Equipment Types" worksheet tab.

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

Complete one sheet for each project component

Construction Criteria Air Pollutants							
Unmitigated	ROG	NOX	PM10 Exhaust	PM2.5 Exhaust	PM2.5 Fugitive	CO2e	
Year	Tons					MT	
Construction Equipment							
2025	0.26	2.18	0.08	0.07	0.08	633.08	
2026	2.59	0.68	0.02	0.02	0.02	229.33	
<i>Total Construction Emissions</i>							
Tons	2.85	2.86	0.10	0.10		862.41	
<i>Average Daily Emissions</i>							
Pounds/Workdays						Workdays	
2025	1.99	16.72	0.62	0.57			261
2026	35.96	9.46	0.33	0.30			144
Threshold - lbs/day	54.0	54.0	82.0	54.0			
<i>Total Construction Emissions</i>							
Pounds	5696.65	5726.45	208.19	191.58		0.00	
Average	14.07	14.14	0.51	0.47		0.00	405.00
Threshold - lbs/day	54.0	54.0	82.0	54.0			
Operational Criteria Air Pollutants							
Unmitigated	ROG	NOX	Total PM10	Total PM2.5			
Year	Tons						
Total	2.81	1.04	1.58	0.41			
<i>Net Annual Operational Emissions</i>							
Tons/year	2.81	1.04	1.58	0.41			
Threshold - Tons/year	10.0	10.0	15.0	10.0			
<i>Average Daily Emissions</i>							
Pounds Per Day	15.40	5.67	8.63	2.26			
Threshold - lbs/day	54.0	54.0	82.0	54.0			
Category							
	CO2e						
	Project						
Mobile	1598.81						
Area	2.36						
Energy	38.28						
Water	4.52						
Waste	44.40						
Refrig.	0.42						
TOTAL	1688.79	0.00	0.00	0.00			
Net GHG Emissions		1688.79		0.00			

Traffic Consultant Trip Gen						CalEEMod Default		
Land Use	DU	Size	Daily Trips	New Trips	Weekday Trip Gen	Weekday	Sat	Sun
Condo/Townhouse	DU	134	903	870	6.49	7.32	8.14	6.28
<i>Internal Capture</i>			-33			<i>Rev</i>	7.22	5.57
Apartments Low Rise	DU	44	297	286	6.50	7.32	8.14	6.28
<i>Internal Capture</i>			-11			<i>Rev</i>	7.23	5.58
Regional Shopping Center	ksf	10.032	546	402	40.07	37.75	46.12	21.1
<i>Internal Capture</i>	8%		-44			<i>Rev</i>	48.96	22.40
<i>Pass-By</i>	20%		-100					

Table 1 – Trip Generation Summary											
Land Use	Units	Daily		AM Peak Hour				PM Peak Hour			
		Rate	Trips	Rate	Trips	In	Out	Rate	Trips	In	Out
Strip Retail Plaza	10.032 ksf	54.45	546	2.36	24	14	10	6.59	66	33	33
<i>Internal Capture</i>		-8%	-44**	-2%	0	0	0	-14%	-9	-5	-4
<b>Subtotal</b>			<b>502</b>		<b>24</b>	<b>14</b>	<b>10</b>		<b>57</b>	<b>28</b>	<b>29</b>
<i>Pass-by</i>		-20%	-100	-40%	-10	-6	-4	-40%	-23	-12	-11
MF Housing (Low-Rise)	178 du	6.74	1,200	0.40	71	17	54	0.51	91	57	34
<i>Internal Capture*</i>			-44		0	0	0		-9	-4	-5
<b>Total</b>			<b>1,558</b>		<b>86</b>	<b>26</b>	<b>60</b>		<b>116</b>	<b>69</b>	<b>47</b>

Note: du = dwelling unit; ksf = 1,000 square feet; MF = Multifamily \* Internal capture for retail use is the opposite end of trips estimated for the residential use; \*\* Daily internal trips estimated using the average percentages of a.m. and p.m. peak hour internal trips.

# 24-004 Cotati 2 Redwood Row BMPs T4i 2027 Detailed Report

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# 1. Basic Project Information

## 1.1. Basic Project Information

Data Field	Value
Project Name	24-004 Cotati 2 Redwood Row BMPs T4i 2027
Construction Start Date	1/1/2025
Operational Year	2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.20
Precipitation (days)	9.60
Location	8501 Gravenstein Hwy, Cotati, CA 94931, USA
County	Sonoma-San Francisco
City	Cotati
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	972
EDFZ	2
Electric Utility	Sonoma Clean Power
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.29

## 1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Condo/Townhouse	134	Dwelling Unit	10.6	312,836	0.00	—	343	—

Apartments Low Rise	44.0	Dwelling Unit	0.00	34,400	0.00	—	113	—
Regional Shopping Center	10.0	1000sqft	0.00	10,032	0.00	—	—	—
Parking Lot	90.0	Space	0.00	0.00	0.00	—	—	—

### 1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-5	Use Advanced Engine Tiers

## 2. Emissions Summary

### 2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Unmit.	250	12.0	0.44	1.30	1.74	0.41	0.31	0.72	4,464
Mit.	250	11.1	0.13	1.30	1.43	0.12	0.31	0.44	4,464
% Reduced	< 0.5%	8%	71%	—	18%	70%	—	39%	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Unmit.	3.60	40.0	1.37	7.81	9.18	1.27	3.97	5.23	13,252
Mit.	1.07	30.1	0.28	7.81	7.91	0.28	3.97	4.07	13,252
% Reduced	70%	25%	79%	—	14%	78%	—	22%	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—
Unmit.	14.2	12.0	0.44	1.35	1.79	0.41	0.43	0.84	3,824
Mit.	14.0	9.62	0.11	1.35	1.46	0.10	0.43	0.54	3,824

% Reduced	2%	20%	76%	—	19%	75%	—	36%	—
Annual (Max)	—	—	—	—	—	—	—	—	—
Unmit.	2.59	2.18	0.08	0.25	0.33	0.07	0.08	0.15	633
Mit.	2.55	1.76	0.02	0.25	0.27	0.02	0.08	0.10	633
% Reduced	2%	20%	76%	—	19%	75%	—	36%	—

## 2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—
2025	1.68	12.0	0.44	1.30	1.74	0.41	0.31	0.72	4,464
2026	250	11.3	0.39	1.30	1.69	0.36	0.31	0.67	4,425
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—
2025	3.60	40.0	1.37	7.81	9.18	1.27	3.97	5.23	13,252
2026	1.58	11.5	0.39	1.30	1.69	0.36	0.31	0.67	4,344
Average Daily	—	—	—	—	—	—	—	—	—
2025	1.42	12.0	0.44	1.35	1.79	0.41	0.43	0.84	3,824
2026	14.2	3.73	0.13	0.39	0.52	0.12	0.10	0.21	1,385
Annual	—	—	—	—	—	—	—	—	—
2025	0.26	2.18	0.08	0.25	0.33	0.07	0.08	0.15	633
2026	2.59	0.68	0.02	0.07	0.10	0.02	0.02	0.04	229

## 2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—

2025	0.97	11.1	0.13	1.30	1.43	0.12	0.31	0.44	4,464
2026	250	11.0	0.13	1.30	1.43	0.12	0.31	0.43	4,425
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—
2025	1.07	30.1	0.28	7.81	7.91	0.28	3.97	4.07	13,252
2026	0.93	11.2	0.13	1.30	1.43	0.12	0.31	0.43	4,344
Average Daily	—	—	—	—	—	—	—	—	—
2025	0.64	9.62	0.11	1.35	1.46	0.10	0.43	0.54	3,824
2026	14.0	3.66	0.04	0.39	0.44	0.04	0.10	0.14	1,385
Annual	—	—	—	—	—	—	—	—	—
2025	0.12	1.76	0.02	0.25	0.27	0.02	0.08	0.10	633
2026	2.55	0.67	0.01	0.07	0.08	0.01	0.02	0.02	229

## 2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Unmit.	17.2	6.06	0.10	9.95	10.1	0.10	2.53	2.63	12,240
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Unmit.	15.9	6.84	0.10	9.95	10.0	0.09	2.53	2.63	11,633
Average Daily (Max)	—	—	—	—	—	—	—	—	—
Unmit.	15.4	5.67	0.09	8.54	8.63	0.08	2.18	2.26	10,200
Annual (Max)	—	—	—	—	—	—	—	—	—
Unmit.	2.81	1.04	0.02	1.56	1.58	0.02	0.40	0.41	1,689

## 2.5. Operations Emissions by Sector, Unmitigated

## Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Mobile	7.22	5.96	0.10	9.95	10.0	0.09	2.53	2.63	11,681
Area	9.97	0.10	0.01	—	0.01	< 0.005	—	< 0.005	28.9
Energy	0.00	0.00	0.00	—	0.00	0.00	—	0.00	231
Water	—	—	—	—	—	—	—	—	27.3
Waste	—	—	—	—	—	—	—	—	268
Refrig.	—	—	—	—	—	—	—	—	2.54
Total	17.2	6.06	0.10	9.95	10.1	0.10	2.53	2.63	12,240
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Mobile	6.90	6.84	0.10	9.95	10.0	0.09	2.53	2.63	11,103
Area	9.01	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Energy	0.00	0.00	0.00	—	0.00	0.00	—	0.00	231
Water	—	—	—	—	—	—	—	—	27.3
Waste	—	—	—	—	—	—	—	—	268
Refrig.	—	—	—	—	—	—	—	—	2.54
Total	15.9	6.84	0.10	9.95	10.0	0.09	2.53	2.63	11,633
Average Daily	—	—	—	—	—	—	—	—	—
Mobile	5.91	5.62	0.09	8.54	8.63	0.08	2.18	2.26	9,657
Area	9.49	0.05	< 0.005	—	< 0.005	< 0.005	—	< 0.005	14.3
Energy	0.00	0.00	0.00	—	0.00	0.00	—	0.00	231
Water	—	—	—	—	—	—	—	—	27.3
Waste	—	—	—	—	—	—	—	—	268
Refrig.	—	—	—	—	—	—	—	—	2.54
Total	15.4	5.67	0.09	8.54	8.63	0.08	2.18	2.26	10,200
Annual	—	—	—	—	—	—	—	—	—

Mobile	1.08	1.03	0.02	1.56	1.58	0.01	0.40	0.41	1,599
Area	1.73	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	2.36
Energy	0.00	0.00	0.00	—	0.00	0.00	—	0.00	38.3
Water	—	—	—	—	—	—	—	—	4.52
Waste	—	—	—	—	—	—	—	—	44.4
Refrig.	—	—	—	—	—	—	—	—	0.42
Total	2.81	1.04	0.02	1.56	1.58	0.02	0.40	0.41	1,689

## 2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Mobile	7.22	5.96	0.10	9.95	10.0	0.09	2.53	2.63	11,681
Area	9.97	0.10	0.01	—	0.01	< 0.005	—	< 0.005	28.9
Energy	0.00	0.00	0.00	—	0.00	0.00	—	0.00	231
Water	—	—	—	—	—	—	—	—	27.3
Waste	—	—	—	—	—	—	—	—	268
Refrig.	—	—	—	—	—	—	—	—	2.54
Total	17.2	6.06	0.10	9.95	10.1	0.10	2.53	2.63	12,240
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Mobile	6.90	6.84	0.10	9.95	10.0	0.09	2.53	2.63	11,103
Area	9.01	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Energy	0.00	0.00	0.00	—	0.00	0.00	—	0.00	231
Water	—	—	—	—	—	—	—	—	27.3
Waste	—	—	—	—	—	—	—	—	268
Refrig.	—	—	—	—	—	—	—	—	2.54
Total	15.9	6.84	0.10	9.95	10.0	0.09	2.53	2.63	11,633

Average Daily	—	—	—	—	—	—	—	—	—
Mobile	5.91	5.62	0.09	8.54	8.63	0.08	2.18	2.26	9,657
Area	9.49	0.05	< 0.005	—	< 0.005	< 0.005	—	< 0.005	14.3
Energy	0.00	0.00	0.00	—	0.00	0.00	—	0.00	231
Water	—	—	—	—	—	—	—	—	27.3
Waste	—	—	—	—	—	—	—	—	268
Refrig.	—	—	—	—	—	—	—	—	2.54
Total	15.4	5.67	0.09	8.54	8.63	0.08	2.18	2.26	10,200
Annual	—	—	—	—	—	—	—	—	—
Mobile	1.08	1.03	0.02	1.56	1.58	0.01	0.40	0.41	1,599
Area	1.73	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	2.36
Energy	0.00	0.00	0.00	—	0.00	0.00	—	0.00	38.3
Water	—	—	—	—	—	—	—	—	4.52
Waste	—	—	—	—	—	—	—	—	44.4
Refrig.	—	—	—	—	—	—	—	—	0.42
Total	2.81	1.04	0.02	1.56	1.58	0.02	0.40	0.41	1,689

### 3. Construction Emissions Details

#### 3.1. Demolition (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.40	22.2	0.92	—	0.92	0.84	—	0.84	3,437

Demolition	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	1.22	0.05	—	0.05	0.05	—	0.05	188
Demolition	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.22	0.01	—	0.01	0.01	—	0.01	31.2
Demolition	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.00	0.12	0.12	0.00	0.03	0.03	123
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	12.0
Average Daily	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	0.01	0.01	0.00	< 0.005	< 0.005	6.83
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.66
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.13
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.11

## 3.2. Demolition (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	11.9	0.20	—	0.20	0.19	—	0.19	3,437
Demolition	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.65	0.01	—	0.01	0.01	—	0.01	188
Demolition	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.12	< 0.005	—	< 0.005	< 0.005	—	< 0.005	31.2
Demolition	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.00	0.12	0.12	0.00	0.03	0.03	123
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	12.0

Average Daily	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	0.01	0.01	0.00	< 0.005	< 0.005	6.83
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.66
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.13
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.11

### 3.3. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.31	31.6	1.37	—	1.37	1.26	—	1.26	5,314
Dust From Material Movement	—	—	—	7.67	7.67	—	3.94	3.94	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.87	0.04	—	0.04	0.03	—	0.03	146
Dust From Material Movement	—	—	—	0.21	0.21	—	0.11	0.11	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.02	0.16	0.01	—	0.01	0.01	—	0.01	24.1
Dust From Material Movement	—	—	—	0.04	0.04	—	0.02	0.02	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.00	0.14	0.14	0.00	0.03	0.03	144
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	3.99
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.66
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

### 3.4. Site Preparation (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.64	14.7	0.10	—	0.10	0.10	—	0.10	5,314
Dust From Material Movement	—	—	—	7.67	7.67	—	3.94	3.94	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.40	< 0.005	—	< 0.005	< 0.005	—	< 0.005	146
Dust From Material Movement	—	—	—	0.21	0.21	—	0.11	0.11	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.07	< 0.005	—	< 0.005	< 0.005	—	< 0.005	24.1
Dust From Material Movement	—	—	—	0.04	0.04	—	0.02	0.02	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.00	0.14	0.14	0.00	0.03	0.03	144
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	3.99
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.66
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

### 3.5. Grading (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.20	29.7	1.23	—	1.23	1.14	—	1.14	6,622
Dust From Material Movement	—	—	—	3.60	3.60	—	1.43	1.43	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26	2.44	0.10	—	0.10	0.09	—	0.09	544
Dust From Material Movement	—	—	—	0.30	0.30	—	0.12	0.12	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.45	0.02	—	0.02	0.02	—	0.02	90.1
Dust From Material Movement	—	—	—	0.05	0.05	—	0.02	0.02	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.00	0.17	0.17	0.00	0.04	0.04	165
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.10	8.29	0.07	1.36	1.42	0.07	0.38	0.45	5,991
Average Daily	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.00	0.01	0.01	0.00	< 0.005	< 0.005	13.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.67	0.01	0.11	0.12	0.01	0.03	0.04	493
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	2.26
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.12	< 0.005	0.02	0.02	< 0.005	0.01	0.01	81.6

### 3.6. Grading (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.80	19.4	0.18	—	0.18	0.18	—	0.18	6,622
Dust From Material Movement	—	—	—	3.60	3.60	—	1.43	1.43	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	1.60	0.01	—	0.01	0.01	—	0.01	544
Dust From Material Movement	—	—	—	0.30	0.30	—	0.12	0.12	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.29	< 0.005	—	< 0.005	< 0.005	—	< 0.005	90.1
Dust From Material Movement	—	—	—	0.05	0.05	—	0.02	0.02	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.00	0.17	0.17	0.00	0.04	0.04	165
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.10	8.29	0.07	1.36	1.42	0.07	0.38	0.45	5,991
Average Daily	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.00	0.01	0.01	0.00	< 0.005	< 0.005	13.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.67	0.01	0.11	0.12	0.01	0.03	0.04	493
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	2.26
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.12	< 0.005	0.02	0.02	< 0.005	0.01	0.01	81.6

## 3.7. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.13	10.4	0.43	—	0.43	0.40	—	0.40	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.13	10.4	0.43	—	0.43	0.40	—	0.40	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.61	5.68	0.23	—	0.23	0.22	—	0.22	1,309
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	1.04	0.04	—	0.04	0.04	—	0.04	217
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.54	0.40	0.00	1.09	1.09	0.00	0.25	0.25	1,164
Vendor	0.02	0.76	0.01	0.15	0.15	0.01	0.04	0.05	600
Hauling	0.01	0.38	< 0.005	0.07	0.07	< 0.005	0.02	0.02	293
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Worker	0.51	0.53	0.00	1.09	1.09	0.00	0.25	0.25	1,081

Vendor	0.01	0.80	0.01	0.15	0.15	0.01	0.04	0.05	599
Hauling	0.01	0.41	< 0.005	0.07	0.07	< 0.005	0.02	0.02	293
Average Daily	—	—	—	—	—	—	—	—	—
Worker	0.27	0.26	0.00	0.59	0.59	0.00	0.14	0.14	594
Vendor	0.01	0.43	< 0.005	0.08	0.08	< 0.005	0.02	0.03	326
Hauling	< 0.005	0.22	< 0.005	0.04	0.04	< 0.005	0.01	0.01	159
Annual	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.00	0.11	0.11	0.00	0.03	0.03	98.4
Vendor	< 0.005	0.08	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	54.0
Hauling	< 0.005	0.04	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	26.4

### 3.8. Building Construction (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.42	9.53	0.12	—	0.12	0.11	—	0.11	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.42	9.53	0.12	—	0.12	0.11	—	0.11	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	5.19	0.06	—	0.06	0.06	—	0.06	1,309
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.04	0.95	0.01	—	0.01	0.01	—	0.01	217
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.54	0.40	0.00	1.09	1.09	0.00	0.25	0.25	1,164
Vendor	0.02	0.76	0.01	0.15	0.15	0.01	0.04	0.05	600
Hauling	0.01	0.38	< 0.005	0.07	0.07	< 0.005	0.02	0.02	293
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Worker	0.51	0.53	0.00	1.09	1.09	0.00	0.25	0.25	1,081
Vendor	0.01	0.80	0.01	0.15	0.15	0.01	0.04	0.05	599
Hauling	0.01	0.41	< 0.005	0.07	0.07	< 0.005	0.02	0.02	293
Average Daily	—	—	—	—	—	—	—	—	—
Worker	0.27	0.26	0.00	0.59	0.59	0.00	0.14	0.14	594
Vendor	0.01	0.43	< 0.005	0.08	0.08	< 0.005	0.02	0.03	326
Hauling	< 0.005	0.22	< 0.005	0.04	0.04	< 0.005	0.01	0.01	159
Annual	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.00	0.11	0.11	0.00	0.03	0.03	98.4
Vendor	< 0.005	0.08	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	54.0
Hauling	< 0.005	0.04	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	26.4

### 3.9. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.07	9.85	0.38	—	0.38	0.35	—	0.35	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07	9.85	0.38	—	0.38	0.35	—	0.35	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	2.76	0.11	—	0.11	0.10	—	0.10	673
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.50	0.02	—	0.02	0.02	—	0.02	111
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.51	0.36	0.00	1.09	1.09	0.00	0.25	0.25	1,141
Vendor	0.02	0.73	0.01	0.15	0.15	< 0.005	0.04	0.04	590
Hauling	0.01	0.37	< 0.005	0.07	0.07	< 0.005	0.02	0.02	288
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Worker	0.49	0.49	0.00	1.09	1.09	0.00	0.25	0.25	1,062
Vendor	0.01	0.76	0.01	0.15	0.15	< 0.005	0.04	0.04	589
Hauling	0.01	0.39	< 0.005	0.07	0.07	< 0.005	0.02	0.02	288
Average Daily	—	—	—	—	—	—	—	—	—
Worker	0.14	0.12	0.00	0.30	0.30	0.00	0.07	0.07	300
Vendor	< 0.005	0.21	< 0.005	0.04	0.04	< 0.005	0.01	0.01	165
Hauling	< 0.005	0.11	< 0.005	0.02	0.02	< 0.005	0.01	0.01	80.5

Annual	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.00	0.06	0.06	0.00	0.01	0.01	49.7
Vendor	< 0.005	0.04	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	27.3
Hauling	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	13.3

### 3.10. Building Construction (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	9.53	0.12	—	0.12	0.11	—	0.11	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	9.53	0.12	—	0.12	0.11	—	0.11	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	2.67	0.03	—	0.03	0.03	—	0.03	673
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.49	0.01	—	0.01	0.01	—	0.01	111
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.51	0.36	0.00	1.09	1.09	0.00	0.25	0.25	1,141

Vendor	0.02	0.73	0.01	0.15	0.15	< 0.005	0.04	0.04	590
Hauling	0.01	0.37	< 0.005	0.07	0.07	< 0.005	0.02	0.02	288
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Worker	0.49	0.49	0.00	1.09	1.09	0.00	0.25	0.25	1,062
Vendor	0.01	0.76	0.01	0.15	0.15	< 0.005	0.04	0.04	589
Hauling	0.01	0.39	< 0.005	0.07	0.07	< 0.005	0.02	0.02	288
Average Daily	—	—	—	—	—	—	—	—	—
Worker	0.14	0.12	0.00	0.30	0.30	0.00	0.07	0.07	300
Vendor	< 0.005	0.21	< 0.005	0.04	0.04	< 0.005	0.01	0.01	165
Hauling	< 0.005	0.11	< 0.005	0.02	0.02	< 0.005	0.01	0.01	80.5
Annual	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.00	0.06	0.06	0.00	0.01	0.01	49.7
Vendor	< 0.005	0.04	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	27.3
Hauling	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	13.3

### 3.11. Paving (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.76	7.12	0.32	—	0.32	0.29	—	0.29	1,516
Paving	0.00	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.04	0.41	0.02	—	0.02	0.02	—	0.02	87.2
Paving	0.00	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.07	< 0.005	—	< 0.005	< 0.005	—	< 0.005	14.4
Paving	0.00	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.06	0.04	0.00	0.12	0.12	0.00	0.03	0.03	130
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	1.18	0.01	0.21	0.22	0.01	0.06	0.07	927
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	0.01	0.01	0.00	< 0.005	< 0.005	7.04
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.07	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	53.3
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.17
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	8.82

### 3.12. Paving (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
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Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	7.21	0.09	—	0.09	0.08	—	0.08	1,516
Paving	0.00	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.41	< 0.005	—	< 0.005	< 0.005	—	< 0.005	87.2
Paving	0.00	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.08	< 0.005	—	< 0.005	< 0.005	—	< 0.005	14.4
Paving	0.00	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.06	0.04	0.00	0.12	0.12	0.00	0.03	0.03	130
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	1.18	0.01	0.21	0.22	0.01	0.06	0.07	927
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	0.01	0.01	0.00	< 0.005	< 0.005	7.04
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.07	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	53.3

Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.17
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	8.82

### 3.13. Architectural Coating (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.86	0.02	—	0.02	0.02	—	0.02	134
Architectural Coatings	250	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.05	< 0.005	—	< 0.005	< 0.005	—	< 0.005	7.34
Architectural Coatings	13.7	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.22
Architectural Coatings	2.50	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.10	0.07	0.00	0.22	0.22	0.00	0.05	0.05	228
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	0.00	0.01	0.01	0.00	< 0.005	< 0.005	11.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.94
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

### 3.14. Architectural Coating (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	1.07	0.03	—	0.03	0.03	—	0.03	134
Architectural Coatings	250	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	0.06	< 0.005	—	< 0.005	< 0.005	—	< 0.005	7.34
Architectural Coatings	13.7	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.22
Architectural Coatings	2.50	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.10	0.07	0.00	0.22	0.22	0.00	0.05	0.05	228
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	0.00	0.01	0.01	0.00	< 0.005	< 0.005	11.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.94
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

### 3.15. Trenching (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	1.93	0.07	—	0.07	0.06	—	0.06	434
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.16	0.01	—	0.01	0.01	—	0.01	35.6
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.03	< 0.005	—	< 0.005	< 0.005	—	< 0.005	5.90
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.00	0.04	0.04	0.00	0.01	0.01	41.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	3.42
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.57

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

### 3.16. Trenching (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	2.28	0.04	—	0.04	0.03	—	0.03	434
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.19	< 0.005	—	< 0.005	< 0.005	—	< 0.005	35.6
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.03	< 0.005	—	< 0.005	< 0.005	—	< 0.005	5.90
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.00	0.04	0.04	0.00	0.01	0.01	41.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	3.42
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.57
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

## 4. Operations Emissions Details

### 4.1. Mobile Emissions by Land Use

#### 4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Condo/Townhouse	3.91	3.16	0.05	5.23	5.28	0.05	1.33	1.38	6,150
Apartments Low Rise	1.28	1.04	0.02	1.72	1.74	0.02	0.44	0.45	2,022
Regional Shopping Center	2.03	1.76	0.03	3.00	3.03	0.03	0.76	0.79	3,509
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	7.22	5.96	0.10	9.95	10.0	0.09	2.53	2.63	11,681
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Condo/Townhouse	3.73	3.63	0.05	5.23	5.28	0.05	1.33	1.38	5,846
Apartments Low Rise	1.23	1.19	0.02	1.72	1.74	0.02	0.44	0.45	1,922

Regional Shopping Center	1.94	2.02	0.03	3.00	3.03	0.03	0.76	0.79	3,335
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	6.90	6.84	0.10	9.95	10.0	0.09	2.53	2.63	11,103
Annual	—	—	—	—	—	—	—	—	—
Condo/Townhouse	0.60	0.56	0.01	0.85	0.86	0.01	0.22	0.22	872
Apartments Low Rise	0.20	0.19	< 0.005	0.28	0.28	< 0.005	0.07	0.07	287
Regional Shopping Center	0.28	0.28	< 0.005	0.43	0.44	< 0.005	0.11	0.11	440
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.08	1.03	0.02	1.56	1.58	0.01	0.40	0.41	1,599

#### 4.1.2. Mitigated

##### Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Condo/Townhouse	3.91	3.16	0.05	5.23	5.28	0.05	1.33	1.38	6,150
Apartments Low Rise	1.28	1.04	0.02	1.72	1.74	0.02	0.44	0.45	2,022
Regional Shopping Center	2.03	1.76	0.03	3.00	3.03	0.03	0.76	0.79	3,509
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	7.22	5.96	0.10	9.95	10.0	0.09	2.53	2.63	11,681
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Condo/Townhouse	3.73	3.63	0.05	5.23	5.28	0.05	1.33	1.38	5,846

Apartments Low Rise	1.23	1.19	0.02	1.72	1.74	0.02	0.44	0.45	1,922
Regional Shopping Center	1.94	2.02	0.03	3.00	3.03	0.03	0.76	0.79	3,335
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	6.90	6.84	0.10	9.95	10.0	0.09	2.53	2.63	11,103
Annual	—	—	—	—	—	—	—	—	—
Condo/Townhouse	0.60	0.56	0.01	0.85	0.86	0.01	0.22	0.22	872
Apartments Low Rise	0.20	0.19	< 0.005	0.28	0.28	< 0.005	0.07	0.07	287
Regional Shopping Center	0.28	0.28	< 0.005	0.43	0.44	< 0.005	0.11	0.11	440
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.08	1.03	0.02	1.56	1.58	0.01	0.40	0.41	1,599

## 4.2. Energy

### 4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	179
Apartments Low Rise	—	—	—	—	—	—	—	—	40.8
Regional Shopping Center	—	—	—	—	—	—	—	—	11.7
Parking Lot	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	231

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	179
Apartments Low Rise	—	—	—	—	—	—	—	—	40.8
Regional Shopping Center	—	—	—	—	—	—	—	—	11.7
Parking Lot	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	231
Annual	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	29.6
Apartments Low Rise	—	—	—	—	—	—	—	—	6.75
Regional Shopping Center	—	—	—	—	—	—	—	—	1.93
Parking Lot	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	38.3

#### 4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	179
Apartments Low Rise	—	—	—	—	—	—	—	—	40.8
Regional Shopping Center	—	—	—	—	—	—	—	—	11.7
Parking Lot	—	—	—	—	—	—	—	—	0.00

Total	—	—	—	—	—	—	—	—	231
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	179
Apartments Low Rise	—	—	—	—	—	—	—	—	40.8
Regional Shopping Center	—	—	—	—	—	—	—	—	11.7
Parking Lot	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	231
Annual	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	29.6
Apartments Low Rise	—	—	—	—	—	—	—	—	6.75
Regional Shopping Center	—	—	—	—	—	—	—	—	1.93
Parking Lot	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	38.3

#### 4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Condo/Townhouse	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Apartments Low Rise	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Regional Shopping Center	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00

Parking Lot	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Total	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Condo/Townhouse	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Apartments Low Rise	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Regional Shopping Center	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Parking Lot	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Total	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Condo/Townhouse	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Apartments Low Rise	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Regional Shopping Center	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Parking Lot	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Total	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00

#### 4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Condo/Townhouse	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Apartments Low Rise	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00

Regional Shopping Center	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Parking Lot	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Total	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Condo/Townhouse	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Apartments Low Rise	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Regional Shopping Center	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Parking Lot	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Total	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Condo/Townhouse	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Apartments Low Rise	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Regional Shopping Center	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Parking Lot	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Total	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00

### 4.3. Area Emissions by Source

#### 4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00

Consumer Products	7.65	—	—	—	—	—	—	—	—
Architectural Coatings	1.37	—	—	—	—	—	—	—	—
Landscape Equipment	0.96	0.10	0.01	—	0.01	< 0.005	—	< 0.005	28.9
Total	9.97	0.10	0.01	—	0.01	< 0.005	—	< 0.005	28.9
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Consumer Products	7.65	—	—	—	—	—	—	—	—
Architectural Coatings	1.37	—	—	—	—	—	—	—	—
Total	9.01	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Consumer Products	1.40	—	—	—	—	—	—	—	—
Architectural Coatings	0.25	—	—	—	—	—	—	—	—
Landscape Equipment	0.09	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	2.36
Total	1.73	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	2.36

#### 4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00

Consumer Products	7.65	—	—	—	—	—	—	—	—
Architectural Coatings	1.37	—	—	—	—	—	—	—	—
Landscape Equipment	0.96	0.10	0.01	—	0.01	< 0.005	—	< 0.005	28.9
Total	9.97	0.10	0.01	—	0.01	< 0.005	—	< 0.005	28.9
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Consumer Products	7.65	—	—	—	—	—	—	—	—
Architectural Coatings	1.37	—	—	—	—	—	—	—	—
Total	9.01	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Consumer Products	1.40	—	—	—	—	—	—	—	—
Architectural Coatings	0.25	—	—	—	—	—	—	—	—
Landscape Equipment	0.09	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	2.36
Total	1.73	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	2.36

#### 4.4. Water Emissions by Land Use

##### 4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—

Condo/Townhouse	—	—	—	—	—	—	—	—	18.2
Apartments Low Rise	—	—	—	—	—	—	—	—	5.98
Regional Shopping Center	—	—	—	—	—	—	—	—	3.12
Parking Lot	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	27.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	18.2
Apartments Low Rise	—	—	—	—	—	—	—	—	5.98
Regional Shopping Center	—	—	—	—	—	—	—	—	3.12
Parking Lot	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	27.3
Annual	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	3.02
Apartments Low Rise	—	—	—	—	—	—	—	—	0.99
Regional Shopping Center	—	—	—	—	—	—	—	—	0.52
Parking Lot	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	4.52

## 4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—

Condo/Townhouse	—	—	—	—	—	—	—	—	18.2
Apartments Low Rise	—	—	—	—	—	—	—	—	5.98
Regional Shopping Center	—	—	—	—	—	—	—	—	3.12
Parking Lot	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	27.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	18.2
Apartments Low Rise	—	—	—	—	—	—	—	—	5.98
Regional Shopping Center	—	—	—	—	—	—	—	—	3.12
Parking Lot	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	27.3
Annual	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	3.02
Apartments Low Rise	—	—	—	—	—	—	—	—	0.99
Regional Shopping Center	—	—	—	—	—	—	—	—	0.52
Parking Lot	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	4.52

## 4.5. Waste Emissions by Land Use

### 4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
----------	-----	-----	-------	-------	-------	--------	--------	--------	------

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	187
Apartments Low Rise	—	—	—	—	—	—	—	—	61.5
Regional Shopping Center	—	—	—	—	—	—	—	—	19.8
Parking Lot	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	268
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	187
Apartments Low Rise	—	—	—	—	—	—	—	—	61.5
Regional Shopping Center	—	—	—	—	—	—	—	—	19.8
Parking Lot	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	268
Annual	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	30.9
Apartments Low Rise	—	—	—	—	—	—	—	—	10.2
Regional Shopping Center	—	—	—	—	—	—	—	—	3.28
Parking Lot	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	44.4

#### 4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	187
Apartments Low Rise	—	—	—	—	—	—	—	—	61.5
Regional Shopping Center	—	—	—	—	—	—	—	—	19.8
Parking Lot	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	268
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	187
Apartments Low Rise	—	—	—	—	—	—	—	—	61.5
Regional Shopping Center	—	—	—	—	—	—	—	—	19.8
Parking Lot	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	268
Annual	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	30.9
Apartments Low Rise	—	—	—	—	—	—	—	—	10.2
Regional Shopping Center	—	—	—	—	—	—	—	—	3.28
Parking Lot	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	44.4

#### 4.6. Refrigerant Emissions by Land Use

## 4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	2.24
Apartments Low Rise	—	—	—	—	—	—	—	—	0.25
Regional Shopping Center	—	—	—	—	—	—	—	—	0.05
Total	—	—	—	—	—	—	—	—	2.54
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	2.24
Apartments Low Rise	—	—	—	—	—	—	—	—	0.25
Regional Shopping Center	—	—	—	—	—	—	—	—	0.05
Total	—	—	—	—	—	—	—	—	2.54
Annual	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	0.37
Apartments Low Rise	—	—	—	—	—	—	—	—	0.04
Regional Shopping Center	—	—	—	—	—	—	—	—	0.01
Total	—	—	—	—	—	—	—	—	0.42

## 4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	2.24
Apartments Low Rise	—	—	—	—	—	—	—	—	0.25
Regional Shopping Center	—	—	—	—	—	—	—	—	0.05
Total	—	—	—	—	—	—	—	—	2.54
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	2.24
Apartments Low Rise	—	—	—	—	—	—	—	—	0.25
Regional Shopping Center	—	—	—	—	—	—	—	—	0.05
Total	—	—	—	—	—	—	—	—	2.54
Annual	—	—	—	—	—	—	—	—	—
Condo/Townhouse	—	—	—	—	—	—	—	—	0.37
Apartments Low Rise	—	—	—	—	—	—	—	—	0.04
Regional Shopping Center	—	—	—	—	—	—	—	—	0.01
Total	—	—	—	—	—	—	—	—	0.42

## 4.7. Offroad Emissions By Equipment Type

### 4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

#### 4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

#### 4.8. Stationary Emissions By Equipment Type

##### 4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

#### 4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

#### 4.9. User Defined Emissions By Equipment Type

##### 4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—
-------	---	---	---	---	---	---	---	---	---

#### 4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

#### 4.10. Soil Carbon Accumulation By Vegetation Type

##### 4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

##### 4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—

#### 4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

#### 4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

#### 4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—

## 5. Activity Data

### 5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	1/1/2025	1/29/2025	5.00	20.0	—
Site Preparation	Site Preparation	1/30/2025	2/13/2025	5.00	10.0	—
Grading	Grading	2/14/2025	3/28/2025	5.00	30.0	—
Building Construction	Building Construction	3/29/2025	5/23/2026	5.00	300	—
Paving	Paving	6/22/2026	7/20/2026	5.00	21.0	—
Architectural Coating	Architectural Coating	5/24/2026	6/21/2026	5.00	20.0	—
Trenching	Trenching	2/14/2025	3/27/2025	5.00	30.0	—

### 5.2. Off-Road Equipment

#### 5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40

Site Preparation	Tractors/Loaders/Back	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Back hoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Back hoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Trenching	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	84.0	0.37
Trenching	Excavators	Diesel	Average	1.00	8.00	36.0	0.38

### 5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Rubber Tired Dozers	Diesel	Tier 4 Interim	2.00	8.00	367	0.40
Demolition	Excavators	Diesel	Tier 4 Interim	3.00	8.00	36.0	0.38
Demolition	Concrete/Industrial Saws	Diesel	Tier 4 Interim	1.00	8.00	33.0	0.73
Site Preparation	Rubber Tired Dozers	Diesel	Tier 4 Interim	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Back hoes	Diesel	Tier 4 Interim	4.00	8.00	84.0	0.37

Grading	Graders	Diesel	Tier 4 Interim	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Tier 4 Interim	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Back hoes	Diesel	Tier 4 Interim	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Tier 4 Interim	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Tier 4 Interim	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Tier 4 Interim	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Cranes	Diesel	Tier 4 Interim	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Tier 4 Interim	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Back hoes	Diesel	Tier 4 Interim	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Tier 4 Interim	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 4 Interim	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Tier 4 Interim	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Tier 4 Interim	1.00	6.00	37.0	0.48
Trenching	Tractors/Loaders/Back hoes	Diesel	Tier 4 Interim	1.00	8.00	84.0	0.37
Trenching	Excavators	Diesel	Tier 4 Interim	1.00	8.00	36.0	0.38

## 5.3. Construction Vehicles

### 5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	11.7	LDA,LDT1,LDT2
Demolition	Vendor	—	8.40	HHDT,MHDT
Demolition	Hauling	0.15	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT

Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	11.7	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.40	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	11.7	LDA,LDT1,LDT2
Grading	Vendor	—	8.40	HHDT,MHDT
Grading	Hauling	75.0	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	131	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	20.7	8.40	HHDT,MHDT
Building Construction	Hauling	3.67	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	11.7	LDA,LDT1,LDT2
Paving	Vendor	—	8.40	HHDT,MHDT
Paving	Hauling	11.8	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	26.3	11.7	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.40	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Trenching	—	—	—	—
Trenching	Worker	5.00	11.7	LDA,LDT1,LDT2
Trenching	Vendor	—	8.40	HHDT,MHDT

Trenching	Hauling	0.00	20.0	HHDT
Trenching	Onsite truck	—	—	HHDT

## 5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	11.7	LDA,LDT1,LDT2
Demolition	Vendor	—	8.40	HHDT,MHDT
Demolition	Hauling	0.15	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	11.7	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.40	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	11.7	LDA,LDT1,LDT2
Grading	Vendor	—	8.40	HHDT,MHDT
Grading	Hauling	75.0	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	131	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	20.7	8.40	HHDT,MHDT
Building Construction	Hauling	3.67	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	11.7	LDA,LDT1,LDT2
Paving	Vendor	—	8.40	HHDT,MHDT

Paving	Hauling	11.8	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	26.3	11.7	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.40	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Trenching	—	—	—	—
Trenching	Worker	5.00	11.7	LDA,LDT1,LDT2
Trenching	Vendor	—	8.40	HHDT,MHDT
Trenching	Hauling	0.00	20.0	HHDT
Trenching	Onsite truck	—	—	HHDT

## 5.4. Vehicles

### 5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

## 5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	703,153	234,384	15,048	5,016	—

## 5.6. Dust Mitigation

### 5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	10.0	—

Site Preparation	—	—	15.0	0.00	—
Grading	18,000	—	90.0	0.00	—
Paving	0.00	0.00	0.00	0.00	0.00

### 5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

### 5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Condo/Townhouse	—	0%
Apartments Low Rise	—	0%
Regional Shopping Center	0.00	0%
Parking Lot	0.00	100%

### 5.8. Construction Electricity Consumption and Emissions Factors

#### kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	39.5	0.03	< 0.005
2026	0.00	39.5	0.03	< 0.005

### 5.9. Operational Mobile Sources

#### 5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Condo/Townhouse	870	967	746	316,098	6,592	7,333	5,657	2,395,860

Apartments Low Rise	286	318	246	103,954	2,168	2,411	1,861	787,918
Regional Shopping Center	401	490	224	141,677	3,437	4,200	1,921	1,215,240
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

### 5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Condo/Townhouse	870	967	746	316,098	6,592	7,333	5,657	2,395,860
Apartments Low Rise	286	318	246	103,954	2,168	2,411	1,861	787,918
Regional Shopping Center	401	490	224	141,677	3,437	4,200	1,921	1,215,240
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

## 5.10. Operational Area Sources

### 5.10.1. Hearths

#### 5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Condo/Townhouse	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	0
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0

Pellet Wood Stoves	0
Apartments Low Rise	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	0
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

#### 5.10.1.2. Mitigated

Hearth Type	Unmitigated (number)
Condo/Townhouse	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	0
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0
Apartments Low Rise	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0

Electric Fireplaces	0
No Fireplaces	0
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

### 5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
703152.9	234,384	15,048	5,016	—

### 5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

### 5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

## 5.11. Operational Energy Consumption

### 5.11.1. Unmitigated

#### Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Condo/Townhouse	1,573,388	39.5	0.0330	0.0040	0.00

Apartments Low Rise	358,786	39.5	0.0330	0.0040	0.00
Regional Shopping Center	102,642	39.5	0.0330	0.0040	0.00
Parking Lot	0.00	39.5	0.0330	0.0040	0.00

### 5.11.2. Mitigated

#### Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Condo/Townhouse	1,573,388	39.5	0.0330	0.0040	0.00
Apartments Low Rise	358,786	39.5	0.0330	0.0040	0.00
Regional Shopping Center	102,642	39.5	0.0330	0.0040	0.00
Parking Lot	0.00	39.5	0.0330	0.0040	0.00

### 5.12. Operational Water and Wastewater Consumption

#### 5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Condo/Townhouse	4,319,731	0.00
Apartments Low Rise	1,418,419	0.00
Regional Shopping Center	740,725	0.00
Parking Lot	0.00	0.00

#### 5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Condo/Townhouse	4,319,731	0.00
Apartments Low Rise	1,418,419	0.00
Regional Shopping Center	740,725	0.00
Parking Lot	0.00	0.00

## 5.13. Operational Waste Generation

### 5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Condo/Townhouse	99.1	—
Apartments Low Rise	32.6	—
Regional Shopping Center	10.5	—
Parking Lot	0.00	—

### 5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Condo/Townhouse	99.1	—
Apartments Low Rise	32.6	—
Regional Shopping Center	10.5	—
Parking Lot	0.00	—

## 5.14. Operational Refrigeration and Air Conditioning Equipment

### 5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Condo/Townhouse	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Condo/Townhouse	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Apartments Low Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0

Apartments Low Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Regional Shopping Center	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Regional Shopping Center	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

### 5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Condo/Townhouse	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Condo/Townhouse	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Apartments Low Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Low Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Regional Shopping Center	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Regional Shopping Center	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

## 5.15. Operational Off-Road Equipment

### 5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
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### 5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
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## 5.16. Stationary Sources

### 5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
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### 5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)
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## 5.17. User Defined

Equipment Type	Fuel Type
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## 5.18. Vegetation

### 5.18.1. Land Use Change

#### 5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
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#### 5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
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### 5.18.1. Biomass Cover Type

#### 5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
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#### 5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres
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#### 5.18.2. Sequestration

##### 5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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##### 5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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## 6. Climate Risk Detailed Report

### 6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	11.1	annual days of extreme heat
Extreme Precipitation	11.6	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	9.76	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about  $\frac{3}{4}$  an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

## 6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

## 6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A

Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

## 6.4. Climate Risk Reduction Measures

# 7. Health and Equity Details

## 7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	7.52
AQ-PM	9.31
AQ-DPM	29.2
Drinking Water	50.3
Lead Risk Housing	37.7
Pesticides	54.5
Toxic Releases	12.8
Traffic	59.6
Effect Indicators	—
CleanUp Sites	63.7
Groundwater	83.3
Haz Waste Facilities/Generators	80.3
Impaired Water Bodies	77.3
Solid Waste	88.9

Sensitive Population	—
Asthma	24.4
Cardio-vascular	15.3
Low Birth Weights	26.1
Socioeconomic Factor Indicators	—
Education	48.6
Housing	83.9
Linguistic	8.49
Poverty	57.6
Unemployment	25.2

## 7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	46.47760811
Employed	43.98819453
Median HI	38.23944566
Education	—
Bachelor's or higher	59.98973438
High school enrollment	100
Preschool enrollment	28.89772873
Transportation	—
Auto Access	75.69613756
Active commuting	42.15321442
Social	—
2-parent households	8.469138971
Voting	86.56486591

Neighborhood	—
Alcohol availability	42.71782369
Park access	7.019119723
Retail density	28.16630309
Supermarket access	43.11561658
Tree canopy	66.18760426
Housing	—
Homeownership	53.27858334
Housing habitability	49.89092776
Low-inc homeowner severe housing cost burden	38.29077377
Low-inc renter severe housing cost burden	31.695111
Uncrowded housing	67.80443988
Health Outcomes	—
Insured adults	68.56152958
Arthritis	0.0
Asthma ER Admissions	65.8
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	25.4
Cognitively Disabled	9.0
Physically Disabled	59.0
Heart Attack ER Admissions	83.1
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0

Obesity	0.0
Pedestrian Injuries	74.2
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	59.5
Elderly	36.8
English Speaking	70.1
Foreign-born	31.6
Outdoor Workers	56.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	82.2
Traffic Density	66.8
Traffic Access	47.9
Other Indices	—
Hardship	44.4
Other Decision Support	—
2016 Voting	86.7

### 7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	38.0

Healthy Places Index Score for Project Location (b)	48.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

## 7.4. Health & Equity Measures

No Health & Equity Measures selected.

## 7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

## 7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

## 8. User Changes to Default Data

Screen	Justification
Characteristics: Utility Information	Cotati default clean energy provider is Sonoma Clean power.
Land Use	Total number of units, square footages, and parking spaces from provided plans.
Construction: Construction Phases	Defaults - added trenching.
Construction: Off-Road Equipment	Defaults - added trenching.
Construction: Trips and VMT	Concrete hauling and paving haul trips estimated from project plans.
Operations: Hearths	No hearths/fireplaces.
Operations: Energy Use	Applicant has stated project will be all electric. Natural gas usage reassigned to electricity usage.
Operations: Water and Waste Water	100% aerobic
Operations: Vehicle Data	Provided trip gen with adjustments. Pass-by rates captured in trip gen.

## 2. Emissions Summary - HRA

### 2.2 Construction Emissions by Year, Unmitigated

Year	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO <sub>2</sub> e
Daily - Summer (Max)									
2025	1.6126430	10.902117	0.4329138	0.1134764	0.5463903	0.3983665	0.0274778	0.4258444	2640.3423366511493
2026	249.94593	10.295383	0.3797271	0.1134764	0.4932036	0.3489791	0.0274778	0.3764569	2635.0049417758873
Daily - Winter (Max)									
2025	3.5268422	33.080735	1.3655525	7.6785978	9.0441504	1.2563083	3.9428521	5.1991605	7488.969637048877
2026	1.5097929	10.339774	0.3797271	0.1134764	0.4932036	0.3489791	0.0274778	0.3764569	2630.1988877690956
Average Daily									
2025	1.3763133	10.745547	0.4305898	0.5757792	1.0063691	0.3962111	0.2422516	0.6384628	2384.0804524840655
2026	14.163374	3.3591705	0.1259660	0.0337941	0.1597601	0.1157876	0.0081924	0.1239800	836.3695333732362
Annual									
2025	0.2511771	1.9610623	0.0785826	0.1050797	0.1836623	0.0723085	0.0442109	0.1165194	394.7117259013726
2026	2.5848159	0.6130486	0.0229887	0.0061674	0.0291562	0.0211312	0.0014951	0.0226263	138.47052085222452

### 5.3. Construction Vehicles - HRA

#### 5.3.1 Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
<b>Demolition</b>				
Demolition	Worker	15	1	LDA,LDT1,LDT2
Demolition	Vendor		1	HHDT,MHDT
Demolition	Hauling	0.15	1	HHDT
Demolition	Onsite truck			HHDT
<b>Site Preparation</b>				
Site Preparation	Worker	17.5	1	LDA,LDT1,LDT2
Site Preparation	Vendor		1	HHDT,MHDT
Site Preparation	Hauling	0	1	HHDT
Site Preparation	Onsite truck			HHDT
<b>Grading</b>				
Grading	Worker	20	1	LDA,LDT1,LDT2
Grading	Vendor		1	HHDT,MHDT
Grading	Hauling	75	1	HHDT
Grading	Onsite truck			HHDT
<b>Building Construction</b>				
Building Construction	Worker	131.37024	1	LDA,LDT1,LDT2
Building Construction	Vendor	20.672444799999997	1	HHDT,MHDT
Building Construction	Hauling	3.66666	1	HHDT
Building Construction	Onsite truck			HHDT
<b>Paving</b>				
Paving	Worker	15	1	LDA,LDT1,LDT2
Paving	Vendor		1	HHDT,MHDT
Paving	Hauling	11.8	1	HHDT
Paving	Onsite truck			HHDT
<b>Architectural Coating</b>				
Architectural Coating	Worker	26.274048	1	LDA,LDT1,LDT2
Architectural Coating	Vendor		1	HHDT,MHDT
Architectural Coating	Hauling	0	1	HHDT
Architectural Coating	Onsite truck			HHDT
<b>Trenching</b>				
Trenching	Worker	5	1	LDA,LDT1,LDT2
Trenching	Vendor		1	HHDT,MHDT
Trenching	Hauling	0	1	HHDT
Trenching	Onsite truck			HHDT

**Attachment 2: Project Construction Dispersion Modeling Inputs and Risk Calculations**

**8501 Gravenstein Highway, Cotati, CA  
Construction Health Impact Summary**

**Maximum Impacts at MEI Location - Without Mitigation**

Emissions Year	Maximum Concentrations		Cancer Risk (per million) Infant/Child	Hazard Index (-)	Maximum Annual PM2.5 Concentration (µg/m <sup>3</sup> )
	Exhaust PM10/DPM (µg/m <sup>3</sup> )	Fugitive PM2.5 (µg/m <sup>3</sup> )			
	2025	0.0251	0.0335	4.47	0.01
2026	0.0074	0.0011	1.21	0.00	0.01
<b>Total</b>	-	-	<b>5.68</b>		-
<b>Maximum</b>	0.0251	0.0335	-	<b>0.01</b>	<b>0.06</b>

8501 Gravenstein Highway, Cotati, CA

DPM Emissions and Modeling Emission Rates - Unmitigated

Construction Year	Activity	DPM (ton/year)	Area Source	DPM Emissions			Modeled Area (m <sup>2</sup> )	DPM Emission Rate (g/s/m <sup>2</sup> )
				(lb/yr)	(lb/hr)	(g/s)		
2025	Construction	0.0786	CON_DPM	157.2	0.04784	6.03E-03	43,096	1.40E-07
2026	Construction	0.0230	CON_DPM	46.0	0.01400	1.76E-03	43,096	4.09E-08
<b>Total</b>		<b>0.1016</b>		<b>203.1</b>	<b>0.0618</b>	<b>0.0078</b>		

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

8501 Gravenstein Highway, Cotati, CA

PM2.5 Fugitive Dust Emissions for Modeling - Unmitigated

Construction Year	Activity	Area Source	PM2.5 Emissions				Modeled Area (m <sup>2</sup> )	PM2.5 Emission Rate g/s/m <sup>2</sup>
			(ton/year)	(lb/yr)	(lb/hr)	(g/s)		
2025	Construction	CON_FUG	0.0442	88.4	0.02692	3.39E-03	43,096	7.87E-08
2026	Construction	CON_FUG	0.0015	3.0	0.00091	1.15E-04	43,096	2.66E-09
<b>Total</b>			<b>0.0457</b>	<b>91.4</b>	<b>0.0278</b>	<b>0.0035</b>		

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

**8501 Gravenstein Highway, Cotati, CA - Construction Impacts - Without Mitigation**  
**Maximum DPM Cancer Risk and PM2.5 Calculations From Construction**  
**Impacts at Off-Site MEI Location - 4.5 meter receptor height**

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

- Where: CPF = Cancer potency factor (mg/kg-day)<sup>1</sup>  
 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<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

- Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)  
 DBR = daily breathing rate (L/kg body weight-day)  
 A = Inhalation absorption factor  
 EF = Exposure frequency (days/year)  
 10<sup>-6</sup> = Conversion factor

**Values**

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

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

**Construction Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information			Infant/Child Cancer Risk (per million)	Adult - Exposure Information			Adult Cancer Risk (per million)
			DPM Conc (ug/m3)		Age Sensitivity Factor		Modeled		Age Sensitivity Factor	
			Year	Annual			Year	Annual		
0	0.25	-0.25 - 0*	2025	0.0251	10	0.34	2025	0.0251	-	-
1	1	0 - 1	2025	0.0251	10	4.13	2025	0.0251	1	0.07
2	1	1 - 2	2026	0.0074	10	1.21	2026	0.0074	1	0.02
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
<b>Total Increased Cancer Risk</b>						<b>5.68</b>				<b>0.09</b>

\* Third trimester of pregnancy

Hazard Index	Maximum	
	Fugitive PM2.5	Total PM2.5
0.01	0.028	0.05
0.00	0.001	0.01

**8501 Gravenstein Highway, Cotati, CA - Construction Impacts - Without Mitigation**  
**Maximum DPM Cancer Risk and PM2.5 Calculations From Construction**  
**Impacts at Off-Site MEI Location - 1.5 meter receptor height**

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

- Where: CPF = Cancer potency factor (mg/kg-day)<sup>1</sup>  
 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<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

- Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)  
 DBR = daily breathing rate (L/kg body weight-day)  
 A = Inhalation absorption factor  
 EF = Exposure frequency (days/year)  
 10<sup>-6</sup> = Conversion factor

Values

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

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

**Construction Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information			Infant/Child Cancer Risk (per million)	Adult - Exposure Information			Adult Cancer Risk (per million)
			DPM Conc (ug/m3)		Age Sensitivity Factor		Modeled		Age Sensitivity Factor	
			Year	Annual			Year	Annual		
0	0.25	-0.25 - 0*	2025	0.0240	10	0.33	2025	0.0240	-	-
1	1	0 - 1	2025	0.0240	10	3.94	2025	0.0240	1	0.07
2	1	1 - 2	2026	0.0070	10	1.15	2026	0.0070	1	0.02
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
<b>Total Increased Cancer Risk</b>						<b>5.41</b>				<b>0.09</b>

\* Third trimester of pregnancy

Hazard Index	Maximum	
	Fugitive PM2.5	Total PM2.5
0.00	0.033	0.06
0.00	0.001	0.01

**Attachment 3: Cumulative Screening and Health Risk from Existing TAC Sources**

File Name: Highway 101 2025.EF  
 CT-EMFAC2021 Version: 1.0.2.0  
 Run Date: 12/3/2024 2:42:40 PM  
 Area: Sonoma (SF)  
 Analysis Year: 2025  
 Season: Annual

=====

Vehicle Category	VMT Fraction	Diesel VMT Fraction	Gas VMT
Fraction	Across Category	Within Category	Within
Category			
Truck 1	0.023	0.527	0.468
Truck 2	0.034	0.895	0.065
Non-Truck	0.943	0.010	0.934

=====

Road Type:	Freeway		
Silt Loading Factor:	CARB	0.015 g/m2	
Precipitation Correction:	CARB	P = 73 days	N = 365
days			

=====

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

Pollutant Name	60 mph	65 mph	70 mph
PM2.5	0.001886	0.002156	0.002297
TOG	0.022842	0.025456	0.027365
Diesel PM	0.001002	0.001128	0.001138

=====

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

Pollutant Name	Emission Factor
TOG	1.248017

=====

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

Pollutant Name	Emission Factor
PM2.5	0.002134

=====

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

Pollutant Name	60 mph	65 mph	70 mph
PM2.5	0.002467	0.002165	0.002165

=====

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

Pollutant Name	Emission Factor
PM2.5	0.008439

=====END=====

File Name: Highway 101 2027.EF  
 CT-EMFAC2021 Version: 1.0.2.0  
 Run Date: 12/3/2024 2:44:34 PM  
 Area: Sonoma (SF)  
 Analysis Year: 2027  
 Season: Annual

=====

Vehicle Category	VMT Fraction	Diesel VMT Fraction	Gas VMT
Fraction	Across Category	Within Category	Within
Category			
Truck 1	0.023	0.516	0.467
Truck 2	0.034	0.885	0.059
Non-Truck	0.943	0.009	0.925

=====

Road Type:	Freeway		
Silt Loading Factor:	CARB	0.015 g/m2	
Precipitation Correction:	CARB	P = 73 days	N = 365
days			

=====

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

Pollutant Name	60 mph	65 mph	70 mph
PM2.5	0.001716	0.001970	0.002097
TOG	0.019344	0.021506	0.023079
Diesel PM	0.000909	0.001032	0.001041

=====

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

Pollutant Name	Emission Factor
TOG	1.182877

=====

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

Pollutant Name	Emission Factor
PM2.5	0.002134

=====

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

Pollutant Name	60 mph	65 mph	70 mph
PM2.5	0.002452	0.002151	0.002151

=====

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

Pollutant Name	Emission Factor
PM2.5	0.008408

=====END=====

File Name: Highway 116 2025.EF  
 CT-EMFAC2021 Version: 1.0.2.0  
 Run Date: 12/6/2024 11:16:20 AM  
 Area: Sonoma (SF)  
 Analysis Year: 2025  
 Season: Annual

=====

Vehicle Category	VMT Fraction	Diesel VMT Fraction	Gas VMT
Fraction	Across Category	Within Category	Within
Category			
Truck 1	0.032	0.527	0.468
Truck 2	0.034	0.895	0.065
Non-Truck	0.934	0.010	0.934

=====

Road Type: Major/Collector  
 Silt Loading Factor: CARB 0.032 g/m2  
 Precipitation Correction: CARB P = 73 days N = 365 days

=====

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

Pollutant Name	45 mph
PM2.5	0.001696
TOG	0.022760
Diesel PM	0.000870

=====

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

Pollutant Name	Emission Factor
TOG	1.248508

=====

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

Pollutant Name	Emission Factor
PM2.5	0.002139

=====

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

Pollutant Name	45 mph
PM2.5	0.004660

=====

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

Pollutant Name	Emission Factor
PM2.5	0.016981

=====END=====

File Name: Highway 116 2027.EF  
 CT-EMFAC2021 Version: 1.0.2.0  
 Run Date: 12/6/2024 11:17:38 AM  
 Area: Sonoma (SF)  
 Analysis Year: 2027  
 Season: Annual

=====

Vehicle Category	VMT Fraction	Diesel VMT Fraction	Gas VMT
Fraction	Across Category	Within Category	Within
Category			
Truck 1	0.032	0.516	0.467
Truck 2	0.034	0.885	0.059
Non-Truck	0.934	0.009	0.925

=====

Road Type: Major/Collector  
 Silt Loading Factor: CARB 0.032 g/m2  
 Precipitation Correction: CARB P = 73 days N = 365 days

=====

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

Pollutant Name	45 mph
PM2.5	0.001532
TOG	0.019415
Diesel PM	0.000776

=====

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

Pollutant Name	Emission Factor
TOG	1.183902

=====

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

Pollutant Name	Emission Factor
PM2.5	0.002139

=====

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

Pollutant Name	45 mph
PM2.5	0.004631

=====

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

Pollutant Name	Emission Factor
PM2.5	0.016921

=====END=====

**8501 Gravenstein Highway, Cotati, CA - Highway 101 Traffic - TACs & PM2.5  
 AERMOD Risk Modeling Parameters and Maximum Concentrations  
 at Project MEI Receptor (4.5 & 1.5 meter receptor height)**

**Emission Year** 2025  
**Receptor Information**  
 Number of Receptors 1  
 Receptor Height 4.5 & 1.5 meters  
 Receptor Distances At Project MEI location

**Meteorological Conditions**  
 BAAQMD Valley Ford Met Data 1990 - 1994  
 Land Use Classification Urban  
 Wind Speed Variable  
 Wind Direction Variable

**Construction MEI Cancer Risk Maximum Concentrations**

Meteorological Data Years	Concentration (µg/m3)		
	DPM	Exhaust TOG	Evaporative TOG
1990 - 1994	0.0015	0.0353	0.0252

**Construction MEI PM2.5 Maximum Concentrations**

Meteorological Data Years	PM2.5 Concentration (µg/m3)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
1990 - 1994	0.0203	0.0173	0.0030

**8501 Gravenstein Highway, Cotati, CA - Highway 101 Traffic Cancer Risk  
Impacts at Project MEI - 4.5 & 1.5 meter receptor height  
30 Year Residential Exposure**

**Cancer Risk Calculation Method**

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

- Where: CPF = Cancer potency factor (mg/kg-day)<sup>-1</sup>  
 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<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

- Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)  
 DBR = daily breathing rate (L/kg body weight-day)  
 A = Inhalation absorption factor  
 EF = Exposure frequency (days/year)  
 10<sup>-6</sup> = Conversion factor

**Cancer Potency Factors (mg/kg-day)<sup>-1</sup>**

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

Values

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

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

**Construction Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Maximum - Exposure Information				Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	0.25	-0.25 - 0*	2025	10	0.0015	0.0353	0.0252	0.020	0.003	0.0001	0.02
1	1	0 - 1	2025	10	0.0015	0.0353	0.0252	0.245	0.033	0.0014	0.28
2	1	1 - 2	2026	10	0.0015	0.0353	0.0252	0.245	0.033	0.0014	0.28
3	1	2 - 3	2027	3	0.0015	0.0353	0.0252	0.039	0.005	0.0002	0.04
4	1	3 - 4	2028	3	0.0015	0.0353	0.0252	0.039	0.005	0.0002	0.04
5	1	4 - 5	2029	3	0.0015	0.0353	0.0252	0.039	0.005	0.0002	0.04
6	1	5 - 6	2030	3	0.0015	0.0353	0.0252	0.039	0.005	0.0002	0.04
7	1	6 - 7	2031	3	0.0015	0.0353	0.0252	0.039	0.005	0.0002	0.04
8	1	7 - 8	2032	3	0.0015	0.0353	0.0252	0.039	0.005	0.0002	0.04
9	1	8 - 9	2033	3	0.0015	0.0353	0.0252	0.039	0.005	0.0002	0.04
10	1	9 - 10	2034	3	0.0015	0.0353	0.0252	0.039	0.005	0.0002	0.04
11	1	10 - 11	2035	3	0.0015	0.0353	0.0252	0.039	0.005	0.0002	0.04
12	1	11 - 12	2036	3	0.0015	0.0353	0.0252	0.039	0.005	0.0002	0.04
13	1	12 - 13	2037	3	0.0015	0.0353	0.0252	0.039	0.005	0.0002	0.04
14	1	13 - 14	2038	3	0.0015	0.0353	0.0252	0.039	0.005	0.0002	0.04
15	1	14 - 15	2039	3	0.0015	0.0353	0.0252	0.039	0.005	0.0002	0.04
16	1	15 - 16	2040	3	0.0015	0.0353	0.0252	0.039	0.005	0.0002	0.04
17	1	16-17	2041	1	0.0015	0.0353	0.0252	0.004	0.001	0.0000	0.00
18	1	17-18	2042	1	0.0015	0.0353	0.0252	0.004	0.001	0.0000	0.00
19	1	18-19	2043	1	0.0015	0.0353	0.0252	0.004	0.001	0.0000	0.00
20	1	19-20	2044	1	0.0015	0.0353	0.0252	0.004	0.001	0.0000	0.00
21	1	20-21	2045	1	0.0015	0.0353	0.0252	0.004	0.001	0.0000	0.00
22	1	21-22	2046	1	0.0015	0.0353	0.0252	0.004	0.001	0.0000	0.00
23	1	22-23	2047	1	0.0015	0.0353	0.0252	0.004	0.001	0.0000	0.00
24	1	23-24	2048	1	0.0015	0.0353	0.0252	0.004	0.001	0.0000	0.00
25	1	24-25	2049	1	0.0015	0.0353	0.0252	0.004	0.001	0.0000	0.00
26	1	25-26	2050	1	0.0015	0.0353	0.0252	0.004	0.001	0.0000	0.00
27	1	26-27	2051	1	0.0015	0.0353	0.0252	0.004	0.001	0.0000	0.00
28	1	27-28	2052	1	0.0015	0.0353	0.0252	0.004	0.001	0.0000	0.00
29	1	28-29	2053	1	0.0015	0.0353	0.0252	0.004	0.001	0.0000	0.00
30	1	29-30	2054	1	0.0015	0.0353	0.0252	0.004	0.001	0.0000	0.00
<b>Total Increased Cancer Risk</b>								1.11	0.150	0.006	<b>1.27</b>

\* Third trimester of pregnancy

Maximum  
 Hazard Index 0.00030  
 Fugitive PM2.5 0.02  
 Total PM2.5 0.02

**8501 Gravenstein Highway, Cotati, CA - Highway 116 Traffic - TACs & PM2.5  
 AERMOD Risk Modeling Parameters and Maximum Concentrations  
 at Project MEI Receptor (4.5 & 1.5 meter receptor height)**

**Emission Year** 2025  
**Receptor Information** Project MEI receptor  
 Number of Receptors 1  
 Receptor Height 4.5 & 1.5 meters  
 Receptor Distances At Project MEI location

**Meteorological Conditions**  
 BAAQMD Valley Ford Met Data 1990 - 1994  
 Land Use Classification Urban  
 Wind Speed Variable  
 Wind Direction Variable

**Construction MEI Cancer Risk Maximum Concentrations**

Meteorological Data Years	Concentration (µg/m3)		
	DPM	Exhaust TOG	Evaporative TOG
1990 - 1994	0.0042	0.1211	0.1475

**Construction MEI PM2.5 Maximum Concentrations**

Meteorological Data Years	PM2.5 Concentration (µg/m3)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
1990 - 1994	0.1596	0.1490	0.0106

**8501 Gravenstein Highway, Cotati, CA - Highway 116 Traffic Cancer Risk  
Impacts at Project MEI - 4.5 & 1.5 meter receptor height  
30 Year Residential Exposure**

**Cancer Risk Calculation Method**

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

Where: CPF = Cancer potency factor (mg/kg-day)<sup>-1</sup>  
 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<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)  
 DBR = daily breathing rate (L/kg body weight-day)  
 A = Inhalation absorption factor  
 EF = Exposure frequency (days/year)  
 10<sup>-6</sup> = Conversion factor

**Cancer Potency Factors (mg/kg-day)<sup>-1</sup>**

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

Values

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

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

**Construction Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Maximum - Exposure Information				Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	0.25	-0.25 - 0*	2025	10	0.0042	0.1211	0.1475	0.058	0.009	0.0007	0.07
1	1	0 - 1	2025	10	0.0042	0.1211	0.1475	0.695	0.114	0.0081	0.82
2	1	1 - 2	2026	10	0.0042	0.1211	0.1475	0.695	0.114	0.0081	0.82
3	1	2 - 3	2027	3	0.0042	0.1211	0.1475	0.109	0.018	0.0013	0.13
4	1	3 - 4	2028	3	0.0042	0.1211	0.1475	0.109	0.018	0.0013	0.13
5	1	4 - 5	2029	3	0.0042	0.1211	0.1475	0.109	0.018	0.0013	0.13
6	1	5 - 6	2030	3	0.0042	0.1211	0.1475	0.109	0.018	0.0013	0.13
7	1	6 - 7	2031	3	0.0042	0.1211	0.1475	0.109	0.018	0.0013	0.13
8	1	7 - 8	2032	3	0.0042	0.1211	0.1475	0.109	0.018	0.0013	0.13
9	1	8 - 9	2033	3	0.0042	0.1211	0.1475	0.109	0.018	0.0013	0.13
10	1	9 - 10	2034	3	0.0042	0.1211	0.1475	0.109	0.018	0.0013	0.13
11	1	10 - 11	2035	3	0.0042	0.1211	0.1475	0.109	0.018	0.0013	0.13
12	1	11 - 12	2036	3	0.0042	0.1211	0.1475	0.109	0.018	0.0013	0.13
13	1	12 - 13	2037	3	0.0042	0.1211	0.1475	0.109	0.018	0.0013	0.13
14	1	13 - 14	2038	3	0.0042	0.1211	0.1475	0.109	0.018	0.0013	0.13
15	1	14 - 15	2039	3	0.0042	0.1211	0.1475	0.109	0.018	0.0013	0.13
16	1	15 - 16	2040	3	0.0042	0.1211	0.1475	0.109	0.018	0.0013	0.13
17	1	16-17	2041	1	0.0042	0.1211	0.1475	0.012	0.002	0.0001	0.01
18	1	17-18	2042	1	0.0042	0.1211	0.1475	0.012	0.002	0.0001	0.01
19	1	18-19	2043	1	0.0042	0.1211	0.1475	0.012	0.002	0.0001	0.01
20	1	19-20	2044	1	0.0042	0.1211	0.1475	0.012	0.002	0.0001	0.01
21	1	20-21	2045	1	0.0042	0.1211	0.1475	0.012	0.002	0.0001	0.01
22	1	21-22	2046	1	0.0042	0.1211	0.1475	0.012	0.002	0.0001	0.01
23	1	22-23	2047	1	0.0042	0.1211	0.1475	0.012	0.002	0.0001	0.01
24	1	23-24	2048	1	0.0042	0.1211	0.1475	0.012	0.002	0.0001	0.01
25	1	24-25	2049	1	0.0042	0.1211	0.1475	0.012	0.002	0.0001	0.01
26	1	25-26	2050	1	0.0042	0.1211	0.1475	0.012	0.002	0.0001	0.01
27	1	26-27	2051	1	0.0042	0.1211	0.1475	0.012	0.002	0.0001	0.01
28	1	27-28	2052	1	0.0042	0.1211	0.1475	0.012	0.002	0.0001	0.01
29	1	28-29	2053	1	0.0042	0.1211	0.1475	0.012	0.002	0.0001	0.01
30	1	29-30	2054	1	0.0042	0.1211	0.1475	0.012	0.002	0.0001	0.01
<b>Total Increased Cancer Risk</b>								3.15	0.514	0.037	<b>3.70</b>

\* Third trimester of pregnancy

Maximum  
 Hazard Index 0.00085  
 Fugitive PM2.5 0.15  
 Total PM2.5 0.16

**8501 Gravenstein Highway, Cotati, CA - Highway 101 Traffic - TACs & PM2.5  
AERMOD Risk Modeling Parameters and Maximum Concentrations  
at Onsite MEI Receptor (1.5 & 4.5 meter receptor height)**

**Emission Year** 2027  
**Receptor Information** Onsite MEI receptor  
Number of Receptors 303  
Receptor Height 1.5 & 4.5 meters  
Receptor Distances At Onsite MEI location

**Meteorological Conditions**  
BAAQMD Valley Ford Met Data 1990 - 1994  
Land Use Classification Urban  
Wind Speed Variable  
Wind Direction Variable

**Construction MEI Cancer Risk Maximum Concentrations**

Meteorological Data Years	Concentration (µg/m3)			
	DPM	Exhaust TOG	Evaporative TOG	
1990 - 1994	0.0040	0.0905	0.0725	1st Floor
1990 - 1994	0.0039	0.0883	0.0707	2nd Floor

**Construction MEI PM2.5 Maximum Concentrations**

Meteorological Data Years	PM2.5 Concentration (µg/m3)			
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5	
1990 - 1994	0.0602	0.0520	0.0082	1st Floor
1990 - 1994	0.0588	0.0507	0.0080	2nd Floor

**8501 Gravenstein Highway, Cotati, CA - Highway 101 Traffic Cancer Risk  
Impacts at Onsite MEI - 1.5 meter receptor height  
30 Year Residential Exposure**

**Cancer Risk Calculation Method**

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

Where: CPF = Cancer potency factor (mg/kg-day)<sup>-1</sup>  
 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<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)  
 DBR = daily breathing rate (L/kg body weight-day)  
 A = Inhalation absorption factor  
 EF = Exposure frequency (days/year)  
 10<sup>-6</sup> = Conversion factor

**Cancer Potency Factors (mg/kg-day)<sup>-1</sup>**

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

Values

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

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

**Construction Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Maximum - Exposure Information				Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	0.25	-0.25 - 0*	2027	10	0.0040	0.0905	0.0725	0.054	0.007	0.0003	0.06
1	1	0 - 1	2027	10	0.0040	0.0905	0.0725	0.654	0.085	0.0040	0.74
2	1	1 - 2	2028	10	0.0040	0.0905	0.0725	0.654	0.085	0.0040	0.74
3	1	2 - 3	2029	3	0.0040	0.0905	0.0725	0.103	0.013	0.0006	0.12
4	1	3 - 4	2030	3	0.0040	0.0905	0.0725	0.103	0.013	0.0006	0.12
5	1	4 - 5	2031	3	0.0040	0.0905	0.0725	0.103	0.013	0.0006	0.12
6	1	5 - 6	2032	3	0.0040	0.0905	0.0725	0.103	0.013	0.0006	0.12
7	1	6 - 7	2033	3	0.0040	0.0905	0.0725	0.103	0.013	0.0006	0.12
8	1	7 - 8	2034	3	0.0040	0.0905	0.0725	0.103	0.013	0.0006	0.12
9	1	8 - 9	2035	3	0.0040	0.0905	0.0725	0.103	0.013	0.0006	0.12
10	1	9 - 10	2036	3	0.0040	0.0905	0.0725	0.103	0.013	0.0006	0.12
11	1	10 - 11	2037	3	0.0040	0.0905	0.0725	0.103	0.013	0.0006	0.12
12	1	11 - 12	2038	3	0.0040	0.0905	0.0725	0.103	0.013	0.0006	0.12
13	1	12 - 13	2039	3	0.0040	0.0905	0.0725	0.103	0.013	0.0006	0.12
14	1	13 - 14	2040	3	0.0040	0.0905	0.0725	0.103	0.013	0.0006	0.12
15	1	14 - 15	2041	3	0.0040	0.0905	0.0725	0.103	0.013	0.0006	0.12
16	1	15 - 16	2042	3	0.0040	0.0905	0.0725	0.103	0.013	0.0006	0.12
17	1	16-17	2043	1	0.0040	0.0905	0.0725	0.011	0.001	0.0001	0.01
18	1	17-18	2044	1	0.0040	0.0905	0.0725	0.011	0.001	0.0001	0.01
19	1	18-19	2045	1	0.0040	0.0905	0.0725	0.011	0.001	0.0001	0.01
20	1	19-20	2046	1	0.0040	0.0905	0.0725	0.011	0.001	0.0001	0.01
21	1	20-21	2047	1	0.0040	0.0905	0.0725	0.011	0.001	0.0001	0.01
22	1	21-22	2048	1	0.0040	0.0905	0.0725	0.011	0.001	0.0001	0.01
23	1	22-23	2049	1	0.0040	0.0905	0.0725	0.011	0.001	0.0001	0.01
24	1	23-24	2050	1	0.0040	0.0905	0.0725	0.011	0.001	0.0001	0.01
25	1	24-25	2051	1	0.0040	0.0905	0.0725	0.011	0.001	0.0001	0.01
26	1	25-26	2052	1	0.0040	0.0905	0.0725	0.011	0.001	0.0001	0.01
27	1	26-27	2053	1	0.0040	0.0905	0.0725	0.011	0.001	0.0001	0.01
28	1	27-28	2054	1	0.0040	0.0905	0.0725	0.011	0.001	0.0001	0.01
29	1	28-29	2055	1	0.0040	0.0905	0.0725	0.011	0.001	0.0001	0.01
30	1	29-30	2056	1	0.0040	0.0905	0.0725	0.011	0.001	0.0001	0.01
<b>Total Increased Cancer Risk</b>								2.96	0.384	0.018	<b>3.36</b>

Maximum  
 Hazard Index 0.00080  
 Fugitive PM2.5 0.05  
 Total PM2.5 0.060

\* Third trimester of pregnancy

**8501 Gravenstein Highway, Cotati, CA - Highway 101 Traffic Cancer Risk  
Impacts at Onsite MEI - 4.5 meter receptor height  
30 Year Residential Exposure**

**Cancer Risk Calculation Method**

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

Where: CPF = Cancer potency factor (mg/kg-day)<sup>-1</sup>  
 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<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)  
 DBR = daily breathing rate (L/kg body weight-day)  
 A = Inhalation absorption factor  
 EF = Exposure frequency (days/year)  
 10<sup>-6</sup> = Conversion factor

**Cancer Potency Factors (mg/kg-day)<sup>-1</sup>**

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

Values

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

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

**Construction Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Maximum - Exposure Information				Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	0.25	-0.25 - 0*	2027	10	0.0039	0.0883	0.0707	0.053	0.007	0.0003	0.06
1	1	0 - 1	2027	10	0.0039	0.0883	0.0707	0.641	0.083	0.0039	0.73
2	1	1 - 2	2028	10	0.0039	0.0883	0.0707	0.641	0.083	0.0039	0.73
3	1	2 - 3	2029	3	0.0039	0.0883	0.0707	0.101	0.013	0.0006	0.11
4	1	3 - 4	2030	3	0.0039	0.0883	0.0707	0.101	0.013	0.0006	0.11
5	1	4 - 5	2031	3	0.0039	0.0883	0.0707	0.101	0.013	0.0006	0.11
6	1	5 - 6	2032	3	0.0039	0.0883	0.0707	0.101	0.013	0.0006	0.11
7	1	6 - 7	2033	3	0.0039	0.0883	0.0707	0.101	0.013	0.0006	0.11
8	1	7 - 8	2034	3	0.0039	0.0883	0.0707	0.101	0.013	0.0006	0.11
9	1	8 - 9	2035	3	0.0039	0.0883	0.0707	0.101	0.013	0.0006	0.11
10	1	9 - 10	2036	3	0.0039	0.0883	0.0707	0.101	0.013	0.0006	0.11
11	1	10 - 11	2037	3	0.0039	0.0883	0.0707	0.101	0.013	0.0006	0.11
12	1	11 - 12	2038	3	0.0039	0.0883	0.0707	0.101	0.013	0.0006	0.11
13	1	12 - 13	2039	3	0.0039	0.0883	0.0707	0.101	0.013	0.0006	0.11
14	1	13 - 14	2040	3	0.0039	0.0883	0.0707	0.101	0.013	0.0006	0.11
15	1	14 - 15	2041	3	0.0039	0.0883	0.0707	0.101	0.013	0.0006	0.11
16	1	15 - 16	2042	3	0.0039	0.0883	0.0707	0.101	0.013	0.0006	0.11
17	1	16-17	2043	1	0.0039	0.0883	0.0707	0.011	0.001	0.0001	0.01
18	1	17-18	2044	1	0.0039	0.0883	0.0707	0.011	0.001	0.0001	0.01
19	1	18-19	2045	1	0.0039	0.0883	0.0707	0.011	0.001	0.0001	0.01
20	1	19-20	2046	1	0.0039	0.0883	0.0707	0.011	0.001	0.0001	0.01
21	1	20-21	2047	1	0.0039	0.0883	0.0707	0.011	0.001	0.0001	0.01
22	1	21-22	2048	1	0.0039	0.0883	0.0707	0.011	0.001	0.0001	0.01
23	1	22-23	2049	1	0.0039	0.0883	0.0707	0.011	0.001	0.0001	0.01
24	1	23-24	2050	1	0.0039	0.0883	0.0707	0.011	0.001	0.0001	0.01
25	1	24-25	2051	1	0.0039	0.0883	0.0707	0.011	0.001	0.0001	0.01
26	1	25-26	2052	1	0.0039	0.0883	0.0707	0.011	0.001	0.0001	0.01
27	1	26-27	2053	1	0.0039	0.0883	0.0707	0.011	0.001	0.0001	0.01
28	1	27-28	2054	1	0.0039	0.0883	0.0707	0.011	0.001	0.0001	0.01
29	1	28-29	2055	1	0.0039	0.0883	0.0707	0.011	0.001	0.0001	0.01
30	1	29-30	2056	1	0.0039	0.0883	0.0707	0.011	0.001	0.0001	0.01
<b>Total Increased Cancer Risk</b>								2.90	0.375	0.018	<b>3.30</b>

Maximum  
 Hazard Index 0.00078  
 Fugitive PM2.5 0.05  
 Total PM2.5 0.06

\* Third trimester of pregnancy

**8501 Gravenstein Highway, Cotati, CA - Highway 116 Traffic - TACs & PM2.5  
 AERMOD Risk Modeling Parameters and Maximum Concentrations  
 at Onsite MEI Receptor (1.5 & 4.5 meter receptor height)**

**Emission Year** 2027  
**Receptor Information** Onsite MEI receptor  
 Number of Receptors  
 Receptor Height 1.5 & 4.5 meters  
 Receptor Distances At Onsite MEI location

**Meteorological Conditions**  
 BAAQMD Valley Ford Met Data 1990 - 1994  
 Land Use Classification Urban  
 Wind Speed Variable  
 Wind Direction Variable

**Construction MEI Cancer Risk Maximum Concentrations**

Meteorological Data Years	Concentration (µg/m3)			
	DPM	Exhaust TOG	Evaporative TOG	
1990 - 1994	0.0041	0.1220	0.1656	1st Floor
1990 - 1994	0.0055	0.1534	0.2083	2nd Floor

**Construction MEI PM2.5 Maximum Concentrations**

Meteorological Data Years	PM2.5 Concentration (µg/m3)			
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5	
1990 - 1994	0.1588	0.1492	0.0095	1st Floor
1990 - 1994	0.1997	0.1877	0.0120	2nd Floor

**8501 Gravenstein Highway, Cotati, CA - Highway 116 Traffic Cancer Risk  
Impacts at Onsite MEI - 1.5 meter receptor height  
30 Year Residential Exposure**

**Cancer Risk Calculation Method**

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

Where: CPF = Cancer potency factor (mg/kg-day)<sup>-1</sup>  
 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<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)  
 DBR = daily breathing rate (L/kg body weight-day)  
 A = Inhalation absorption factor  
 EF = Exposure frequency (days/year)  
 10<sup>-6</sup> = Conversion factor

**Cancer Potency Factors (mg/kg-day)<sup>-1</sup>**

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

Values

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

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

**Construction Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Maximum - Exposure Information				Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	0.25	-0.25 - 0*	2027	10	0.0041	0.1220	0.1656	0.055	0.009	0.0008	0.07
1	1	0 - 1	2027	10	0.0041	0.1220	0.1656	0.670	0.114	0.0091	0.79
2	1	1 - 2	2028	10	0.0041	0.1220	0.1656	0.670	0.114	0.0091	0.79
3	1	2 - 3	2029	3	0.0041	0.1220	0.1656	0.105	0.018	0.0014	0.12
4	1	3 - 4	2030	3	0.0041	0.1220	0.1656	0.105	0.018	0.0014	0.12
5	1	4 - 5	2031	3	0.0041	0.1220	0.1656	0.105	0.018	0.0014	0.12
6	1	5 - 6	2032	3	0.0041	0.1220	0.1656	0.105	0.018	0.0014	0.12
7	1	6 - 7	2033	3	0.0041	0.1220	0.1656	0.105	0.018	0.0014	0.12
8	1	7 - 8	2034	3	0.0041	0.1220	0.1656	0.105	0.018	0.0014	0.12
9	1	8 - 9	2035	3	0.0041	0.1220	0.1656	0.105	0.018	0.0014	0.12
10	1	9 - 10	2036	3	0.0041	0.1220	0.1656	0.105	0.018	0.0014	0.12
11	1	10 - 11	2037	3	0.0041	0.1220	0.1656	0.105	0.018	0.0014	0.12
12	1	11 - 12	2038	3	0.0041	0.1220	0.1656	0.105	0.018	0.0014	0.12
13	1	12 - 13	2039	3	0.0041	0.1220	0.1656	0.105	0.018	0.0014	0.12
14	1	13 - 14	2040	3	0.0041	0.1220	0.1656	0.105	0.018	0.0014	0.12
15	1	14 - 15	2041	3	0.0041	0.1220	0.1656	0.105	0.018	0.0014	0.12
16	1	15 - 16	2042	3	0.0041	0.1220	0.1656	0.105	0.018	0.0014	0.12
17	1	16-17	2043	1	0.0041	0.1220	0.1656	0.012	0.002	0.0002	0.01
18	1	17-18	2044	1	0.0041	0.1220	0.1656	0.012	0.002	0.0002	0.01
19	1	18-19	2045	1	0.0041	0.1220	0.1656	0.012	0.002	0.0002	0.01
20	1	19-20	2046	1	0.0041	0.1220	0.1656	0.012	0.002	0.0002	0.01
21	1	20-21	2047	1	0.0041	0.1220	0.1656	0.012	0.002	0.0002	0.01
22	1	21-22	2048	1	0.0041	0.1220	0.1656	0.012	0.002	0.0002	0.01
23	1	22-23	2049	1	0.0041	0.1220	0.1656	0.012	0.002	0.0002	0.01
24	1	23-24	2050	1	0.0041	0.1220	0.1656	0.012	0.002	0.0002	0.01
25	1	24-25	2051	1	0.0041	0.1220	0.1656	0.012	0.002	0.0002	0.01
26	1	25-26	2052	1	0.0041	0.1220	0.1656	0.012	0.002	0.0002	0.01
27	1	26-27	2053	1	0.0041	0.1220	0.1656	0.012	0.002	0.0002	0.01
28	1	27-28	2054	1	0.0041	0.1220	0.1656	0.012	0.002	0.0002	0.01
29	1	28-29	2055	1	0.0041	0.1220	0.1656	0.012	0.002	0.0002	0.01
30	1	29-30	2056	1	0.0041	0.1220	0.1656	0.012	0.002	0.0002	0.01
<b>Total Increased Cancer Risk</b>								<b>3.04</b>	<b>0.518</b>	<b>0.041</b>	<b>3.60</b>

\* Third trimester of pregnancy

Maximum  
 Hazard Index 0.00082  
 Fugitive PM2.5 0.15  
 Total PM2.5 0.159

**8501 Gravenstein Highway, Cotati, CA - Highway 116 Traffic Cancer Risk  
Impacts at Onsite MEI - 4.5 meter receptor height  
30 Year Residential Exposure**

**Cancer Risk Calculation Method**

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

Where: CPF = Cancer potency factor (mg/kg-day)<sup>-1</sup>  
 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<sub>air</sub> x DBR x A x (EF/365) x 10<sup>-6</sup>

Where: C<sub>air</sub> = concentration in air (µg/m<sup>3</sup>)  
 DBR = daily breathing rate (L/kg body weight-day)  
 A = Inhalation absorption factor  
 EF = Exposure frequency (days/year)  
 10<sup>-6</sup> = Conversion factor

**Cancer Potency Factors (mg/kg-day)<sup>-1</sup>**

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

Values

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

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

**Construction Cancer Risk by Year - Maximum Impact Receptor Location**

Exposure Year	Maximum - Exposure Information				Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
1	1	0 - 1	2027	10	0.0055	0.1534	0.2083	0.907	0.144	0.0115	1.06
2	1	1 - 2	2028	10	0.0055	0.1534	0.2083	0.907	0.144	0.0115	1.06
3	1	2 - 3	2029	3	0.0055	0.1534	0.2083	0.143	0.023	0.0018	0.17
4	1	3 - 4	2030	3	0.0055	0.1534	0.2083	0.143	0.023	0.0018	0.17
5	1	4 - 5	2031	3	0.0055	0.1534	0.2083	0.143	0.023	0.0018	0.17
6	1	5 - 6	2032	3	0.0055	0.1534	0.2083	0.143	0.023	0.0018	0.17
7	1	6 - 7	2033	3	0.0055	0.1534	0.2083	0.143	0.023	0.0018	0.17
8	1	7 - 8	2034	3	0.0055	0.1534	0.2083	0.143	0.023	0.0018	0.17
9	1	8 - 9	2035	3	0.0055	0.1534	0.2083	0.143	0.023	0.0018	0.17
10	1	9 - 10	2036	3	0.0055	0.1534	0.2083	0.143	0.023	0.0018	0.17
11	1	10 - 11	2037	3	0.0055	0.1534	0.2083	0.143	0.023	0.0018	0.17
12	1	11 - 12	2038	3	0.0055	0.1534	0.2083	0.143	0.023	0.0018	0.17
13	1	12 - 13	2039	3	0.0055	0.1534	0.2083	0.143	0.023	0.0018	0.17
14	1	13 - 14	2040	3	0.0055	0.1534	0.2083	0.143	0.023	0.0018	0.17
15	1	14 - 15	2041	3	0.0055	0.1534	0.2083	0.143	0.023	0.0018	0.17
16	1	15 - 16	2042	3	0.0055	0.1534	0.2083	0.143	0.023	0.0018	0.17
17	1	16-17	2043	1	0.0055	0.1534	0.2083	0.016	0.003	0.0002	0.02
18	1	17-18	2044	1	0.0055	0.1534	0.2083	0.016	0.003	0.0002	0.02
19	1	18-19	2045	1	0.0055	0.1534	0.2083	0.016	0.003	0.0002	0.02
20	1	19-20	2046	1	0.0055	0.1534	0.2083	0.016	0.003	0.0002	0.02
21	1	20-21	2047	1	0.0055	0.1534	0.2083	0.016	0.003	0.0002	0.02
22	1	21-22	2048	1	0.0055	0.1534	0.2083	0.016	0.003	0.0002	0.02
23	1	22-23	2049	1	0.0055	0.1534	0.2083	0.016	0.003	0.0002	0.02
24	1	23-24	2050	1	0.0055	0.1534	0.2083	0.016	0.003	0.0002	0.02
25	1	24-25	2051	1	0.0055	0.1534	0.2083	0.016	0.003	0.0002	0.02
26	1	25-26	2052	1	0.0055	0.1534	0.2083	0.016	0.003	0.0002	0.02
27	1	26-27	2053	1	0.0055	0.1534	0.2083	0.016	0.003	0.0002	0.02
28	1	27-28	2054	1	0.0055	0.1534	0.2083	0.016	0.003	0.0002	0.02
29	1	28-29	2055	1	0.0055	0.1534	0.2083	0.016	0.003	0.0002	0.02
30	1	29-30	2056	1	0.0055	0.1534	0.2083	0.016	0.003	0.0002	0.02
<b>Total Increased Cancer Risk</b>								4.11	0.652	0.052	<b>4.81</b>

\* Third trimester of pregnancy

Maximum  
 Hazard Index 0.00110  
 Fugitive PM2.5 0.19  
 Total PM2.5 0.20

8501 Gravenstein Highway, Cotati, CA - Off-Site Residential  
 Cumulative Operation - Highway 116  
 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	Line Area				(Sigma z) Initial Vertical Dimension	
											Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)		Initial Vertical height (m)
DPM_EB_116	Highway 116 Eastbound	EB	1	873.2	0.54	9.7	31.7	3.4	45	12,154	8,433	90,772	7.874E-09	5.806E-09	6.8	3.16
DPM_WB_116	Highway 116 Westbound	WB	1	878.1	0.55	9.7	31.7	3.4	45	12,154	8,480	91,282	7.874E-09	5.806E-09	6.8	3.16
Total										24,308						

Emission Factors

Speed Category	1	2	3	4
Travel Speed (mph)	45			
Emissions per Vehicle (g/VMT)	0.00087			

Emission Factors from CT-EMFAC2021

2025 Hourly Traffic Volumes and DPM Emissions - DPM\_EB\_116

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	4.15%	505	6.62E-05	9	6.84%	832	1.09E-04	17	5.68%	691	9.06E-05
2	3.49%	424	5.56E-05	10	7.99%	971	1.27E-04	18	4.04%	491	6.44E-05
3	3.49%	424	5.56E-05	11	6.16%	749	9.82E-05	19	2.69%	327	4.29E-05
4	1.99%	242	3.18E-05	12	7.34%	893	1.17E-04	20	1.01%	123	1.62E-05
5	1.66%	202	2.65E-05	13	6.35%	771	1.01E-04	21	3.01%	365	4.79E-05
6	2.33%	283	3.71E-05	14	6.18%	751	9.85E-05	22	4.17%	507	6.65E-05
7	4.67%	567	7.44E-05	15	5.18%	630	8.26E-05	23	3.17%	386	5.06E-05
8	3.52%	428	5.61E-05	16	4.02%	489	6.41E-05	24	0.85%	103	1.35E-05
Total										12,154	

2025 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM\_WB\_116

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	4.15%	505	6.66E-05	9	6.84%	832	1.10E-04	17	5.68%	691	9.11E-05
2	3.49%	424	5.59E-05	10	7.99%	971	1.28E-04	18	4.04%	491	6.47E-05
3	3.49%	424	5.59E-05	11	6.16%	749	9.88E-05	19	2.69%	327	4.31E-05
4	1.99%	242	3.19E-05	12	7.34%	893	1.18E-04	20	1.01%	123	1.62E-05
5	1.66%	202	2.66E-05	13	6.35%	771	1.02E-04	21	3.01%	365	4.82E-05
6	2.33%	283	3.73E-05	14	6.18%	751	9.91E-05	22	4.17%	507	6.68E-05
7	4.67%	567	7.48E-05	15	5.18%	630	8.31E-05	23	3.17%	386	5.09E-05
8	3.52%	428	5.65E-05	16	4.02%	489	6.44E-05	24	0.85%	103	1.36E-05
Total										12,154	

8501 Gravenstein Highway, Cotati, CA - Off-Site Residential  
 Cumulative Operation - Highway 116  
 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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
PM2.5 EB 116	Highway 116 Eastbound	EB	1	873.2	0.54	9.7	32	1.3	45	12,154	8,433	90,772	1.54E-08	1.13E-08	2.6	1.21
PM2.5 WB 116	Highway 116 Westbound	WB	1	878.1	0.55	9.7	32	1.3	45	12,154	8,480	91,282	1.54E-08	1.13E-08	2.6	1.21
Total										24,308						

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	45			
Emissions per Vehicle (g/VMT)	0.001696			

Emission Factors from CT-EMFAC2021

2025 Hourly Traffic Volumes and PM2.5 Emissions - PM2.5 EB 116

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	
1	1.17%	142	3.64E-05	9	7.18%	873	2.23E-04	17	7.46%	907	2.32E-04	
2	0.47%	57	1.45E-05	10	4.49%	545	1.39E-04	18	8.17%	993	2.54E-04	
3	0.52%	63	1.62E-05	11	4.71%	573	1.46E-04	19	5.64%	685	1.75E-04	
4	0.24%	30	7.57E-06	12	5.93%	721	1.84E-04	20	4.23%	514	1.31E-04	
5	0.50%	61	1.56E-05	13	6.13%	745	1.91E-04	21	3.20%	389	9.95E-05	
6	0.91%	111	2.84E-05	14	6.04%	734	1.88E-04	22	3.27%	397	1.02E-04	
7	3.72%	452	1.15E-04	15	6.97%	847	2.17E-04	23	2.46%	299	7.63E-05	
8	7.61%	925	2.37E-04	16	7.13%	866	2.21E-04	24	1.85%	225	5.76E-05	
Total											12,154	

2025 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM2.5 WB 116

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	
1	1.17%	142	3.66E-05	9	7.18%	873	2.24E-04	17	7.46%	907	2.33E-04	
2	0.47%	57	1.46E-05	10	4.49%	545	1.40E-04	18	8.17%	993	2.55E-04	
3	0.52%	63	1.63E-05	11	4.71%	573	1.47E-04	19	5.64%	685	1.76E-04	
4	0.24%	30	7.61E-06	12	5.93%	721	1.85E-04	20	4.23%	514	1.32E-04	
5	0.50%	61	1.56E-05	13	6.13%	745	1.92E-04	21	3.20%	389	1.00E-04	
6	0.91%	111	2.85E-05	14	6.04%	734	1.89E-04	22	3.27%	397	1.02E-04	
7	3.72%	452	1.16E-04	15	6.97%	847	2.18E-04	23	2.46%	299	7.68E-05	
8	7.61%	925	2.38E-04	16	7.13%	866	2.23E-04	24	1.85%	225	5.79E-05	
Total											12,154	

8501 Gravenstein Highway, Cotati, CA - Off-Site Residential  
 Cumulative Operation - Highway 116  
 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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
TEXH_EB_116	Highway 116 Eastbound	EB	1	873.2	0.54	9.7	32	1.3	45	12,154	8,433	90,772	2.06E-07	1.52E-07	2.6	1.21
TEXH_WB_116	Highway 116 Westbound	WB	1	878.1	0.55	9.7	32	1.3	45	12,154	8,480	91,282	2.06E-07	1.52E-07	2.6	1.21
Total										24,308						

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	45			
Emissions per Vehicle (g/VMT)	0.02276			

Emission Factors from CT-EMFAC2021

2025 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH\_EB\_116

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.17%	142	4.88E-04	9	7.18%	873	2.99E-03	17	7.46%	907	3.11E-03
2	0.47%	57	1.95E-04	10	4.49%	545	1.87E-03	18	8.17%	993	3.41E-03
3	0.52%	63	2.17E-04	11	4.71%	573	1.96E-03	19	5.64%	685	2.35E-03
4	0.24%	30	1.02E-04	12	5.93%	721	2.47E-03	20	4.23%	514	1.76E-03
5	0.50%	61	2.09E-04	13	6.13%	745	2.56E-03	21	3.20%	389	1.33E-03
6	0.91%	111	3.81E-04	14	6.04%	734	2.52E-03	22	3.27%	397	1.36E-03
7	3.72%	452	1.55E-03	15	6.97%	847	2.91E-03	23	2.46%	299	1.02E-03
8	7.61%	925	3.17E-03	16	7.13%	866	2.97E-03	24	1.85%	225	7.73E-04
Total										12,154	

2025 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH\_WB\_116

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.17%	142	4.91E-04	9	7.18%	873	3.01E-03	17	7.46%	907	3.13E-03
2	0.47%	57	1.96E-04	10	4.49%	545	1.88E-03	18	8.17%	993	3.43E-03
3	0.52%	63	2.18E-04	11	4.71%	573	1.97E-03	19	5.64%	685	2.36E-03
4	0.24%	30	1.02E-04	12	5.93%	721	2.49E-03	20	4.23%	514	1.77E-03
5	0.50%	61	2.10E-04	13	6.13%	745	2.57E-03	21	3.20%	389	1.34E-03
6	0.91%	111	3.83E-04	14	6.04%	734	2.53E-03	22	3.27%	397	1.37E-03
7	3.72%	452	1.56E-03	15	6.97%	847	2.92E-03	23	2.46%	299	1.03E-03
8	7.61%	925	3.19E-03	16	7.13%	866	2.99E-03	24	1.85%	225	7.78E-04
Total										12,154	

8501 Gravenstein Highway, Cotati, CA - Off-Site Residential  
 Cumulative Operation - Highway 116  
 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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
TEVAP_EB_116	Highway 116 Eastbound	EB	1	873.2	0.54	9.7	32	1.3	45	12,154	8,433	90,772	2.51E-07	1.85E-07	2.6	1.21
TEVAP_WB_116	Highway 116 Westbound	WB	1	878.1	0.55	9.7	32	1.3	45	12,154	8,480	91,282	2.51E-07	1.85E-07	2.6	1.21
									Total	24,308						

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	45			
Emissions per Vehicle per Hour (g/hour)	1.24851			
Emissions per Vehicle per Mile (g/VMT)	0.02774			

Emission Factors from CT-EMFAC2021

2025 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP\_EB\_116

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.17%	142	5.95E-04	9	7.18%	873	3.65E-03	17	7.46%	907	3.79E-03
2	0.47%	57	2.37E-04	10	4.49%	545	2.28E-03	18	8.17%	993	4.15E-03
3	0.52%	63	2.65E-04	11	4.71%	573	2.39E-03	19	5.64%	685	2.87E-03
4	0.24%	30	1.24E-04	12	5.93%	721	3.01E-03	20	4.23%	514	2.15E-03
5	0.50%	61	2.55E-04	13	6.13%	745	3.12E-03	21	3.20%	389	1.63E-03
6	0.91%	111	4.64E-04	14	6.04%	734	3.07E-03	22	3.27%	397	1.66E-03
7	3.72%	452	1.89E-03	15	6.97%	847	3.54E-03	23	2.46%	299	1.25E-03
8	7.61%	925	3.87E-03	16	7.13%	866	3.62E-03	24	1.85%	225	9.43E-04
Total										12,154	

2025 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP\_WB\_116

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.17%	142	5.98E-04	9	7.18%	873	3.67E-03	17	7.46%	907	3.81E-03
2	0.47%	57	2.39E-04	10	4.49%	545	2.29E-03	18	8.17%	993	4.18E-03
3	0.52%	63	2.66E-04	11	4.71%	573	2.41E-03	19	5.64%	685	2.88E-03
4	0.24%	30	1.25E-04	12	5.93%	721	3.03E-03	20	4.23%	514	2.16E-03
5	0.50%	61	2.56E-04	13	6.13%	745	3.13E-03	21	3.20%	389	1.64E-03
6	0.91%	111	4.67E-04	14	6.04%	734	3.09E-03	22	3.27%	397	1.67E-03
7	3.72%	452	1.90E-03	15	6.97%	847	3.56E-03	23	2.46%	299	1.26E-03
8	7.61%	925	3.89E-03	16	7.13%	866	3.64E-03	24	1.85%	225	9.48E-04
Total										12,154	

8501 Gravenstein Highway, Cotati, CA - Off-Site Residential  
 Cumulative Operation - Highway 116  
 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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
FUG_EB_116	Highway 116 Eastbound	EB	1	873.2	0.54	9.7	32	1.3	45	12,154	8,433	90,772	2.15E-07	1.59E-07	2.6	1.21
FUG_WB_116	Highway 116 Westbound	WB	1	878.1	0.55	9.7	32	1.3	45	12,154	8,480	91,282	2.15E-07	1.59E-07	2.6	1.21
Total										24,308						

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	45			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00214			
Brake Wear - Emissions per Vehicle (g/VMT)	0.00466			
Road Dust - Emissions per Vehicle (g/VMT)	0.01698			
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.02378			

Emission Factors from CT-EMFAC2021

2025 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG\_EB\_116

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	
1	1.17%	142	5.10E-04	9	7.18%	873	3.13E-03	17	7.46%	907	3.25E-03	
2	0.47%	57	2.03E-04	10	4.49%	545	1.95E-03	18	8.17%	993	3.56E-03	
3	0.52%	63	2.27E-04	11	4.71%	573	2.05E-03	19	5.64%	685	2.46E-03	
4	0.24%	30	1.06E-04	12	5.93%	721	2.58E-03	20	4.23%	514	1.84E-03	
5	0.50%	61	2.18E-04	13	6.13%	745	2.67E-03	21	3.20%	389	1.39E-03	
6	0.91%	111	3.98E-04	14	6.04%	734	2.63E-03	22	3.27%	397	1.42E-03	
7	3.72%	452	1.62E-03	15	6.97%	847	3.04E-03	23	2.46%	299	1.07E-03	
8	7.61%	925	3.32E-03	16	7.13%	866	3.10E-03	24	1.85%	225	8.08E-04	
Total											12,154	

2025 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG\_WB\_116

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	
1	1.17%	142	5.13E-04	9	7.18%	873	3.15E-03	17	7.46%	907	3.27E-03	
2	0.47%	57	2.05E-04	10	4.49%	545	1.97E-03	18	8.17%	993	3.58E-03	
3	0.52%	63	2.28E-04	11	4.71%	573	2.06E-03	19	5.64%	685	2.47E-03	
4	0.24%	30	1.07E-04	12	5.93%	721	2.60E-03	20	4.23%	514	1.85E-03	
5	0.50%	61	2.19E-04	13	6.13%	745	2.69E-03	21	3.20%	389	1.40E-03	
6	0.91%	111	4.00E-04	14	6.04%	734	2.64E-03	22	3.27%	397	1.43E-03	
7	3.72%	452	1.63E-03	15	6.97%	847	3.05E-03	23	2.46%	299	1.08E-03	
8	7.61%	925	3.34E-03	16	7.13%	866	3.12E-03	24	1.85%	225	8.12E-04	
Total											12,154	

8501 Gravenstein Highway, Cotati, CA - Off-Site Residential  
 Cumulative Operation - Highway 116  
 DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions  
 Year = 2027

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	Line Area				(Sigma z) Initial Vertical Dimension	
											Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)		Initial Vertical height (m)
DPM_EB_116	Highway 116 Eastbound	EB	1	279.6	0.17	9.7	31.7	3.4	45	12,390	2,700	29,065	7.160E-09	5.279E-09	6.8	3.16
DPM_WB_116	Highway 116 Westbound	WB	1	319.2	0.20	9.7	31.7	3.4	45	12,390	3,083	33,182	7.160E-09	5.279E-09	6.8	3.16
Total										24,780						

Emission Factors

Speed Category	1	2	3	4
Travel Speed (mph)	45			
Emissions per Vehicle (g/VMT)	0.00078			

Emission Factors from CT-EMFAC2021

2027 Hourly Traffic Volumes and DPM Emissions - DPM\_EB\_116

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	4.15%	514	1.92E-05	9	6.83%	847	3.17E-05	17	5.67%	703	2.63E-05
2	3.48%	431	1.62E-05	10	7.98%	988	3.70E-05	18	3.85%	477	1.79E-05
3	3.48%	431	1.62E-05	11	6.32%	783	2.93E-05	19	2.69%	333	1.25E-05
4	1.99%	247	9.23E-06	12	7.33%	908	3.40E-05	20	1.01%	125	4.70E-06
5	1.66%	205	7.69E-06	13	6.34%	785	2.94E-05	21	3.00%	372	1.39E-05
6	2.32%	288	1.08E-05	14	6.17%	765	2.86E-05	22	4.33%	536	2.01E-05
7	4.66%	578	2.16E-05	15	5.18%	641	2.40E-05	23	3.17%	393	1.47E-05
8	3.52%	436	1.63E-05	16	4.02%	498	1.86E-05	24	0.85%	105	3.93E-06
Total										12,390	

2027 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM\_WB\_116

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	4.15%	514	2.20E-05	9	6.83%	847	3.62E-05	17	5.67%	703	3.01E-05
2	3.48%	431	1.84E-05	10	7.98%	988	4.23E-05	18	3.85%	477	2.04E-05
3	3.48%	431	1.84E-05	11	6.32%	783	3.35E-05	19	2.69%	333	1.42E-05
4	1.99%	247	1.05E-05	12	7.33%	908	3.88E-05	20	1.01%	125	5.36E-06
5	1.66%	205	8.78E-06	13	6.34%	785	3.36E-05	21	3.00%	372	1.59E-05
6	2.32%	288	1.23E-05	14	6.17%	765	3.27E-05	22	4.33%	536	2.29E-05
7	4.66%	578	2.47E-05	15	5.18%	641	2.74E-05	23	3.17%	393	1.68E-05
8	3.52%	436	1.86E-05	16	4.02%	498	2.13E-05	24	0.85%	105	4.49E-06
Total										12,390	

8501 Gravenstein Highway, Cotati, CA - Off-Site Residential  
 Cumulative Operation - Highway 116  
 PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions  
 Year = 2027

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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
PM2.5 EB 116	Highway 116 Eastbound	EB	1	279.6	0.17	9.7	32	1.3	45	12,390	2,700	29,065	1.41E-08	1.04E-08	2.6	1.21
PM2.5 WB 116	Highway 116 Westbound	WB	1	319.2	0.20	9.7	32	1.3	45	12,390	3,083	33,182	1.41E-08	1.04E-08	2.6	1.21
Total										24,780						

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	45			
Emissions per Vehicle (g/VMT)	0.001532			

Emission Factors from CT-EMFAC2021

2027 Hourly Traffic Volumes and PM2.5 Emissions - PM2.5 EB 116

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	
1	1.16%	144	1.07E-05	9	7.19%	891	6.58E-05	17	7.46%	925	6.84E-05	
2	0.46%	57	4.23E-06	10	4.48%	555	4.10E-05	18	8.17%	1012	7.49E-05	
3	0.52%	64	4.72E-06	11	4.71%	584	4.32E-05	19	5.64%	699	5.17E-05	
4	0.24%	30	2.21E-06	12	5.93%	735	5.43E-05	20	4.23%	524	3.87E-05	
5	0.50%	61	4.54E-06	13	6.14%	760	5.62E-05	21	3.21%	397	2.94E-05	
6	0.91%	113	8.34E-06	14	6.04%	749	5.54E-05	22	3.28%	406	3.00E-05	
7	3.71%	460	3.40E-05	15	6.97%	864	6.39E-05	23	2.46%	305	2.26E-05	
8	7.61%	943	6.97E-05	16	7.12%	882	6.52E-05	24	1.85%	230	1.70E-05	
Total											12,390	

2027 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM2.5 WB 116

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	
1	1.16%	144	1.22E-05	9	7.19%	891	7.52E-05	17	7.46%	925	7.80E-05	
2	0.46%	57	4.83E-06	10	4.48%	555	4.68E-05	18	8.17%	1012	8.55E-05	
3	0.52%	64	5.39E-06	11	4.71%	584	4.93E-05	19	5.64%	699	5.90E-05	
4	0.24%	30	2.52E-06	12	5.93%	735	6.20E-05	20	4.23%	524	4.42E-05	
5	0.50%	61	5.18E-06	13	6.14%	760	6.42E-05	21	3.21%	397	3.35E-05	
6	0.91%	113	9.52E-06	14	6.04%	749	6.32E-05	22	3.28%	406	3.43E-05	
7	3.71%	460	3.88E-05	15	6.97%	864	7.29E-05	23	2.46%	305	2.58E-05	
8	7.61%	943	7.96E-05	16	7.12%	882	7.45E-05	24	1.85%	230	1.94E-05	
Total											12,390	

8501 Gravenstein Highway, Cotati, CA - Off-Site Residential  
 Cumulative Operation - Highway 116  
 TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions  
 Year = 2027

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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
TEXH_EB_116	Highway 116 Eastbound	EB	1	279.6	0.17	9.7	32	1.3	45	12,390	2,700	29,065	1.79E-07	1.32E-07	2.6	1.21
TEXH_WB_116	Highway 116 Westbound	WB	1	319.2	0.20	9.7	32	1.3	45	12,390	3,083	33,182	1.79E-07	1.32E-07	2.6	1.21
Total										24,780						

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	45			
Emissions per Vehicle (g/VMT)	0.01942			

Emission Factors from CT-EMFAC2021

2027 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH\_EB\_116

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.16%	144	1.35E-04	9	7.19%	891	8.34E-04	17	7.46%	925	8.66E-04
2	0.46%	57	5.36E-05	10	4.48%	555	5.20E-04	18	8.17%	1012	9.49E-04
3	0.52%	64	5.98E-05	11	4.71%	584	5.47E-04	19	5.64%	699	6.55E-04
4	0.24%	30	2.80E-05	12	5.93%	735	6.88E-04	20	4.23%	524	4.91E-04
5	0.50%	61	5.75E-05	13	6.14%	760	7.12E-04	21	3.21%	397	3.72E-04
6	0.91%	113	1.06E-04	14	6.04%	749	7.02E-04	22	3.28%	406	3.81E-04
7	3.71%	460	4.31E-04	15	6.97%	864	8.10E-04	23	2.46%	305	2.86E-04
8	7.61%	943	8.83E-04	16	7.12%	882	8.27E-04	24	1.85%	230	2.15E-04
Total										12,390	

2027 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH\_WB\_116

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.16%	144	1.54E-04	9	7.19%	891	9.53E-04	17	7.46%	925	9.89E-04
2	0.46%	57	6.12E-05	10	4.48%	555	5.93E-04	18	8.17%	1012	1.08E-03
3	0.52%	64	6.83E-05	11	4.71%	584	6.24E-04	19	5.64%	699	7.48E-04
4	0.24%	30	3.19E-05	12	5.93%	735	7.86E-04	20	4.23%	524	5.61E-04
5	0.50%	61	6.56E-05	13	6.14%	760	8.13E-04	21	3.21%	397	4.25E-04
6	0.91%	113	1.21E-04	14	6.04%	749	8.01E-04	22	3.28%	406	4.35E-04
7	3.71%	460	4.92E-04	15	6.97%	864	9.24E-04	23	2.46%	305	3.26E-04
8	7.61%	943	1.01E-03	16	7.12%	882	9.44E-04	24	1.85%	230	2.46E-04
Total										12,390	

8501 Gravenstein Highway, Cotati, CA - Off-Site Residential  
 Cumulative Operation - Highway 116  
 TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions  
 Year = 2027

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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
TEVAP_EB_116	Highway 116 Eastbound	EB	1	279.6	0.17	9.7	32	1.3	45	12,390	2,700	29,065	2.43E-07	1.79E-07	2.6	1.21
TEVAP_WB_116	Highway 116 Westbound	WB	1	319.2	0.20	9.7	32	1.3	45	12,390	3,083	33,182	2.43E-07	1.79E-07	2.6	1.21
Total										24,780						

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	45			
Emissions per Vehicle per Hour (g/hour)	1.18390			
Emissions per Vehicle per Mile (g/VMT)	0.02631			

Emission Factors from CT-EMFAC2021

2027 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP\_EB\_116

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.16%	144	1.83E-04	9	7.19%	891	1.13E-03	17	7.46%	925	1.17E-03
2	0.46%	57	7.26E-05	10	4.48%	555	7.04E-04	18	8.17%	1012	1.29E-03
3	0.52%	64	8.11E-05	11	4.71%	584	7.41E-04	19	5.64%	699	8.88E-04
4	0.24%	30	3.79E-05	12	5.93%	735	9.33E-04	20	4.23%	524	6.65E-04
5	0.50%	61	7.79E-05	13	6.14%	760	9.65E-04	21	3.21%	397	5.04E-04
6	0.91%	113	1.43E-04	14	6.04%	749	9.51E-04	22	3.28%	406	5.16E-04
7	3.71%	460	5.84E-04	15	6.97%	864	1.10E-03	23	2.46%	305	3.87E-04
8	7.61%	943	1.20E-03	16	7.12%	882	1.12E-03	24	1.85%	230	2.92E-04
Total										12,390	

2027 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP\_WB\_116

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.16%	144	2.09E-04	9	7.19%	891	1.29E-03	17	7.46%	925	1.34E-03
2	0.46%	57	8.29E-05	10	4.48%	555	8.04E-04	18	8.17%	1012	1.47E-03
3	0.52%	64	9.25E-05	11	4.71%	584	8.46E-04	19	5.64%	699	1.01E-03
4	0.24%	30	4.33E-05	12	5.93%	735	1.06E-03	20	4.23%	524	7.60E-04
5	0.50%	61	8.89E-05	13	6.14%	760	1.10E-03	21	3.21%	397	5.76E-04
6	0.91%	113	1.63E-04	14	6.04%	749	1.09E-03	22	3.28%	406	5.89E-04
7	3.71%	460	6.67E-04	15	6.97%	864	1.25E-03	23	2.46%	305	4.42E-04
8	7.61%	943	1.37E-03	16	7.12%	882	1.28E-03	24	1.85%	230	3.33E-04
Total										12,390	

8501 Gravenstein Highway, Cotati, CA - Off-Site Residential  
 Cumulative Operation - Highway 116  
 Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions  
 Year = 2027

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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
FUG_EB_116	Highway 116 Eastbound	EB	1	279.6	0.17	9.7	32	1.3	45	12,390	2,700	29,065	2.19E-07	1.61E-07	2.6	1.21
FUG_WB_116	Highway 116 Westbound	WB	1	319.2	0.20	9.7	32	1.3	45	12,390	3,083	33,182	2.19E-07	1.61E-07	2.6	1.21
Total										24,780						

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	45			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00214			
Brake Wear - Emissions per Vehicle (g/VMT)	0.00463			
Road Dust - Emissions per Vehicle (g/VMT)	0.01692			
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.02369			

Emission Factors from CT-EMFAC2021

2027 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG\_EB\_116

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	
1	1.16%	144	1.65E-04	9	7.19%	891	1.02E-03	17	7.46%	925	1.06E-03	
2	0.46%	57	6.54E-05	10	4.48%	555	6.34E-04	18	8.17%	1012	1.16E-03	
3	0.52%	64	7.30E-05	11	4.71%	584	6.67E-04	19	5.64%	699	7.99E-04	
4	0.24%	30	3.41E-05	12	5.93%	735	8.40E-04	20	4.23%	524	5.99E-04	
5	0.50%	61	7.02E-05	13	6.14%	760	8.69E-04	21	3.21%	397	4.54E-04	
6	0.91%	113	1.29E-04	14	6.04%	749	8.56E-04	22	3.28%	406	4.65E-04	
7	3.71%	460	5.26E-04	15	6.97%	864	9.88E-04	23	2.46%	305	3.49E-04	
8	7.61%	943	1.08E-03	16	7.12%	882	1.01E-03	24	1.85%	230	2.63E-04	
Total											12,390	

2027 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG\_WB\_116

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	
1	1.16%	144	1.88E-04	9	7.19%	891	1.16E-03	17	7.46%	925	1.21E-03	
2	0.46%	57	7.47E-05	10	4.48%	555	7.24E-04	18	8.17%	1012	1.32E-03	
3	0.52%	64	8.33E-05	11	4.71%	584	7.62E-04	19	5.64%	699	9.12E-04	
4	0.24%	30	3.90E-05	12	5.93%	735	9.59E-04	20	4.23%	524	6.84E-04	
5	0.50%	61	8.01E-05	13	6.14%	760	9.92E-04	21	3.21%	397	5.18E-04	
6	0.91%	113	1.47E-04	14	6.04%	749	9.77E-04	22	3.28%	406	5.30E-04	
7	3.71%	460	6.01E-04	15	6.97%	864	1.13E-03	23	2.46%	305	3.98E-04	
8	7.61%	943	1.23E-03	16	7.12%	882	1.15E-03	24	1.85%	230	3.00E-04	
Total											12,390	

8501 Gravenstein Highway, Cotati, CA - Off-Site Residential  
 Cumulative Operation - Highway 101  
 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	Line Area				(Sigma z) Initial Vertical Dimension	
											Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)		Initial Vertical height (m)
DPM_NB_101	Highway 101 Northbound	NB	3	279.6	0.17	17.0	55.7	3.4	66	55,620	4,746	51,081	2.658E-08	1.960E-08	6.8	3.16
DPM_SB_101	Highway 101 Southbound	SB	3	319.2	0.20	17.0	55.7	3.4	67	55,620	5,418	58,316	2.658E-08	1.960E-08	6.8	3.16
Total										111,239						

Emission Factors

Speed Category	1	2	3	4
Travel Speed (mph)	65	60	70	
Emissions per Vehicle (g/VMT)	0.00113	0.001002	0.001138	

Emission Factors from CT-EMFAC2021

2025 Hourly Traffic Volumes and DPM Emissions - DPM\_NB\_101

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.07%	597	3.28E-05	9	4.87%	2708	1.47E-04	17	7.48%	4158	2.26E-04
2	0.67%	370	2.02E-05	10	5.25%	2920	1.59E-04	18	7.23%	4020	2.19E-04
3	0.48%	265	1.44E-05	11	6.06%	3373	1.84E-04	19	6.08%	3384	1.84E-04
4	0.45%	249	1.35E-05	12	6.58%	3657	1.77E-04	20	4.72%	2623	1.44E-04
5	0.62%	344	1.87E-05	13	6.75%	3756	2.04E-04	21	3.74%	2081	1.14E-04
6	1.59%	882	4.80E-05	14	6.94%	3861	2.10E-04	22	3.07%	1710	9.39E-05
7	3.00%	1668	9.08E-05	15	7.41%	4122	2.24E-04	23	2.40%	1338	7.35E-05
8	4.21%	2339	1.27E-04	16	7.64%	4250	2.31E-04	24	1.70%	945	5.19E-05
Total										55,620	

2025 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM\_SB\_101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	0.87%	482	3.02E-05	9	5.78%	3216	2.00E-04	17	6.43%	3577	2.22E-04
2	0.70%	387	2.40E-05	10	5.79%	3220	2.00E-04	18	6.17%	3432	2.13E-04
3	0.74%	411	2.55E-05	11	6.06%	3371	2.10E-04	19	5.03%	2798	1.74E-04
4	0.96%	535	3.32E-05	12	6.30%	3506	2.18E-04	20	3.84%	2136	1.34E-04
5	1.89%	1050	6.58E-05	13	6.38%	3549	2.21E-04	21	3.14%	1747	1.10E-04
6	3.52%	1955	1.23E-04	14	6.42%	3573	2.22E-04	22	2.54%	1410	8.84E-05
7	5.47%	3041	1.89E-04	15	6.67%	3711	2.31E-04	23	1.89%	1050	6.59E-05
8	5.70%	3171	1.97E-04	16	6.47%	3599	2.24E-04	24	1.25%	694	4.35E-05
Total										55,620	

8501 Gravenstein Highway, Cotati, CA - Off-Site Residential  
 Cumulative Operation - Highway 101  
 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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
PM2.5_NB_101	Highway 101 Northbound	NB	3	279.6	0.17	17.0	56	1.3	66.041667	55,620	4,746	51,081	5.08E-08	3.75E-08	2.6	1.21
PM2.5_SB_101	Highway 101 Southbound	SB	3	319.2	0.20	17.0	56	1.3	66.666667	55,620	5,418	58,316	5.08E-08	3.75E-08	2.6	1.21
Total										111,239						

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	65	60	70	
Emissions per Vehicle (g/VMT)	0.002156	0.00189	0.002297	

Emission Factors from CT-EMFAC2021

2025 Hourly Traffic Volumes and PM2.5 Emissions - PM2.5\_NB\_101

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	
1	1.07%	597	6.62E-05	9	4.87%	2708	2.82E-04	17	7.48%	4158	4.33E-04	
2	0.67%	370	3.85E-05	10	5.25%	2920	3.04E-04	18	7.23%	4020	4.18E-04	
3	0.48%	265	2.75E-05	11	6.06%	3373	3.51E-04	19	6.08%	3384	3.52E-04	
4	0.45%	249	2.59E-05	12	6.58%	3657	3.33E-04	20	4.72%	2623	2.91E-04	
5	0.62%	344	3.58E-05	13	6.75%	3756	3.91E-04	21	3.74%	2081	2.31E-04	
6	1.59%	882	9.18E-05	14	6.94%	3861	4.02E-04	22	3.07%	1710	1.90E-04	
7	3.00%	1668	1.74E-04	15	7.41%	4122	4.29E-04	23	2.40%	1338	1.48E-04	
8	4.21%	2339	2.43E-04	16	7.64%	4250	4.42E-04	24	1.70%	945	1.05E-04	
Total											55,620	

2025 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM2.5\_SB\_101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	
1	0.87%	482	6.10E-05	9	5.78%	3216	3.82E-04	17	6.43%	3577	4.25E-04	
2	0.70%	387	4.60E-05	10	5.79%	3220	3.82E-04	18	6.17%	3432	4.08E-04	
3	0.74%	411	4.88E-05	11	6.06%	3371	4.00E-04	19	5.03%	2798	3.32E-04	
4	0.96%	535	6.35E-05	12	6.30%	3506	4.16E-04	20	3.84%	2136	2.70E-04	
5	1.89%	1050	1.33E-04	13	6.38%	3549	4.22E-04	21	3.14%	1747	2.21E-04	
6	3.52%	1955	2.47E-04	14	6.42%	3573	4.24E-04	22	2.54%	1410	1.78E-04	
7	5.47%	3041	3.61E-04	15	6.67%	3711	4.41E-04	23	1.89%	1050	1.33E-04	
8	5.70%	3171	3.77E-04	16	6.47%	3599	4.27E-04	24	1.25%	694	8.79E-05	
Total											55,620	

8501 Gravenstein Highway, Cotati, CA - Off-Site Residential  
 Cumulative Operation - Highway 101  
 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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
TEXH_NB_101	Highway 101 Northbound	NB	3	279.6	0.17	17.0	56	1.3	66.041667	55,620	4,746	51,081	6.00E-07	4.42E-07	2.6	1.21
TEXH_SB_101	Highway 101 Southbound	SB	3	319.2	0.20	17.0	56	1.3	66.666667	55,620	5,418	58,316	6.00E-07	4.42E-07	2.6	1.21
Total										111,239						

Emission Factors - TOG Exhaust

Speed Category Travel Speed (mph)	1	2	3	4
Emissions per Vehicle (g/VMT)	0.02546	0.02284	0.02737	

Emission Factors from CT-EMFAC2021

2025 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH\_NB\_101

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.07%	597	7.88E-04	9	4.87%	2708	3.33E-03	17	7.48%	4158	5.11E-03
2	0.67%	370	4.55E-04	10	5.25%	2920	3.59E-03	18	7.23%	4020	4.94E-03
3	0.48%	265	3.25E-04	11	6.06%	3373	4.14E-03	19	6.08%	3384	4.16E-03
4	0.45%	249	3.06E-04	12	6.58%	3657	4.03E-03	20	4.72%	2623	3.46E-03
5	0.62%	344	4.23E-04	13	6.75%	3756	4.61E-03	21	3.74%	2081	2.75E-03
6	1.59%	882	1.08E-03	14	6.94%	3861	4.74E-03	22	3.07%	1710	2.26E-03
7	3.00%	1668	2.05E-03	15	7.41%	4122	5.06E-03	23	2.40%	1338	1.77E-03
8	4.21%	2339	2.87E-03	16	7.64%	4250	5.22E-03	24	1.70%	945	1.25E-03
Total										55,620	

2025 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH\_SB\_101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	0.87%	482	7.26E-04	9	5.78%	3216	4.51E-03	17	6.43%	3577	5.02E-03
2	0.70%	387	5.43E-04	10	5.79%	3220	4.52E-03	18	6.17%	3432	4.81E-03
3	0.74%	411	5.76E-04	11	6.06%	3371	4.73E-03	19	5.03%	2798	3.92E-03
4	0.96%	535	7.50E-04	12	6.30%	3506	4.92E-03	20	3.84%	2136	3.22E-03
5	1.89%	1050	1.58E-03	13	6.38%	3549	4.98E-03	21	3.14%	1747	2.63E-03
6	3.52%	1955	2.95E-03	14	6.42%	3573	5.01E-03	22	2.54%	1410	2.13E-03
7	5.47%	3041	4.27E-03	15	6.67%	3711	5.20E-03	23	1.89%	1050	1.58E-03
8	5.70%	3171	4.45E-03	16	6.47%	3599	5.05E-03	24	1.25%	694	1.05E-03
Total										55,620	

8501 Gravenstein Highway, Cotati, CA - Off-Site Residential  
 Cumulative Operation - Highway 101  
 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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
TEVAP_NB_101	Highway 101 Northbound	NB	3	279.6	0.17	17.0	56	1.3	66.041667	55,620	4,746	51,081	4.53E-07	3.34E-07	2.6	1.21
TEVAP_SB_101	Highway 101 Southbound	SB	3	319.2	0.20	17.0	56	1.3	66.666667	55,620	5,418	58,316	4.53E-07	3.34E-07	2.6	1.21
Total										111,239						

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	65	60	70	
Emissions per Vehicle per Hour (g/hour)	1.24802	1.24802	1.24802	
Emissions per Vehicle per Mile (g/VMT)	0.01920	0.02080	0.01783	

Emission Factors from CT-EMFAC2021

2025 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP\_NB\_101

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.07%	597	5.14E-04	9	4.87%	2708	2.51E-03	17	7.48%	4158	3.85E-03
2	0.67%	370	3.43E-04	10	5.25%	2920	2.71E-03	18	7.23%	4020	3.72E-03
3	0.48%	265	2.45E-04	11	6.06%	3373	3.13E-03	19	6.08%	3384	3.14E-03
4	0.45%	249	2.31E-04	12	6.58%	3657	3.67E-03	20	4.72%	2623	2.26E-03
5	0.62%	344	3.19E-04	13	6.75%	3756	3.48E-03	21	3.74%	2081	1.79E-03
6	1.59%	882	8.18E-04	14	6.94%	3861	3.58E-03	22	3.07%	1710	1.47E-03
7	3.00%	1668	1.55E-03	15	7.41%	4122	3.82E-03	23	2.40%	1338	1.15E-03
8	4.21%	2339	2.17E-03	16	7.64%	4250	3.94E-03	24	1.70%	945	8.13E-04
Total										55,620	

2025 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP\_SB\_101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	0.87%	482	4.73E-04	9	5.78%	3216	3.40E-03	17	6.43%	3577	3.78E-03
2	0.70%	387	4.09E-04	10	5.79%	3220	3.41E-03	18	6.17%	3432	3.63E-03
3	0.74%	411	4.35E-04	11	6.06%	3371	3.57E-03	19	5.03%	2798	2.96E-03
4	0.96%	535	5.66E-04	12	6.30%	3506	3.71E-03	20	3.84%	2136	2.10E-03
5	1.89%	1050	1.03E-03	13	6.38%	3549	3.75E-03	21	3.14%	1747	1.72E-03
6	3.52%	1955	1.92E-03	14	6.42%	3573	3.78E-03	22	2.54%	1410	1.39E-03
7	5.47%	3041	3.22E-03	15	6.67%	3711	3.93E-03	23	1.89%	1050	1.03E-03
8	5.70%	3171	3.35E-03	16	6.47%	3599	3.81E-03	24	1.25%	694	6.82E-04
Total										55,620	

8501 Gravenstein Highway, Cotati, CA - Off-Site Residential  
 Cumulative Operation - Highway 101  
 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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
FUG_NB_101	Highway 101 Northbound	NB	3	279.6	0.17	17.0	56	1.3	66.041667	55,620	4,746	51,081	3.00E-07	2.21E-07	2.6	1.21
FUG_SB_101	Highway 101 Southbound	SB	3	319.2	0.20	17.0	56	1.3	66.666667	55,620	5,418	58,316	3.00E-07	2.21E-07	2.6	1.21
Total										111,239						

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	65	60	70	
Tire Wear - Emissions per Vehicle (g/VMT)	0.00213	0.00213	0.00213	
Brake Wear - Emissions per Vehicle (g/VMT)	0.00217	0.00247	0.00217	
Road Dust - Emissions per Vehicle (g/VMT)	0.00844	0.00844	0.00844	
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.01274	0.01304	0.01274	

Emission Factors from CT-EMFAC2021

2025 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG\_NB\_101

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	
1	1.07%	597	3.67E-04	9	4.87%	2708	1.66E-03	17	7.48%	4158	2.56E-03	
2	0.67%	370	2.28E-04	10	5.25%	2920	1.79E-03	18	7.23%	4020	2.47E-03	
3	0.48%	265	1.63E-04	11	6.06%	3373	2.07E-03	19	6.08%	3384	2.08E-03	
4	0.45%	249	1.53E-04	12	6.58%	3657	2.30E-03	20	4.72%	2623	1.61E-03	
5	0.62%	344	2.11E-04	13	6.75%	3756	2.31E-03	21	3.74%	2081	1.28E-03	
6	1.59%	882	5.42E-04	14	6.94%	3861	2.37E-03	22	3.07%	1710	1.05E-03	
7	3.00%	1668	1.03E-03	15	7.41%	4122	2.53E-03	23	2.40%	1338	8.22E-04	
8	4.21%	2339	1.44E-03	16	7.64%	4250	2.61E-03	24	1.70%	945	5.81E-04	
Total											55,620	

2025 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG\_SB\_101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	
1	0.87%	482	3.38E-04	9	5.78%	3216	2.26E-03	17	6.43%	3577	2.51E-03	
2	0.70%	387	2.72E-04	10	5.79%	3220	2.26E-03	18	6.17%	3432	2.41E-03	
3	0.74%	411	2.88E-04	11	6.06%	3371	2.37E-03	19	5.03%	2798	1.96E-03	
4	0.96%	535	3.75E-04	12	6.30%	3506	2.46E-03	20	3.84%	2136	1.50E-03	
5	1.89%	1050	7.37E-04	13	6.38%	3549	2.49E-03	21	3.14%	1747	1.23E-03	
6	3.52%	1955	1.37E-03	14	6.42%	3573	2.51E-03	22	2.54%	1410	9.90E-04	
7	5.47%	3041	2.13E-03	15	6.67%	3711	2.60E-03	23	1.89%	1050	7.37E-04	
8	5.70%	3171	2.23E-03	16	6.47%	3599	2.53E-03	24	1.25%	694	4.87E-04	
Total											55,620	

8501 Gravenstein Highway, Cotati, CA - Off-Site Residential  
 Cumulative Operation - Highway 101  
 DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions  
 Year = 2027

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	Line Area				(Sigma z) Initial Vertical Dimension	
											Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)		Initial Vertical height (m)
DPM_NB_101	Highway 101 Northbound	NB	3	279.6	0.17	17.0	55.7	3.4	66	56,700	4,746	51,081	2.479E-08	1.828E-08	6.8	3.16
DPM_SB_101	Highway 101 Southbound	SB	3	319.2	0.20	17.0	55.7	3.4	67	56,700	5,418	58,316	2.479E-08	1.828E-08	6.8	3.16
Total										113,399						

Emission Factors

Speed Category	1	2	3	4
Travel Speed (mph)	65	60	70	
Emissions per Vehicle (g/VMT)	0.00103	0.000909	0.001041	

Emission Factors from CT-EMFAC2021

2027 Hourly Traffic Volumes and DPM Emissions - DPM\_NB\_101

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.07%	608	3.06E-05	9	4.87%	2761	1.38E-04	17	7.48%	4239	2.11E-04
2	0.67%	378	1.88E-05	10	5.25%	2976	1.48E-04	18	7.23%	4098	2.04E-04
3	0.48%	270	1.34E-05	11	6.06%	3439	1.71E-04	19	6.08%	3449	1.72E-04
4	0.45%	254	1.26E-05	12	6.58%	3728	1.64E-04	20	4.72%	2674	1.34E-04
5	0.62%	351	1.75E-05	13	6.75%	3829	1.91E-04	21	3.74%	2121	1.07E-04
6	1.59%	900	4.48E-05	14	6.94%	3935	1.96E-04	22	3.07%	1743	8.76E-05
7	3.00%	1701	8.47E-05	15	7.41%	4202	2.09E-04	23	2.40%	1364	6.85E-05
8	4.21%	2385	1.19E-04	16	7.64%	4332	2.16E-04	24	1.70%	963	4.84E-05
Total										56,700	

2027 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM\_SB\_101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	0.87%	491	2.82E-05	9	5.78%	3278	1.86E-04	17	6.43%	3646	2.07E-04
2	0.70%	394	2.24E-05	10	5.79%	3282	1.87E-04	18	6.17%	3498	1.99E-04
3	0.74%	419	2.38E-05	11	6.06%	3437	1.95E-04	19	5.03%	2852	1.62E-04
4	0.96%	545	3.10E-05	12	6.30%	3574	2.03E-04	20	3.84%	2177	1.25E-04
5	1.89%	1070	6.14E-05	13	6.38%	3618	2.06E-04	21	3.14%	1781	1.02E-04
6	3.52%	1993	1.14E-04	14	6.42%	3642	2.07E-04	22	2.54%	1437	8.24E-05
7	5.47%	3100	1.76E-04	15	6.67%	3783	2.15E-04	23	1.89%	1071	6.14E-05
8	5.70%	3232	1.84E-04	16	6.47%	3669	2.09E-04	24	1.25%	708	4.06E-05
Total										56,700	

8501 Gravenstein Highway, Cotati, CA - Off-Site Residential  
 Cumulative Operation - Highway 101  
 PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions  
 Year = 2027

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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
PM2.5_NB_101	Highway 101 Northbound	NB	3	279.6	0.17	17.0	56	1.3	66.041667	56,700	4,746	51,081	4.73E-08	3.49E-08	2.6	1.21
PM2.5_SB_101	Highway 101 Southbound	SB	3	319.2	0.20	17.0	56	1.3	66.666667	56,700	5,418	58,316	4.73E-08	3.49E-08	2.6	1.21
Total										113,399						

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	65	60	70	
Emissions per Vehicle (g/VMT)	0.001970	0.00172	0.002097	

Emission Factors from CT-EMFAC2021

2027 Hourly Traffic Volumes and PM2.5 Emissions - PM2.5\_NB\_101

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	
1	1.07%	608	6.16E-05	9	4.87%	2761	2.62E-04	17	7.48%	4239	4.03E-04	
2	0.67%	378	3.59E-05	10	5.25%	2976	2.83E-04	18	7.23%	4098	3.90E-04	
3	0.48%	270	2.56E-05	11	6.06%	3439	3.27E-04	19	6.08%	3449	3.28E-04	
4	0.45%	254	2.41E-05	12	6.58%	3728	3.09E-04	20	4.72%	2674	2.71E-04	
5	0.62%	351	3.33E-05	13	6.75%	3829	3.64E-04	21	3.74%	2121	2.15E-04	
6	1.59%	900	8.55E-05	14	6.94%	3935	3.74E-04	22	3.07%	1743	1.76E-04	
7	3.00%	1701	1.62E-04	15	7.41%	4202	4.00E-04	23	2.40%	1364	1.38E-04	
8	4.21%	2385	2.27E-04	16	7.64%	4332	4.12E-04	24	1.70%	963	9.75E-05	
Total											56,700	

2027 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM2.5\_SB\_101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	
1	0.87%	491	5.67E-05	9	5.78%	3278	3.56E-04	17	6.43%	3646	3.96E-04	
2	0.70%	394	4.28E-05	10	5.79%	3282	3.56E-04	18	6.17%	3498	3.80E-04	
3	0.74%	419	4.55E-05	11	6.06%	3437	3.73E-04	19	5.03%	2852	3.10E-04	
4	0.96%	545	5.92E-05	12	6.30%	3574	3.88E-04	20	3.84%	2177	2.52E-04	
5	1.89%	1070	1.24E-04	13	6.38%	3618	3.93E-04	21	3.14%	1781	2.06E-04	
6	3.52%	1993	2.30E-04	14	6.42%	3642	3.95E-04	22	2.54%	1437	1.66E-04	
7	5.47%	3100	3.36E-04	15	6.67%	3783	4.11E-04	23	1.89%	1071	1.24E-04	
8	5.70%	3232	3.51E-04	16	6.47%	3669	3.98E-04	24	1.25%	708	8.18E-05	
Total											56,700	

8501 Gravenstein Highway, Cotati, CA - Off-Site Residential  
 Cumulative Operation - Highway 101  
 TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions  
 Year = 2027

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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
TEXH_NB_101	Highway 101 Northbound	NB	3	279.6	0.17	17.0	56	1.3	66.041667	56,700	4,746	51,081	5.17E-07	3.81E-07	2.6	1.21
TEXH_SB_101	Highway 101 Southbound	SB	3	319.2	0.20	17.0	56	1.3	66.666667	56,700	5,418	58,316	5.17E-07	3.81E-07	2.6	1.21
Total										113,399						

Emission Factors - TOG Exhaust

Speed Category Travel Speed (mph)	1	2	3	4
Emissions per Vehicle (g/VMT)	0.02151	0.01934	0.02308	

Emission Factors from CT-EMFAC2021

2027 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH\_NB\_101

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.07%	608	6.78E-04	9	4.87%	2761	2.87E-03	17	7.48%	4239	4.40E-03
2	0.67%	378	3.92E-04	10	5.25%	2976	3.09E-03	18	7.23%	4098	4.25E-03
3	0.48%	270	2.80E-04	11	6.06%	3439	3.57E-03	19	6.08%	3449	3.58E-03
4	0.45%	254	2.63E-04	12	6.58%	3728	3.48E-03	20	4.72%	2674	2.98E-03
5	0.62%	351	3.64E-04	13	6.75%	3829	3.97E-03	21	3.74%	2121	2.36E-03
6	1.59%	900	9.34E-04	14	6.94%	3935	4.08E-03	22	3.07%	1743	1.94E-03
7	3.00%	1701	1.77E-03	15	7.41%	4202	4.36E-03	23	2.40%	1364	1.52E-03
8	4.21%	2385	2.48E-03	16	7.64%	4332	4.50E-03	24	1.70%	963	1.07E-03
Total										56,700	

2027 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH\_SB\_101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	0.87%	491	6.25E-04	9	5.78%	3278	3.88E-03	17	6.43%	3646	4.32E-03
2	0.70%	394	4.67E-04	10	5.79%	3282	3.89E-03	18	6.17%	3498	4.14E-03
3	0.74%	419	4.96E-04	11	6.06%	3437	4.07E-03	19	5.03%	2852	3.38E-03
4	0.96%	545	6.46E-04	12	6.30%	3574	4.24E-03	20	3.84%	2177	2.77E-03
5	1.89%	1070	1.36E-03	13	6.38%	3618	4.29E-03	21	3.14%	1781	2.26E-03
6	3.52%	1993	2.53E-03	14	6.42%	3642	4.32E-03	22	2.54%	1437	1.83E-03
7	5.47%	3100	3.67E-03	15	6.67%	3783	4.48E-03	23	1.89%	1071	1.36E-03
8	5.70%	3232	3.83E-03	16	6.47%	3669	4.35E-03	24	1.25%	708	9.00E-04
Total										56,700	

8501 Gravenstein Highway, Cotati, CA - Off-Site Residential  
 Cumulative Operation - Highway 101  
 TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions  
 Year = 2027

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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
TEVAP_NB_101	Highway 101 Northbound	NB	3	279.6	0.17	17.0	56	1.3	66.041667	56,700	4,746	51,081	4.37E-07	3.22E-07	2.6	1.21
TEVAP_SB_101	Highway 101 Southbound	SB	3	319.2	0.20	17.0	56	1.3	66.666667	56,700	5,418	58,316	4.37E-07	3.22E-07	2.6	1.21
Total										113,399						

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	65	60	70	
Emissions per Vehicle per Hour (g/hour)	1.18288	1.18288	1.18288	
Emissions per Vehicle per Mile (g/VMT)	0.01820	0.01971	0.01690	

Emission Factors from CT-EMFAC2021

2027 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP\_NB\_101

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.07%	608	4.96E-04	9	4.87%	2761	2.42E-03	17	7.48%	4239	3.72E-03
2	0.67%	378	3.32E-04	10	5.25%	2976	2.61E-03	18	7.23%	4098	3.60E-03
3	0.48%	270	2.37E-04	11	6.06%	3439	3.02E-03	19	6.08%	3449	3.03E-03
4	0.45%	254	2.23E-04	12	6.58%	3728	3.55E-03	20	4.72%	2674	2.18E-03
5	0.62%	351	3.08E-04	13	6.75%	3829	3.36E-03	21	3.74%	2121	1.73E-03
6	1.59%	900	7.90E-04	14	6.94%	3935	3.46E-03	22	3.07%	1743	1.42E-03
7	3.00%	1701	1.49E-03	15	7.41%	4202	3.69E-03	23	2.40%	1364	1.11E-03
8	4.21%	2385	2.09E-03	16	7.64%	4332	3.80E-03	24	1.70%	963	7.85E-04
Total										56,700	

2027 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP\_SB\_101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	0.87%	491	4.57E-04	9	5.78%	3278	3.29E-03	17	6.43%	3646	3.66E-03
2	0.70%	394	3.95E-04	10	5.79%	3282	3.29E-03	18	6.17%	3498	3.51E-03
3	0.74%	419	4.20E-04	11	6.06%	3437	3.45E-03	19	5.03%	2852	2.86E-03
4	0.96%	545	5.47E-04	12	6.30%	3574	3.58E-03	20	3.84%	2177	2.03E-03
5	1.89%	1070	9.96E-04	13	6.38%	3618	3.63E-03	21	3.14%	1781	1.66E-03
6	3.52%	1993	1.86E-03	14	6.42%	3642	3.65E-03	22	2.54%	1437	1.34E-03
7	5.47%	3100	3.11E-03	15	6.67%	3783	3.79E-03	23	1.89%	1071	9.97E-04
8	5.70%	3232	3.24E-03	16	6.47%	3669	3.68E-03	24	1.25%	708	6.59E-04
Total										56,700	

8501 Gravenstein Highway, Cotati, CA - Off-Site Residential  
 Cumulative Operation - Highway 101  
 Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions  
 Year = 2027

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	Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height	(Sigma z) Initial Vertical Dimension
FUG_NB_101	Highway 101 Northbound	NB	3	279.6	0.17	17.0	56	1.3	66.041667	56,700	4,746	51,081	3.05E-07	2.25E-07	2.6	1.21
FUG_SB_101	Highway 101 Southbound	SB	3	319.2	0.20	17.0	56	1.3	66.666667	56,700	5,418	58,316	3.05E-07	2.25E-07	2.6	1.21
Total										113,399						

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	65	60	70	
Tire Wear - Emissions per Vehicle (g/VMT)	0.00213	0.00213	0.00213	
Brake Wear - Emissions per Vehicle (g/VMT)	0.00215	0.00245	0.00215	
Road Dust - Emissions per Vehicle (g/VMT)	0.00841	0.00841	0.00841	
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.01269	0.01299	0.01269	

Emission Factors from CT-EMFAC2021

2027 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG\_NB\_101

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	
1	1.07%	608	3.73E-04	9	4.87%	2761	1.69E-03	17	7.48%	4239	2.60E-03	
2	0.67%	378	2.31E-04	10	5.25%	2976	1.82E-03	18	7.23%	4098	2.51E-03	
3	0.48%	270	1.65E-04	11	6.06%	3439	2.11E-03	19	6.08%	3449	2.11E-03	
4	0.45%	254	1.55E-04	12	6.58%	3728	2.34E-03	20	4.72%	2674	1.64E-03	
5	0.62%	351	2.15E-04	13	6.75%	3829	2.35E-03	21	3.74%	2121	1.30E-03	
6	1.59%	900	5.51E-04	14	6.94%	3935	2.41E-03	22	3.07%	1743	1.07E-03	
7	3.00%	1701	1.04E-03	15	7.41%	4202	2.57E-03	23	2.40%	1364	8.35E-04	
8	4.21%	2385	1.46E-03	16	7.64%	4332	2.65E-03	24	1.70%	963	5.90E-04	
Total											56,700	

2027 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG\_SB\_101

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	
1	0.87%	491	3.43E-04	9	5.78%	3278	2.29E-03	17	6.43%	3646	2.55E-03	
2	0.70%	394	2.76E-04	10	5.79%	3282	2.30E-03	18	6.17%	3498	2.45E-03	
3	0.74%	419	2.93E-04	11	6.06%	3437	2.40E-03	19	5.03%	2852	1.99E-03	
4	0.96%	545	3.81E-04	12	6.30%	3574	2.50E-03	20	3.84%	2177	1.52E-03	
5	1.89%	1070	7.48E-04	13	6.38%	3618	2.53E-03	21	3.14%	1781	1.25E-03	
6	3.52%	1993	1.39E-03	14	6.42%	3642	2.55E-03	22	2.54%	1437	1.01E-03	
7	5.47%	3100	2.17E-03	15	6.67%	3783	2.65E-03	23	1.89%	1071	7.49E-04	
8	5.70%	3232	2.26E-03	16	6.47%	3669	2.57E-03	24	1.25%	708	4.95E-04	
Total											56,700	



# BAY AREA AIR QUALITY MANAGEMENT DISTRICT

## Risk & Hazard Stationary Source Inquiry Form

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

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

[Click here for guidance on conducting risk & hazard screening, including roadways & freeways, refer to the District's Risk & Hazard Analysis flow chart.](#)

[Click here for District's Recommended Methods for Screening and Modeling Local Risks and Hazards document.](#)

**Table A: Requester Contact Information**

Date of Request	1/25/2024
Contact Name	Jordyn Bauer
Affiliation	Illingworth & Rodkin, Inc.
Phone	707-794-0400 x106
Email	<a href="mailto:jbauer@illingworthrodkin.com">jbauer@illingworthrodkin.com</a>
Project Name	Cotati 2
Address	Redhood Drive and Highway 116
City	Cotati
County	Sonoma
Type (residential, commercial, mixed use, industrial, etc.)	Mixed-Use
Project Size (# of units or building square feet)	157
Comments:	

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

1. Complete all the contact and project information requested in **Table A**. Incomplete forms will not be processed. Please include a project site map.
2. Download and install the free program Google Earth, <http://www.google.com/earth/download/ge/>, and then download the county specific Google Earth stationary source application files from the District's website, <http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx>. The small points on the map represent stationary sources permitted by the District (Map A on right). These permitted sources include diesel back-up generators, gas stations, dry cleaners, boilers, printers, auto spray booths, etc. Click on a point to view the source's Information Table, including the name, location, and preliminary estimated cancer risk, hazard index, and PM2.5 concentration.
3. Find the project site in Google Earth by inputting the site's address in the Google Earth search box.
4. Identify stationary sources within at least a 1000ft radius of project site. Verify that the location of the source on the map matches with the source's address in the Information Table, by using the Google Earth address search box to confirm the source's address location. Please report any mapping errors to the District.
5. List the stationary source information in **Table B** blue section only.
6. Note that a small percentage of the stationary sources have Health Risk Screening Assessment (HRSA) data INSTEAD of screening level data. These sources will be noted by an asterisk next to the Plant Name (see right). If HRSA values are presented, these values have already been modeled and cannot be adjusted further.
7. Email this completed form to District staff. District staff will provide the most recent risk, hazard, and PM2.5 data that are available for the source(s). If this information or data are not available, source emissions data will be provided. Staff will respond to inquiries within three weeks.

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

Submit forms, maps, and questions to Matthew Hanson at 415-749-8733, or [mhanson@baaqmd.gov](mailto:mhanson@baaqmd.gov)

**Table B: Google Earth data**

Distance from Receptor (feet) or MEI <sup>1</sup>	Plant No.	Facility Name	Address	Cancer Risk <sup>2</sup>	Hazard Risk <sup>2</sup>	PM <sub>2.5</sub> <sup>2</sup>	Source No. <sup>3</sup>	Type of Source <sup>4</sup>	Fuel Code <sup>5</sup>	Status/Comments	Project MEI			
											Distance Adjustment Multiplier	Adjusted Cancer Risk Estimate	Adjusted Hazard Risk	Adjusted PM2.5
1000+	13661	Nor-Cal Truckbodys	141 Helman Ln	0	0	0		Automotive Body, Paint, and Interior Rep		2022 Dataset	0.13	0.00	0.00000	0.0000
650	16825	Lowe's HIW Inc #1901	7921 Redwood Drive	9.78	0	0.01		Generator		2022 Dataset	0.09	0.88	0.00000	0.0009
1000+	112559	APRO LLC dba United Pacific #8510	Gravenstein Hwy	47.72	0.21	0.00		Gas Dispensing Facility		2022 Dataset	CARB TOOL	1.00	0.03000	0.0000
1000+	111461	Save On Gas Inc. dba Cotati Gz	8505 Gravenstein Hwy	18.56	0.08	0		Gas Dispensing Facility		2022 Dataset	CARB TOOL	0.22	0.01000	0.0000

**Footnotes:**

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

Date last updated:

03/13/2018

**Project Site**

Distance from Receptor (feet) or MEI <sup>1</sup>	FACID (Plant No.)	Distance Adjustment Multiplier	Adjusted Cancer Risk Estimate	Adjusted Hazard Risk	Adjusted PM2.5
695	13661	0.238	0.00	0.0000	0.0000
60	16825	1.00	9.78	0.0000	0.0100
390	112559	CARB TOOL	7.17	0.47	0
265	111461	CARB TOOL	2.37	0.44	0

**2022 CARB & CAPCOA Gasoline Service Station Industrywide Risk Assessment Look-up Tool**  
**Version 1.0 - February 18, 2022**

Required Value	User Defined Input	Instructions
Annual Throughput (gallons/year)	2,500,000	Enter your gas station's annual throughput in gallons of gasoline dispensed per year.
Hourly Dispensing Throughput (gallons/hour)	700	The tool will calculate the maximum hourly vehicle fueling throughput based on annual throughput as defined by Table 10 of the 2020 Gasoline Service Station Industrywide Risk Assessment Technical Guidance Document (Technical Guidance). If a different value is desired please enter it into cell L4.
Hourly Loading Throughput (gallons/hour)	8800	The tool will calculate the maximum hourly loading throughput based on annual throughput as defined by Table 10 of the Technical Guidance. If a different value is desired please enter it into cell L5.
Meteorological Data	San Jose	Select appropriate meteorological data. Met sets provided include 2 rural (Redding and Lancaster) and 4 urban (Fresno, Ontario, San Diego, and San Jose) locations. Use whichever best correlates to your location. If you would like to use site-specific meteorological data please refer to the Variable Met Tool.
Distance to Nearest Resident (meters)	305	Enter the distance to the nearest residential receptor in meters as measured from the edge of the station canopy. Please note that the value must be between 10 and 1000 meters. The distance you input will round down to the nearest receptor distance used in the Technical Guidance (e.g., 19m will return value at 10m distance).
Distance to Nearest Business (meters)	305	Enter the distance to the nearest worker receptor in meters as measured from the edge of the station canopy. Please note that the value must be between 10 and 1000 meters. The distance you input will round down to the nearest receptor distance used in the Technical Guidance (e.g., 19m will return value at 10m distance).
Distance to Acute Receptor (meters)	305	Enter the distance where acute impacts are expected in meters as measured from the edge of the station canopy. This can be the distance to the property boundary, nearest resident, nearest worker, or any other user defined location. Please note that the value must be between 10 and 1000 meters. The distance you input will round down to the nearest receptor distance used in the Technical Guidance (e.g., 19m will return value at 10m distance).
Control Scenario	EVR Phase I & EVR Phase II	Select the appropriate control scenario for your gas station. Please refer to technical Guidance for an explanation of the different control scenarios. Almost all gas stations in California are equipped with EVR Phase I and EVR Phase II controls.
Include Building Downwash Adjustments	yes	Building downwash may over estimate risk results. High results should be investigated further through site-specific health risk assessment.
<b>Risk Value</b>	<b>Results</b>	
Max Residential Cancer Risk (chances/million)	0.22	
Max Worker Cancer Risk (chances/million)	0.02	
Chronic HI	0.00	
Acute HI	0.01	

**2022 CARB & CAPCOA Gasoline Service Station Industrywide Risk Assessment Look-up Tool**  
**Version 1.0 - February 18, 2022**

Required Value	User Defined Input	Instructions
Annual Throughput (gallons/year)	2,500,000	Enter your gas station's annual throughput in gallons of gasoline dispensed per year.
Hourly Dispensing Throughput (gallons/hour)	700	The tool will calculate the maximum hourly vehicle fueling throughput based on annual throughput as defined by Table 10 of the 2020 Gasoline Service Station Industrywide Risk Assessment Technical Guidance Document (Technical Guidance). If a different value is desired please enter it into cell L4.
Hourly Loading Throughput (gallons/hour)	8800	The tool will calculate the maximum hourly loading throughput based on annual throughput as defined by Table 10 of the Technical Guidance. If a different value is desired please enter it into cell L5.
Meteorological Data	San Jose	Select appropriate meteorological data. Met sets provided include 2 rural (Redding and Lancaster) and 4 urban (Fresno, Ontario, San Diego, and San Jose) locations. Use whichever best correlates to your location. If you would like to use site-specific meteorological data please refer to the Variable Met Tool.
Distance to Nearest Resident (meters)	80	Enter the distance to the nearest residential receptor in meters as measured from the edge of the station canopy. Please note that the value must be between 10 and 1000 meters. The distance you input will round down to the nearest receptor distance used in the Technical Guidance (e.g., 19m will return value at 10m distance).
Distance to Nearest Business (meters)	80	Enter the distance to the nearest worker receptor in meters as measured from the edge of the station canopy. Please note that the value must be between 10 and 1000 meters. The distance you input will round down to the nearest receptor distance used in the Technical Guidance (e.g., 19m will return value at 10m distance).
Distance to Acute Receptor (meters)	80	Enter the distance where acute impacts are expected in meters as measured from the edge of the station canopy. This can be the distance to the property boundary, nearest resident, nearest worker, or any other user defined location. Please note that the value must be between 10 and 1000 meters. The distance you input will round down to the nearest receptor distance used in the Technical Guidance (e.g., 19m will return value at 10m distance).
Control Scenario	EVR Phase I & EVR Phase II	Select the appropriate control scenario for your gas station. Please refer to technical Guidance for an explanation of the different control scenarios. Almost all gas stations in California are equipped with EVR Phase I and EVR Phase II controls.
Include Building Downwash Adjustments	yes	Building downwash may over estimate risk results. High results should be investigated further through site-specific health risk assessment.
<b>Risk Value</b>	<b>Results</b>	
Max Residential Cancer Risk (chances/million)	2.37	
Max Worker Cancer Risk (chances/million)	0.20	
Chronic HI	0.01	
Acute HI	0.44	

**2022 CARB & CAPCOA Gasoline Service Station Industrywide Risk Assessment Look-up Tool**  
**Version 1.0 - February 18, 2022**

Required Value	User Defined Input	Instructions
Annual Throughput (gallons/year)	11200000	Enter your gas station's annual throughput in gallons of gasoline dispensed per year.
Hourly Dispensing Throughput (gallons/hour)	4000	The tool will calculate the maximum hourly vehicle fueling throughput based on annual throughput as defined by Table 10 of the 2020 Gasoline Service Station Industrywide Risk Assessment Technical Guidance Document (Technical Guidance). If a different value is desired please enter it into cell L4.
Hourly Loading Throughput (gallons/hour)	8800	The tool will calculate the maximum hourly loading throughput based on annual throughput as defined by Table 10 of the Technical Guidance. If a different value is desired please enter it into cell L5.
Meteorological Data	San Jose	Select appropriate meteorological data. Met sets provided include 2 rural (Redding and Lancaster) and 4 urban (Fresno, Ontario, San Diego, and San Jose) locations. Use whichever best correlates to your location. If you would like to use site-specific meteorological data please refer to the Variable Met Tool.
Distance to Nearest Resident (meters)	305	Enter the distance to the nearest residential receptor in meters as measured from the edge of the station canopy. Please note that the value must be between 10 and 1000 meters. The distance you input will round down to the nearest receptor distance used in the Technical Guidance (e.g., 19m will return value at 10m distance).
Distance to Nearest Business (meters)	305	Enter the distance to the nearest worker receptor in meters as measured from the edge of the station canopy. Please note that the value must be between 10 and 1000 meters. The distance you input will round down to the nearest receptor distance used in the Technical Guidance (e.g., 19m will return value at 10m distance).
Distance to Acute Receptor (meters)	305	Enter the distance where acute impacts are expected in meters as measured from the edge of the station canopy. This can be the distance to the property boundary, nearest resident, nearest worker, or any other user defined location. Please note that the value must be between 10 and 1000 meters. The distance you input will round down to the nearest receptor distance used in the Technical Guidance (e.g., 19m will return value at 10m distance).
Control Scenario	EVR Phase I & EVR Phase II	Select the appropriate control scenario for your gas station. Please refer to technical Guidance for an explanation of the different control scenarios. Almost all gas stations in California are equipped with EVR Phase I and EVR Phase II controls.
Include Building Downwash Adjustments	yes	Building downwash may over estimate risk results. High results should be investigated further through site-specific health risk assessment.
<b>Risk Value</b>	<b>Results</b>	
Max Residential Cancer Risk (chances/million)	1.00	
Max Worker Cancer Risk (chances/million)	0.08	
Chronic HI	0.00	
Acute HI	0.03	

**2022 CARB & CAPCOA Gasoline Service Station Industrywide Risk Assessment Look-up Tool**  
**Version 1.0 - February 18, 2022**

Required Value	User Defined Input	Instructions
Annual Throughput (gallons/year)	11200000	Enter your gas station's annual throughput in gallons of gasoline dispensed per year.
Hourly Dispensing Throughput (gallons/hour)	4000	The tool will calculate the maximum hourly vehicle fueling throughput based on annual throughput as defined by Table 10 of the 2020 Gasoline Service Station Industrywide Risk Assessment Technical Guidance Document (Technical Guidance). If a different value is desired please enter it into cell L4.
Hourly Loading Throughput (gallons/hour)	8800	The tool will calculate the maximum hourly loading throughput based on annual throughput as defined by Table 10 of the Technical Guidance. If a different value is desired please enter it into cell L5.
Meteorological Data	San Jose	Select appropriate meteorological data. Met sets provided include 2 rural (Redding and Lancaster) and 4 urban (Fresno, Ontario, San Diego, and San Jose) locations. Use whichever best correlates to your location. If you would like to use site-specific meteorological data please refer to the Variable Met Tool.
Distance to Nearest Resident (meters)	118	Enter the distance to the nearest residential receptor in meters as measured from the edge of the station canopy. Please note that the value must be between 10 and 1000 meters. The distance you input will round down to the nearest receptor distance used in the Technical Guidance (e.g., 19m will return value at 10m distance).
Distance to Nearest Business (meters)	118	Enter the distance to the nearest worker receptor in meters as measured from the edge of the station canopy. Please note that the value must be between 10 and 1000 meters. The distance you input will round down to the nearest receptor distance used in the Technical Guidance (e.g., 19m will return value at 10m distance).
Distance to Acute Receptor (meters)	118	Enter the distance where acute impacts are expected in meters as measured from the edge of the station canopy. This can be the distance to the property boundary, nearest resident, nearest worker, or any other user defined location. Please note that the value must be between 10 and 1000 meters. The distance you input will round down to the nearest receptor distance used in the Technical Guidance (e.g., 19m will return value at 10m distance).
Control Scenario	EVR Phase I & EVR Phase II	Select the appropriate control scenario for your gas station. Please refer to technical Guidance for an explanation of the different control scenarios. Almost all gas stations in California are equipped with EVR Phase I and EVR Phase II controls.
Include Building Downwash Adjustments	yes	Building downwash may over estimate risk results. High results should be investigated further through site-specific health risk assessment.
<b>Risk Value</b>	<b>Results</b>	
Max Residential Cancer Risk (chances/million)	7.17	
Max Worker Cancer Risk (chances/million)	0.59	
Chronic HI	0.03	
Acute HI	0.47	

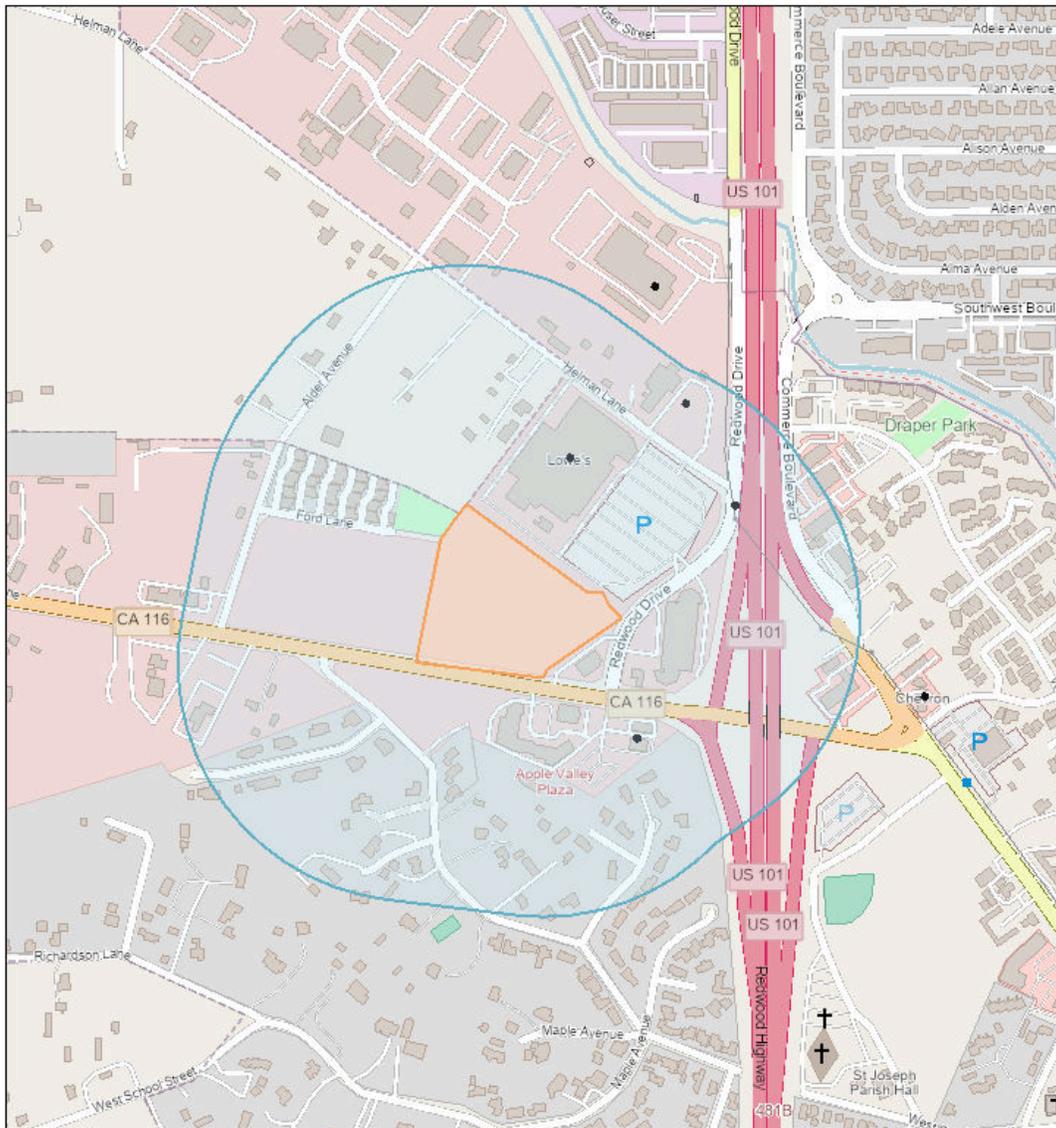


# Screening Report

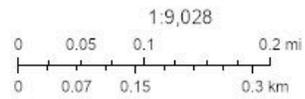
## Area of Interest (AOI) Information

Area : 5,984,691.35 ft<sup>2</sup>

Aug 12 2024 14:03:35 Pacific Daylight Time



- Permitted Stationary Sources



Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri

## Summary

Name	Count	Area(ft <sup>2</sup> )	Length(ft)
Permitted Stationary Sources	5	N/A	N/A

## Permitted Stationary Sources

#	Address	Cancer_Ris	Chronic_Ha	City	County
1	7601A Redwood Dr	0.00	0.00	Cotati	Sonoma
2	141 Helman Ln	0.00	0.00	Cotati	Sonoma
3	7921 Redwood Drive	9.78	0.00	Cotati	Sonoma
4	8510 Gravenstein Hwy	47.72	0.21	Cotati	Sonoma
5	8505 Gravenstein Hwy	18.56	0.08	Cotati	Sonoma

#	Details	Facility_I	Facility_N	Latitude	Longitude
1	No Data	5274	John's Truck Repair	38.33	-122.71
2	No Data	13661	Nor-Cal Truckbodys	38.33	-122.71
3	Generator	16825	Lowe's HIW Inc #1901	38.33	-122.72
4	Gas Dispensing Facility	112559-1	APRO LLC dba United Pacific #5426	38.33	-122.71
5	Gas Dispensing Facility	111461-1	Save On Gas Inc. dba Cotati Gas Mart	38.33	-122.71

#	NAICS	NAICS_Indu	NAICS_Sect	NAICS_Subs	PM25
1	811121	Automotive Body, Paint, and Interior Repair and Maintenance	Other Services (except Public Administration)	Repair and Maintenance	0.00
2	811121	Automotive Body, Paint, and Interior Repair and Maintenance	Other Services (except Public Administration)	Repair and Maintenance	0.00
3	339113	Surgical Appliance and Supplies Manufacturing	Manufacturing	Miscellaneous Manufacturing	0.01
4	447110	Gasoline Stations with Convenience Stores	Retail Trade	Gasoline Stations	0.00
5	447110	Gasoline Stations with Convenience Stores	Retail Trade	Gasoline Stations	0.00

#	State	Zip	Count
1	CA	94931	1
2	CA	94931	1
3	CA	94931	1
4	CA	94931	1
5	CA	94931	1

NOTE: A larger buffer than 1,000 may be warranted depending on proximity to significant sources.