

WATSONVILLE GENERAL PLAN UPDATE AIR QUALITY ASSESSMENT

Watsonville, California

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INTRODUCTION

This report addresses the air quality impacts associated with the Watsonville General Plan Update (GPU) located in Watsonville, California. The Watsonville GPU would allow for increased development of new residential, industrial, retail, service, and public land uses. This report includes a summary of applicable air quality regulations and analyzes potential air quality impacts associated with the proposed Watsonville GPU.

PROJECT DESCRIPTION

The Watsonville GPU will include goals, policies, and implementation actions to advance the City's vision and community priorities, including: revitalizing Downtown Watsonville, introducing a range of new single- and multi-family housing choices; attracting new employment and revenue-generating uses; maintaining the existing character of the City's residential neighborhoods; preserving the City's natural open spaces and improving the City's existing parks and community facilities, and introducing new ones; accommodating planned passenger rail service, including a station in Downtown Watsonville; implementing complete streets improvements; and rerouting truck routes around town.

Infill growth within the City Limits, primarily multi-family and mixed-use development, will be focused along the East Lake Avenue and Freedom Boulevard corridors and within Downtown Watsonville, which is governed by the recently adopted *Downtown Watsonville Specific Plan*. New growth beyond existing City limits would be accommodated in the Buena Vista, Atkinson Lane, Area C, and the Highway 1 Gateway area. Growth within Buena Vista and Area C would consist of single-family and multi-family housing and small mixed-use neighborhood centers and may offer a significant number of new home ownership opportunities. Growth within the Highway 1 Gateway would consist of regional retail, community recreation, light industrial, research and development, and visitor-serving uses. New development within Buena Vista and Atkinson Lane, which are already within the Urban Limit Line (ULL), would require annexation into the City of Watsonville. New development within the planning area beyond the ULL, including the parcels adjacent to Buena Vista within Area C and within the majority of the Highway 1 Gateway, would require approval via a Citywide referendum and subsequent annexation. If a Citywide referendum does not result in approval, these parcels will not be eligible for development until 2040. Figure 1 shows the Watsonville GPU development and growth areas.

Legend

- City Limit
- County Boundary
- Sphere of Influence
- Existing Urban Limit Line
- Proposed Urban Limit Line
- Passenger Rail Line & Station
- Downtown
- Station Area
- Major Corridors
- Neighborhoods
- Employment Districts
- Open Space
- Watsonville Municipal Airport
- New Growth Areas
- Highway 1
- Major Corridors

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Table 1. Watsonville GPU Projected Growth

Location	Parcel Area (acres)	Residential (units)	Non-Residential (sf)
Infill			
Corridor Infill	24.39	581	127,000
DWSP Infill	36.83	3,883	115,000
Neighborhood Infill	10.89	96	0
Employment	27.92	0	271,000
Total Infill	100.03	4,560	513,000
New Growth			
Buena Vista	41.49	716	20,000
Atkinson Lane/Area C	46.45	704	10,000
Highway 1 Gateway	174.78	0	2,129,000
Total New Growth	262.72	1,420	2,159,000
Total	362.75	5,980	2,672,000

AIR POLLUTANTS AND CONTAMINANTS

Air pollutants are governed by multiple federal and state standards to regulate and mitigate health impacts. At the federal level, there are six criteria pollutants for which National Ambient Air Quality Standards (NAAQS) have been established: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO₂), ozone (O₃), suspended particulate matter (PM: PM_{2.5} and PM₁₀), and sulfur dioxide (SO₂). California sets standards, similar to the NAAQS as California Ambient Air Quality Standards (CAAQS). Health effects of the primary criteria pollutants (i.e., the NAAQS) and their potential sources are described below and summarized in Table 2. Note that California includes pollutants or contaminants that are specific to certain industries and not associated with this Plan Update. These include hydrogen sulfide and vinyl chloride.

Ozone

Ozone is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG) and oxides of nitrogen (NO_x). The main sources of ROG and NO_x, often referred to as O₃ precursors, are combustion processes (including combustion in motor vehicle engines) and the evaporation of solvents, paints, and fuels. In the Bay Area, automobiles are the single largest source of O₃ precursors. O₃ is referred to as a regional air pollutant because its precursors are transported and diffused by wind concurrently with O₃ production through the photochemical reaction process. O₃ causes eye irritation, airway constriction, shortness of breath, and can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.

Carbon Monoxide

Carbon monoxide is an odorless, colorless gas usually formed as the result of the incomplete combustion of fuels. The single largest source of CO is motor vehicles. While CO transport is limited, it disperses with distance from the source under normal meteorological conditions.

However, under certain extreme meteorological conditions, CO concentrations near congested roadways or intersections may reach unhealthful levels that adversely affect local sensitive receptors (e.g., residents, schoolchildren, the elderly, hospital patients, etc.). Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service (LOS) or with extremely high traffic volumes. Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood and can cause headaches, nausea, dizziness, fatigue, impair central nervous system function, and induce angina (chest pain) in persons with serious heart disease. Very high levels of CO can be fatal.

Nitrogen Dioxide

Nitrogen Dioxide is a reddish-brown gas that is a byproduct of combustion processes. Automobiles and industrial operations are the main sources of NO₂. Aside from its contribution to O₃ formation, NO₂ also contribute to other pollution problems, including a high concentration of fine particulate matter, poor visibility, and acid deposition. NO₂ may be visible as a coloring component on high pollution days, especially in conjunction with high O₃ levels. NO₂ decreases lung function and may reduce resistance to infection. On January 22, 2010, the U.S. Environmental Protection Agency (EPA) strengthened the health-based NAAQS for NO₂.

Sulfur Dioxide

Sulfur dioxide is a colorless, irritating gas formed primarily from incomplete combustion of fuels containing sulfur. Industrial facilities also contribute to gaseous SO₂ levels in the region. SO₂ irritates the respiratory tract, can injure lung tissue when combined with fine particulate matter, and reduces visibility and the level of sunlight.

Particulate Matter

Particulate matter is the term used for a mixture of solid particles and liquid droplets found in the air. Coarse particles are those that are larger than 2.5 microns but smaller than 10 microns (PM₁₀). PM_{2.5} refers to fine suspended particulate matter with an aerodynamic diameter of 2.5 microns or less that is not readily filtered out by the lungs. Nitrates, sulfates, dust, and combustion particulates are major components of PM₁₀ and PM_{2.5}. These small particles can be directly emitted into the atmosphere as by-products of fuel combustion, through abrasion, such as tire or brake lining wear, or through fugitive dust (wind or mechanical erosion of soil). They can also be formed in the atmosphere through chemical reactions. Particulates may transport carcinogens and other toxic compounds that adhere to the particle surfaces and can enter the human body through the lungs.

Lead

Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the phase-out of leaded gasoline, metal processing is currently the primary source of lead emissions. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufactures.

Twenty years ago, mobile sources were the main contributor to ambient lead concentrations in the air. In the early 1970s, the U.S. EPA established national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. The EPA banned the use of leaded gasoline in highway vehicles in December 1995. As a result of the EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector and levels of lead in the air decreased dramatically.

Table 2. Health Effects of Air Pollutants

Pollutants	Sources	Primary Effects
Carbon Monoxide (CO)	• Incomplete combustion of fuels and other carbon-containing substances, such as motor exhaust. • Natural events, such as decomposition of organic matter.	• Reduced tolerance for exercise. • Impairment of mental function. • Impairment of fetal development. • Death at high levels of exposure. • Aggravation of some heart diseases (angina).
Nitrogen Dioxide (NO ₂)	• Motor vehicle exhaust. • High temperature stationary combustion. • Atmospheric reactions.	• Aggravation of respiratory illness. • Reduced visibility. • Reduced plant growth. • Formation of acid rain.
Ozone (O ₃)	• Atmospheric reaction of organic gases with nitrogen oxides in sunlight.	• Aggravation of respiratory and cardiovascular diseases. • Irritation of eyes. • Impairment of cardiopulmonary function. • Plant leaf injury.
Lead (Pb)	• Contaminated soil.	• Impairment of blood functions and nerve construction. • Behavioral and hearing problems in children.
Suspended Particulate Matter (PM _{2.5} and PM ₁₀)	• Stationary combustion of solid fuels. • Construction activities. • Industrial processes. • Atmospheric chemical reactions.	• Reduced lung function. • Aggravation of the effects of gaseous pollutants. • Aggravation of respiratory and cardiorespiratory diseases. • Increased cough and chest discomfort. • Soiling. • Reduced visibility.
Sulfur Dioxide (SO ₂)	• Combustion of sulfur-containing fossil fuels. • Smelting of sulfur-bearing metal ores. • Industrial processes.	• Aggravation of respiratory diseases (asthma, emphysema). • Reduced lung function. • Irritation of eyes. • Reduced visibility. • Plant injury. • Deterioration of metals, textiles, leather, finishes, coatings, etc.
Toxic Air Contaminants	• Cars and trucks, especially diesels. • Industrial sources such as chrome platers. • Neighborhood businesses such as dry cleaners and service stations. • Building materials and product.	• Cancer. • Chronic eye, lung, or skin irritation. • Neurological and reproductive disorders.

Source: CARB Fact Sheet: Common Air Pollutants, see: <https://ww2.arb.ca.gov/resources/common-air-pollutants> accessed July 14, 2025.

Toxic Air Contaminants

In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern. TACs are injurious in small quantities and are regulated by the EPA and the California Air Resources Board (CARB). Some examples of TACs include benzene, butadiene, formaldehyde, and hydrogen sulfide. The identification, regulation, and monitoring of TACs is relatively recent compared to that for criteria pollutants.

High-volume freeways, stationary diesel engines, and facilities attracting heavy and constant diesel vehicle traffic (distribution centers, truck stops) are typically identified as posing the highest risk to nearby receptors. Other facilities associated with increased risk include warehouse distribution centers, large retail or industrial facilities, and high-volume transit centers. Health risks from TACs are a function of both concentration and duration of exposure.

Local Climate and Air Quality

Air quality is a function of both local climate and local sources of air pollution. Air quality is the balance of the natural dispersal capacity of the atmosphere and emissions of air pollutants from human uses of the environment. Climate and topography are major influences on air quality.

Climate and Meteorology

Watsonville is located in the North Central Coast Air Basin (NCCAB). A semi-permanent high-pressure cell in the eastern Pacific is the basic controlling factor in the climate of the NCCAB. In the summer, the high-pressure cell is dominant and causes persistent west and northwest winds over the entire California coast. Air descends in the Pacific High-pressure cell, forming a stable temperature inversion of hot air over a cool coastal layer of air. The onshore air currents pass over cool ocean waters to bring moist and relatively cool air (i.e., a marine layer) into the coastal valleys. The warmer air aloft acts as a lid, inhibiting vertical air movement. The generally northwest-southeast orientation of mountainous ridges tends to restrict and channel the summer onshore air currents. Surface heating in the interior portion of the Salinas and San Benito Valleys creates a weak low pressure that intensifies the onshore air flow during the afternoon and evening. In the fall, the surface winds become weak, and the marine layer grows shallow, dissipating altogether on some days. The airflow is occasionally reversed in a weak offshore movement, and the relatively stationary air mass is held in place by the Pacific High-pressure cell, which allows pollutants to build up over a period of a few days. It is most often during this season that the north or east winds develop to transport pollutants from either the San Francisco Bay Area or the Central/San Joaquin Valley into the NCCAB.

During the winter, the Pacific High migrates southward and has less influence on the NCCAB. Air frequently flows in a southeasterly direction out of the Salinas and San Benito Valleys, especially during night and morning hours. The general absence of deep, persistent inversions and the occasional storm systems usually result in good air quality for the basin as a whole in winter and early spring.

Air Pollution Potential

O₃ and fine particle pollution (PM_{2.5}) are the major regional air pollutants of concern in the NCCAB. O₃ is primarily a problem in the summer, and PM_{2.5} in the winter. A cool marine air usually reaches across Santa Cruz County in summer. O₃ frequently forms on hot summer days when the prevailing seasonal northerly winds carry O₃ precursors southward across the county, causing health standards to be exceeded. The area experiences many exceedances of the PM_{2.5} standard each winter. This is due to the high population density, wood smoke, industrial and freeway traffic, and poor wintertime air circulation caused by extensive hills to the east and west that block wind flow into the region.

Attainment Status Designations

The CARB is required to designate areas of the state as attainment, nonattainment, or unclassified for all state standards. An “attainment” designation for an area signifies that pollutant concentrations did not violate the standard for that pollutant in that area. A “nonattainment” designation indicates that a pollutant concentration violated the standard at least once, excluding those occasions when a violation was caused by an exceptional event, as defined in the criteria. An “unclassified” designation signifies that data does not support either an attainment or nonattainment status. The California Clean Air Act (CCAA) divides districts into moderate, serious, and severe air pollution categories, with increasingly stringent control requirements mandated for each category.

Table 3 shows the State and federal standards for criteria pollutants and provides a summary of the attainment status for the NCCAB with respect to national and state ambient air quality standards.

Table 3. NAAQS, CAAQS, and North Central Coast Air Basin Attainment Status

Pollutant	Averaging Time	California Standards		National Standards	
		Concentration	Attainment Status	Concentration	Attainment Status
Ozone (O ₃)	8-Hour	0.07 ppm (137 µg/m ³)	Nonattainment	0.070 ppm	Attainment
	1-Hour	0.09 ppm (180 µg/m ³)	Nonattainment	Not Applicable	Attainment
Carbon Monoxide (CO)	8-Hour	9 ppm (10 mg/m ³)	Unclassified	9 ppm (10 mg/m ³)	Attainment
	1-Hour	20 ppm (23 mg/m ³)	Unclassified	35 ppm (40 mg/m ³)	Attainment
Nitrogen Dioxide (NO ₂)	Annual Mean	0.030 ppm (57 mg/m ³)	Attainment	0.053 ppm (100 µg/m ³)	Attainment
	1-Hour	0.18 ppm (339 µg/m ³)	Attainment	0.100 ppm	Attainment
Suspended Particulate Matter (PM ₁₀)	Annual Mean	20 µg/m ³	Nonattainment	Not Applicable	Attainment
	24-Hour	50 µg/m ³	Nonattainment	150 µg/m ³	Attainment
Suspended Particulate Matter (PM _{2.5})	Annual Mean	12 µg/m ³	Attainment	9.0 µg/m ³	Attainment
	24-Hour	Not Applicable	Attainment	35 µg/m ³	Attainment
Sulfur Dioxide (SO ₂)	Annual Mean	Not Applicable	Attainment	0.03 ppm 80 µg/m ³	Attainment
	24-Hour	0.04 ppm (105 µg/m ³)	Attainment	0.14 ppm (365 µg/m ³)	Attainment
	1-Hour	0.25 ppm (655 µg/m ³)	Attainment	0.075 ppm (196 µg/m ³)	Attainment
Lead (Pb) is not listed in the above table because it has been in attainment since the 1980s. ppm = parts per million, mg/m ³ = milligrams per cubic meter, µg/m ³ = micrograms per cubic meter					

Source: CARB *Table of Ambient Air Quality Standards*. https://ww2.arb.ca.gov/sites/default/files/2024-08/AAQS%20Table_ADA_FINAL_07222024.pdf Accessed July 10, 2025.

Existing Air Pollutant Levels

The CARB monitors air pollution at various sites within California. The closest air monitoring station is located at 2544 Soquel Avenue in Santa Cruz, approximately 11-12 miles from the Watsonville GPU area. Note that this site does not monitor CO, PM₁₀, or Nitrogen Dioxide. The data shows that during the most recently available period of 2020 through 2024, the GPU area has exceeded the federal PM_{2.5} ambient air quality standards. Table 4 lists air quality trends in data collected for the 2020 through 2024 period and published by CARB, which is the most recent time-period available. O₃ standards, based on the 1- and 8-hour average concentrations, were exceeded 0 days annually in Santa Cruz. Measured 24-hour PM_{2.5} concentrations are exceeded on 0 to 13 monitoring days in Santa Cruz. Note that PM_{2.5} levels were influenced by smoke from wildfires. Air pollutants that include CO, Pb, and SO₂ have been historically measured at low levels in the Watsonville GPU region and are, therefore, not measured anymore.

Table 4. Measured Ambient Air Quality Concentrations from 2020 through 2024

Pollutant	Standard	2020	2021	2022	2023	2024
Ozone in Santa Cruz						
Max 1-hr concentration		70 ppb	72 ppb	60 ppb	70 ppb	62 ppb
No. days exceeded: CAAQS	90 ppb	0	0	0	0	0
Max 8-hr concentration		58 ppb	58 ppb	51 ppb	55 ppb	57 ppb
No. days exceeded: CAAQS	70 ppb	0	0	0	0	0
NAAQS	70 ppb	0	0	0	0	0
PM_{2.5} in Santa Cruz						
Max 24-hr concentration		90.4 µg/m ³	17.5 µg/m ³	14.7 µg/m ³	47.4 µg/m ³	13.7 µg/m ³
No. days exceeded: NAAQS	35 µg/m ³	13	0	0	1	0
Annual Concentration		8.1 µg/m ³	4.8 µg/m ³	5.4 µg/m ³	5.0 µg/m ³	6.1 µg/m ³
No. days exceeded: CAAQS	12 µg/m ³	0	0	0	0	0
NAAQS	9 µg/m ³	0	0	0	0	0
CO – No measurements made						
PM₁₀ – No measurements made						
Nitrogen Dioxide – No measurements made						

Source: California Air Resource Board, 2026. Web: <https://arb.ca.gov/adam/select8/sc8start.php> and <https://arb.ca.gov/adam/topfour/topfour1.php>

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. All these types of sensitive receptors are located within and around the GPU area. The Watsonville GPU would also include new residential dwellings that are considered sensitive receptors.

Odors

Odor impacts are subjective in nature and are generally regarded as an annoyance rather than a health hazard. The ability to detect and react to odors varies considerably among people. A strong or unfamiliar odor is more easily detected and are more likely to cause complaints. The occurrence and severity of odor impacts depends on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of the receptors. While offensive odors rarely cause physical harm, they can still be unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and regulatory agencies. Projects with the potential to frequently expose members of the public to

objectionable odors would be deemed to violate the Monterey Bay Air Resources District (MBARD) standards.

REGULATORY FRAMEWORK

Pursuant to the Federal Clean Air Act (FCAA) of 1970, the EPA established the NAAQS. The NAAQS were established for major pollutants, termed “criteria” pollutants. Criteria pollutants are defined as those pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations in order to protect public health.

Both the EPA and the CARB have established ambient air quality standards for common pollutants: CO, O₃, NO₂, SO₂, Pb, and PM. In addition, the state has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles. These standards are designed to protect the health and welfare of the public with a reasonable margin of safety. These ambient air quality standards are levels of contaminants which represent safe levels that avoid specific adverse health effects associated with each criteria pollutant.

Federal Air Quality Regulations

At the federal level, the EPA has been charged with implementing national air quality programs. EPA’s air quality mandates are drawn primarily from the FCAA, which was enacted in 1963. The FCAA was amended in 1970, 1977, and 1990.

The FCAA required EPA to establish primary and secondary NAAQS and required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). Federal standards include both primary and secondary standards. Primary standards set limits to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.¹ The Federal Clean Air Act Amendments of 1990 (FCAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA has responsibility to review all state SIPs to determine conformity with the mandates of the FCAAA and determine if implementation will achieve air quality goals. If the EPA determines a SIP to be inadequate, a Federal Implementation Plan (FIP) may be prepared for the nonattainment area which imposes additional control measures. Failure to submit an approvable SIP or to implement the Plan within the mandated timeframe may result in the application of sanctions on transportation funding and stationary air pollution sources in the air basin.

The 1970 FCAA authorized the establishment of national health-based air quality standards and also set deadlines for their attainment. The FCAA Amendments of 1990 changed deadlines for attaining NAAQS as well as the remedial actions required of areas of the nation that exceed the standards. Under the FCAA, state and local agencies in areas that exceed the NAAQS are required

¹ See: U.S. Environmental Protection Agency, Web: <https://www.epa.gov/criteria-air-pollutants/naaqs-table>, Accessed 13 August 2020

to develop SIPs to show how they will achieve the NAAQS by specific dates. The FCAA requires that projects receiving federal funds demonstrate conformity to the approved SIP and local air quality attainment Plan for the region. Conformity with the SIP requirements would satisfy the FCAA requirements.

State Air Quality Regulations

California Clean Air Act

In 1988, the CCAA established its own, more stringent ambient air quality standards, known as California Ambient Air Quality Standards (CAAQS). The CCAA requires that all air basins in the state endeavor to achieve and maintain CAAQS for CO, O₃, SO₂, and NO₂ by the earliest practical date. The CCAA establishes local air districts and provides them with authority to regulate indirect sources and mandates that air quality districts focus particular attention on reducing emissions from transportation and area-wide emission sources. Each nonattainment area in the State is required to adopt a plan to achieve a 5 percent annual reduction, averaged over consecutive 3-year periods, for each nonattainment pollutant or its precursors. A Clean Air Plan is a SIP that shows how a district would reduce emissions to achieve air quality standards.

California Air Resources Board

The California Air Resources Board (CARB) is the agency responsible for coordination with the EPA and developing SIPs to achieve and maintain both the NAAQS and CAAQS. As a result, it has oversight of the state's air pollution control programs. Other CARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air pollution control and air quality management districts), determining and updating area designations and maps, and setting emissions standards for new mobile sources, consumer products, small utility engines, and off-road vehicles.

The CARB is responsible for the coordination and oversight of state and local air pollution control programs in California and for implementing the CCAA. The CCAA requires that all air districts in the state achieve and maintain the CAAQS by the earliest practical date. The CCAA specifies that districts should focus on reducing the emissions from transportation and air-wide emission sources and provides districts with the authority to regulate indirect sources.

CARB is also responsible for developing and implementing air pollution control plans to achieve and maintain the NAAQS. CARB is primarily responsible for statewide pollution sources and produces a major part of the SIP. Local air districts provide additional strategies for sources under their jurisdiction. CARB combines this data and submits the completed SIP to the EPA.

Other CARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air pollution control and air quality management districts), establishing CAAQS (which in many cases are more stringent than the NAAQS), determining and updating area designations and maps, and setting emissions standards for new mobile sources, consumer products, small utility engines, and off-road vehicles.

On-Road Vehicles

CARB has set statewide CAAQS that establish health-based concentration limits for ambient air quality and developed vehicle emissions and fuel standards for on-road and off-road mobile sources that are more stringent than those adopted by the EPA. Several of CARB's regulatory programs affect medium and heavy-duty diesel trucks that represent the bulk of diesel particulate matter (DPM) emissions from California highways. These regulations include the solid waste collection vehicle (SWCV) rule, in-use public and utility fleets, and the heavy-duty diesel truck and bus regulations. In 2008, CARB approved a regulation to reduce emissions of DPM and NO_x from on-road heavy-duty diesel fueled vehicles.² The regulation requires affected vehicles to meet specific performance requirements between 2014 and 2023, with all affected diesel vehicles required to have 2010 model-year engines or equivalent by 2023.

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 Phase II (ACC II) is phase two of the original rule and 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-79-20.³ In 2025, 23 percent of new light-duty vehicles sold in California are zero emissions or plug-in hybrids.⁴ By 2030, 68 percent of new vehicles sold in California would be zero emissions and 100 percent by 2035. The US EPA granted CARB its Clean Air Act waiver request on December 18, 2024. However, Public Law 119-16, enacted on June 12, 2025, disapproves of this regulation under the Congressional Review Act, retroactively revoking the ACC II waiver.⁵ Therefore, adjustments to CalEEMod were not made to account for this rule.

CalEEMod uses the CARB's EMFAC2021 model to predict traffic emissions, assuming a mix of different vehicles. This model assumes implementation of California's heavy-duty vehicle regulations. The United States Congress rescinded the waiver for such regulations in June 2025 through Public Law 119-15 and Public Law 119-17, and the recent repeal of the U.S. EPA's Endangerment Finding.⁶ The CalEEMod model used may underpredict emissions from trucks in the future due to this federal action. At this time, CARB is evaluating modeling methodologies to update the EMFAC model to more accurately reflect future emissions. These adjustments are not expected to be substantial, compared to predictions made using EMFAC2021.

² Available online: <http://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm>. Accessed: November 21, 2014.

³ California Air Resources Board, *Advanced Clean Cars*. Website: <https://ww2.arb.ca.gov/our-work/programs/drive-forward-light-duty-vehicle-program/advanced-clean-cars> Accessed March 12, 2026.

⁴ California Energy Commission, *New ZEV Sales in California*. Website: <https://www.energy.ca.gov/data-reports/energy-almanac/zero-emission-vehicle-and-infrastructure-statistics-collection/new-zev> Accessed March 12, 2026.

⁵ Congress.Gov, *Public Law 119-16 109th Congress Joint Resolution*. Website: <https://www.congress.gov/119/plaws/publ16/PLAW-119publ16.pdf> Accessed March 12, 2026.

⁶ EPA, *Final Rule: Rescission of the Greenhouse Gas Endangerment Finding and Motor Vehicle Greenhouse Gas Emission Standards Under the Clean Air Act*. Website: <https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-rescission-greenhouse-gas-endangerment> Accessed March 12, 2026.

CARB is actively enforcing heavy-duty diesel vehicle regulations that require fleets to replace or retrofit heavy-duty diesel vehicles, with full implementation of the program scheduled for January 1, 2023. Compliance with the program is generally considered vehicles equipped with a 2010 or newer engine model year. As of January 1, 2020, the DMV cannot register any vehicle that does not meet the requirements of the Truck and Bus Regulation.

Other CARB diesel programs affecting heavy-duty diesel vehicles include:

- Idling limits of no more than 5 minutes with special exceptions.
- Emission Control Labels must be affixed to engines of all commercial heavy-duty diesel vehicles, and must be legible as proof the engine, at minimum, meets U.S. federal emissions standards for the engine model year.
- The Periodic Smoke Inspection Program requires owners of California-based fleets of two or more diesel vehicles to perform annual smoke opacity tests and to keep records for at least two years for each vehicle.
- The Heavy-Duty Vehicle Inspection Program uses random roadside inspections to verify that diesel engines do not smoke excessively and are tamper-free.

Off-Road Vehicle and Equipment Regulations

CARB has also adopted and implemented regulations to reduce DPM and nitrogen oxides (NOx) emissions from in-use (existing) and new off-road heavy-duty diesel vehicles (e.g., loaders, tractors, bulldozers, backhoes, off-highway trucks, etc.).⁷ The regulations apply to diesel-powered off-road vehicles with engines 25 horsepower (hp) or greater. The regulations are intended to reduce particulate matter and NOx exhaust emissions by imposing limits on idling, requiring vehicles to be report to CARB's online reporting system, restringing the adding of older vehicles into fleets and banning older Tiered engines, and 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.⁸ Implementation of this regulation, in conjunction with stringent Federal off-road equipment engine emission limits for new vehicles, is expected to substantially reduce emissions of DPM and NOx in order to help reduce the health risk throughout California.

Fleet owners must report the vehicle and engine information for all vehicles within their fleets operating in California. Fleet owners must also report owner information. Fleet owners should report using DOORS, which is CARB's online reporting tool. CARB issues a unique Equipment Identification Number (EIN) that is assigned to each vehicle. The fleet owner must label their vehicles with the EIN.

Other CARB diesel programs affecting off-road vehicles and equipment include:

- Idling limits of no more than 5 minutes with special exceptions.

⁷ CARB, Web: <https://ww2.arb.ca.gov/resources/fact-sheets/overview-amendments-use-road-diesel-fueled-fleets-regulation>

⁸ CARB, Web: <https://ww2.arb.ca.gov/our-work/programs/truckstop-resources/road-zone/road-diesel-regulation>

- Portable engines 50 hp or greater may require a permit or registration to legally operate. The local air district is responsible for taking enforcement action against individuals who own or operate portable equipment without a registration or permit.

California Air Resources Board Handbook

In 1998, CARB identified particulate matter from diesel-fueled engines (i.e., DPM) as a toxic air contaminant. CARB has completed a risk management process that identified potential cancer risks for a range of activities using diesel-fueled engines.⁹ CARB subsequently developed an Air Quality and Land Use Handbook¹⁰ (Handbook) in 2005 that is intended to serve as a general reference guide for evaluating and reducing air pollution impacts associated with new projects that go through the land use decision-making process. The 2005 CARB Handbook recommends that planning agencies consider proximity to air pollution sources when considering new locations for “sensitive” land uses, such as residences, medical facilities, daycare centers, schools, and playgrounds.

Air pollution sources of concern include freeways, rail yards, ports, refineries, distribution centers, chrome plating facilities, dry cleaners, and large gasoline service stations. Key recommendations in the Handbook relative to the Plan Update Area include taking steps to consider or avoid siting new, sensitive land uses:

- Within 500 feet of a freeway, urban roads with 100,000 vehicles/day or rural roads with 50,000 vehicles/day.
- Within 300 feet of gasoline fueling stations (note that new fueling stations utilize enhanced vapor recovery systems that substantially reduce emissions).
- Within 300 feet of dry-cleaning operations (note that dry cleaning with TACs is being phased out and was completely prohibited beginning in 2023).

Since the handbook was published, California has substantially reduced or eliminated some of the TAC emission sources, such that these buffer distances are likely not applicable. For example, particulate and DPM emissions from trucks have been greatly reduced through U.S. EPA engine standards that phased in after 2010. TACs are no longer used in dry cleaning. Gasoline stations and passenger vehicles have greatly improved vapor recovery systems that reduce TAC emissions associated with gasoline dispensing facilities.

California Department of Justice Guidelines

The California Department of Justice recommends best management practices for warehouse projects that include heavy-duty truck and off-road diesel fleets. These best management practices are intended to reduce the air quality and greenhouse gas impacts from warehouse projects.¹¹ The

⁹ California Air Resources Board, 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. October.

¹⁰ California Air Resources Board, 2005. *Air Quality and Land Use Handbook: A Community Health Perspective*. April.

¹¹ State of California Department of Justice. *Warehouse Projects: Best Practices and Mitigation Measures to Comply with the California Environmental Quality Act*. URL: <https://oag.ca.gov/system/files/media/warehouse-best-practices.pdf> Accessed January 31, 2025.

guidelines contain siting and design considerations and air quality and GHG analyses and mitigation recommendations. Possible mitigation measure recommendations are described for construction emissions and operational emissions so that local, statewide, and global impacts from warehouse projects are reduced to the lowest levels possible. Best practices and mitigation measures that address other issues such as noise and traffic are also provided.

Truck and Bus Regulation

CARB is actively enforcing heavy-duty diesel vehicle regulations that require fleets to replace or retrofit heavy-duty diesel vehicles, with full implementation of the program scheduled for January 1, 2023. Compliance with the program is generally considered vehicles equipped with a 2010 or newer engine model year. As of January 1, 2020, the DMV cannot register any vehicle that does not meet the requirements of the Truck and Bus Regulation.

Other CARB diesel programs affecting heavy-duty diesel vehicles include:

- Idling limits of no more than 5 minutes with special exceptions.
- Emission Control Labels must be affixed to engines of all commercial heavy-duty diesel vehicles, and must be legible as proof the engine, at minimum, meets U.S. federal emissions standards for the engine model year.
- The Periodic Smoke Inspection Program requires owners of California-based fleets of two or more diesel vehicles to perform annual smoke opacity tests and to keep records for at least two years for each vehicle.
- The Heavy-Duty Vehicle Inspection Program uses random roadside inspections to verify that diesel engines do not smoke excessively and are tamper-free.

Advanced Clean Fleets

California's Advanced Clean Fleets (ACF) regulation, effective January 1, 2024, requires medium- and heavy-duty on-road vehicles (over 8,500 lb. GVWR), off-road yard tractors, and light-duty package delivery trucks operating in California to transition to zero-emission models on a phased schedule. It applies first to drayage fleets at seaports and railyards—mandating only Zero Emission Vehicle (ZEV) registrations beginning January 1, 2024, and full ZEV operation by 2035—and to high-priority private fleets (those with at least 50 vehicles or at least \$50 million annual revenue) and state/local government fleets, which must meet escalating ZEV procurement targets through 2027, with all new fleet additions ZEV-only by the end of each vehicle's useful life. By 2036, only zero-emission medium- and heavy-duty vehicles may be sold in California.

However, on January 13, 2025, CARB officially withdrew its November 15, 2023 waiver and authorization request for the ACF regulation for enforcing the ZEV mandates on private drayage

and high-priority fleets.¹² State and local government fleet requirements, which do not require a federal waiver, remain fully in force while CARB evaluates next steps.

Assembly Bill 98

Assembly Bill (AB) 98, signed into law by Governor Gavin Newsom on September 29, 2024, establishes statewide standards for the development and expansion of logistics facilities in California, aiming to mitigate their environmental and health impacts on nearby communities. Effective January 1, 2026, the law mandates that new or expanded logistics facilities adhere to specific design and operational requirements, particularly when located within 900 feet of sensitive receptors. Key provisions include maintaining a minimum distance of 300 to 500 feet between loading docks and neighboring property lines depending on facility size and implementing energy-efficient measures like solar panels and electric vehicle charging stations. More stringent standards apply to warehouses over 250,000 sf and those located within 900 feet of a sensitive receptor. Additionally, the law requires the establishment of designated truck routes to direct heavy-duty truck traffic away from residential areas, the replacement of any demolished housing units with two affordable units within the same jurisdiction, and the use of zero-emission technology by 2030.

Regional

Monterey Bay Air Resources District

The Monterey Bay Air Resources District (MBARD) regulates air quality in the NCCAB and is responsible for attainment planning related to criteria air pollutants, as well as for district rule development and enforcement. MBARD also reviews air quality analyses prepared for California Environmental Quality Act (CEQA) assessments and published the CEQA Air Quality Guidelines document (last revised February 2016) for use in evaluation of air quality impacts.

Air Quality Management Plan

In accordance with the CCAA, MBARD has developed the *2012 Air Quality Management Plan for the Monterey Bay Region* (2012 AQMP). The 2012 AQMP is a transitional plan shifting focus of MBARD's efforts from achieving the 1-hour component of the State O₃ AAQS to achieving the 8-hour O₃ requirement. The plan includes an updated air quality trends analysis, which reflects both the 1- and 8-hour standards, as well as an updated emission inventory, which includes the latest information on stationary, area and mobile emission sources.

In March 2017, MBARD adopted the 2012-2015 Triennial Plan Revision, which assesses and updates elements of the 2012 AQMP, including the air quality trends analysis, emission inventory, and mobile source programs. The 2017 AQMP Revision only addresses attainment of the State O₃

¹² CARB notice to the USEPA, January 13, 2025. URL: <https://www.epa.gov/system/files/documents/2025-01/ca-acf-carb-withdrawal-ltr-2025-1-13.pdf>

standard. In 2012, EPA designated the NCCAB as attainment of the current national 8-hour O₃ standard of 0.075 ppm.¹³

MBARD Regulations and Rules

The following MBARD regulations and rules would limit emissions of air pollutants from construction and operation of residential development pursuant to the Plan Update:

Regulation II (Permits)

- Rule 207 (Review of New or Modified Sources) – The MBARD regulate criteria air pollutant emissions from new and modified stationary sources through this rule.
- Rule 1000 (Permit Guidelines and Requirements for Sources Emitting Toxic Air Contaminants) – This rule applies to any source that requires a permit to construct or operate pursuant to MBARD regulations and has the potential to emit carcinogenic or noncarcinogenic TACs. This rule also requires sources of carcinogenic TACs to install best control technology and reduce cancer risk to less than one incident per 100,000 population. Sources of noncarcinogenic TACs must apply reasonable control technology.

Regulation IV (Prohibitions)

- *Rule 400 (Visible Emissions)* – Discharge of visible air pollutant emissions into the atmosphere from any emission source for a period or periods aggregating more than 3 minutes in any 1 hour, as observed using an appropriate test method, is prohibited.
- *Rule 402 (Nuisances)* - No person shall discharge from any source whatsoever such quantities of air contaminants or other materials which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or which endanger the comfort, repose, health, or safety of any such persons or the public; or which cause, or have a natural tendency to cause, injury or damage to business or property. MBARD enforces permit and nuisance rules to control odorous emissions from stationary sources.
- *Rule 403 (Particulate Matter)*. This rule provides particulate matter emissions limits for sources operating within the MBARD jurisdiction.
- *Rule 425 (Use of Cutback Asphalt)* – The use of cutback asphalt (asphalt cement that has been blended with petroleum solvents) is restricted.
- *Rule 426 (Architectural Coatings)* – This rule limits the emissions of ROG_s from the use of architectural coatings.

City of Watsonville General Plan 2050

The City of Watsonville General Plan 2050 will include goals, policies, and action measures to reduce exposure of the City's sensitive population to exposure of air pollution and toxic air contaminants or TACs.

¹³ On October 1, 2015, U.S. EPA adopted a new 8-hour O₃ standard of 0.070 ppm. However, U.S. EPA has not yet reviewed recent NCCAB emissions to determine attainment status with the current 0.070 ppm standard. Therefore, this attainment status is based upon U.S. EPA's prior 0.075 ppm standard.

Land Use and Community Character Element

Goal LC-4: Sustainable and Resilient Development. New development will be designed and constructed to serve the long-term needs of the community, minimize operating costs, limit environmental impacts, and avoid and adapt to natural hazards and other potential threats.

Policy LC-4.1. Environmental Impacts. In accordance with the CEQA, the California Endangered Species Act, and other federal and state laws, new development shall: minimize impacts to air, water, and soil quality; avoid or mitigate the loss of sensitive habitat; limit greenhouse gas emissions; and preserve historic, cultural, and tribal resources.

Policy LC-4.3. Sustainable Construction and Operations. Encourage siting and building practices that promote sustainable construction and operations, including, as appropriate: energy efficiency and renewable energy measures; battery storage; salvaged, recycled, and/or renewable construction materials; cool roofing; high U factor windows and insulation; topsoil preservation, bioretention and filtration systems, native and naturalized landscaping, and permeable paving; bicycle parking facilities; water reuse systems; and cogeneration (heat and power) systems.

Policy LC-4.4. Water Efficient Technologies. Periodically review and revise zoning and building codes in accordance with state law to accommodate new technologies (i.e., low flow fixtures, low flow commodes, drought tolerant landscaping, etc.) and to promote water efficiency.

Mobility Element

Goal MA-6: Sustainable Transportation. Promote a transportation network that anticipates changing mobility needs and emerging transportation technologies while preserving community values of safety, comfort and sustainability.

Policy MA-6.1. Minimize VMT. Work to reduce VMT through land use planning, improved transit connections, and better active transportation access.

Actions

MA-6.1.1 City TDM Guidelines. Develop TDM Guidelines for development projects to provide site specific mitigation options for projects with VMT impacts helping to reduce VMT.

Conservation Element

Goal C-4: Energy and Air Quality. Maximize energy efficiency and protect regional air quality.

Policy C-4.1. Energy Efficiency and Emissions Reduction in Municipal Operations. The City shall implement measures in the operation of City facilities and its vehicle fleet that reduce energy use, reduce exhaust emissions and contribute to the improvement of local, regional and global air quality.

Actions

C-4.1.1 Air Quality Evaluation. As part of the review process for discretionary projects the City shall refer projects to the MBARD for recommendations on appropriate air quality impact mitigations.

C-4.1.3 Low-Emission Vehicles. Prior to vehicle purchases, the City shall evaluate the benefits of alternative fuels such as vehicles propelled by electricity, hydrogen, or other zero-emission vehicles. When unavailable or infeasible for the designated usage, consider hybrid vehicles. The City shall encourage local businesses to invest in alternative fuel fleets.

C-4.1.4 Alternative Fuels. The City shall seek to establish distribution points for alternative fuels within Watsonville for general use by the public at such time these fuels become feasible for general usage.

Policy C-4.2. Climate Action and Adaptation Plan Implementation and Monitoring. The City shall continue to implement and update as necessary the Climate Action and Adaptation Plan (CAAP) to ensure that City operations, actions, and land use approvals are consistent with the CAAP. The City shall monitor and report on progress toward the emissions reduction targets on a periodic basis.

Actions

C-4.2.1 Climate Action and Adaptation Plan. Maintain an updated and current Climate Action and Adaptation Plan. Implement policies and actions listed in the Climate and Adaptation Action Plan.

C-4.2.2 Energy Efficient Buildings. The City shall encourage energy efficient building design by promoting the use of interior daylighting, LED lighting, shaded windows and heat-exchange units; reflective roofs; super-insulated windows; passive solar heating and hot water; natural cross-ventilation; high-efficiency appliances and heating/cooling systems; and the generation of electricity through wind generation, solar panels, and photovoltaics.

C-4.2.3 Energy Efficiency Rebates and Credits. The City shall encourage use of these energy efficient methods by encouraging applicants to pursue utility company rebates and encouraging financial institutions to credit real savings in energy consumption when calculating income available to pay back loans.

C-4.2.6 Green Building Leadership and Private Development Guidance. The City shall provide leadership and guidance to encourage the application of green building practices in private sector development, generating long-term cost savings to the City's taxpayers due to substantial improvements in life-cycle performance and reduced life-cycle costs.

C-4.2.7 Green Building, Private Developer Projects. The City shall develop a public education program to inform private project developers, architects, designers and engineers as to the benefits of implementing a sustainable building design program such as the Leadership in

Energy and Environmental Design (LEED) or other similar Green Building standards. The City shall encourage all private project developers to follow the LEED Green Building standards by offering fee credits or other incentives.

Goal C-5: Trees. Encourage protection and planting of trees for aesthetic and environmental value.

Policy C-5.1. The City shall protect certain trees from being removed since trees provide a variety of aesthetic and environmental values.

Actions

C-5.1.1 Tree Protection Ordinance. As part of the review process for discretionary projects the City shall refer projects to the MBARD for recommendations on appropriate air quality impact mitigation. The City shall adopt a tree preservation ordinance and tree planting guidelines. The ordinance and guidelines shall set forth the types of trees to be protected and the conditions under which trees may be removed.

C-5.1.2 Tree Planting Guidelines. The City shall adopt street tree planting requirements and guidelines that identify a citywide tree planting program, including a list of appropriate street trees suitable for various areas of the community. New projects will be required to follow the established tree planting guidelines.

C-5.1.3 Preserve the Tree Canopy. Conduct necessary actions to preserve and expand the tree canopy. Carry out actions related to promoting tree planting and expanding the City's tree canopy, as noted in the Urban Greening Plan and Urban Forest Management Plan.

SIGNIFICANCE THRESHOLDS

Significance Criteria

Per Appendix G of the CEQA Guidelines and MBARD recommendations, air quality impacts are considered significant if implementation of the Watsonville GPU would:

- 1) Conflict with or obstruct implementation of an applicable air quality plan.
- 2) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard.
- 3) Expose sensitive receptors to substantial pollutant concentrations.
- 4) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

MBARD's CEQA Guidelines provide the most recent guidance and thresholds of significance, as shown in Table 5. Though not necessarily a CEQA issue, the effect of existing TAC sources on future sensitive receptors (e.g., residences) is analyzed to comply with MBARD's 2012-2015 Air Quality Management Plan (AQMP) key goal of reducing population TAC exposure and protecting public health in the Monterey Bay Area.

Table 5. MBARD CEQA Thresholds of Significance

Criteria Air Pollutants and Precursors (Regional)	Construction-Related	Operational-Related
	Average Daily Emissions (lbs./day)	Average Daily Emissions (lbs./day)
NO _x	137	137
ROG	137	137
PM ₁₀	82	82
PM _{2.5}	55	55
CO	550	550
Health Risks and Hazards	Single Sources/ Individual Project	
Excess Cancer Risk	>10 in a million	
Hazard Index	>1.0	

Source: Monterey Bay Unified Air Pollution Control District, 2016

AIR QUALITY IMPACTS AND MITIGATION MEASURES

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

MBARD is the regional agency responsible for overseeing compliance with State and federal laws, regulations, and programs within the NCCAB. MBARD, with assistance from Association of Monterey Bay Area Governments (AMBAG), has prepared and implements plans to meet the applicable laws, regulations, and programs. The most recent and comprehensive plan, which is the *2012-2015 AQMP*,¹⁴ focuses on reaching attainment status for O₃. The MBARD has also developed CEQA guidelines to assist lead agencies in evaluating the significance of air quality impacts. In formulating compliance strategies, MBARD 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.

According to the MBARD CEQA Air Quality Guidelines, a consistency analysis and determination serve as the project's analysis of cumulative impacts on regional air quality, i.e., O₃ levels. Project emissions which are not consistent with the AQMP are not accommodated in the AQMP and would have a significant cumulative impact unless offset. Under the MBARD CEQA Air Quality Guidelines, projects related directly to population growth, such as General Plan, will generate population-related emissions (e.g., motor vehicles, residential heating and cooling emissions). Population-related emissions have been forecast in the AQMP using population forecasts adopted by AMBAG. Thus, population-related projects which are consistent with these forecasts are considered to be consistent with the AQMP. Thus, this impact is addressed by assessing the growth in population and employment expected in the region. The Watsonville GPU does increase both the amount of housing and the number of workers.

¹⁴ Monterey Bay Air Resources District, *2012-2015 Air Quality Management Plan*, March 15, 2017.

Table 6 provides population and traffic projections for the 2050 GPU and compares these projections with 2023 existing conditions. The service population of residences and workers would increase by approximately 34 percent. This increase would be due to an increase in residents and workers (i.e., industrial, retail, and service space).

Daily vehicle miles traveled (VMT) for the existing conditions and the 2050 GPU were provided by the traffic consultant (Fehr & Peers).¹⁵ Using the existing (no project) as a baseline condition (2,562,780 miles), VMT attributable to the 2050 GPU is anticipated to increase by approximately three percent (2,640,120 miles). The VMT per capita is anticipated to decrease from 28.1 miles per person under the existing conditions to 22.9 miles per person with the 2050 GPU. The number of traffic trips is anticipated to increase by 18 percent over existing conditions, but these will be shorter trips that result in a corresponding increase in VMT of only 3 percent. Since the buildout of the Watsonville GPU would not increase VMT at a greater rate than the increase in population, the Watsonville GPU does not conflict with the AQMP.

Table 6. Watsonville GPU Land Use, Traffic, and Population Projections

Scenario	Population	Daily Trips	Daily VMT (miles)	Dwelling Units	Industrial & Warehousing (Square Feet)	Retail (Square Feet)	Service (Square Feet)
Existing Conditions (2023)	52,314	264,680	2,562,780	14,779	-	-	-
2050 GPU Project	70,186	312,120	2,640,120	20,759	749,526	1,094,103	827,983
Net New	+17,872	+47,440	+77,340	+5,980	+749,526	+1,094,103	+827,983
Rate of Increase	34%	18%	3%				

Source: Fehr & Peers, January 2026.

The Watsonville GPU would facilitate planned growth within the City of Watsonville, including approximately 5,980 new homes and an increase of approximately 17,872 residents by 2050. This population growth of approximately 34 percent between 2023 and 2050 would result in a total population of approximately 70,186, which is significantly higher than AMBAG's current projections for the City.

However, anticipated growth has been accounted for in General Plan 2050, as articulated in the Project Objectives (see Section 2.0 Project Description). In addition, planned single and multi-family residential and mixed used development is reflected in the City's current Cycle 6 Housing Element and likely subsequent next two cycles covering buildout of General Plan 2050. Additionally, all developments are anticipated to be consistent with General Plan 2050 land use designations and would not add growth beyond what is anticipated with plan implementation. For these reasons, and consistent with anticipated lower VMT, population growth associated with plan implementation was found to be less than significant. As part of project implementation, and for purposes of AQMP consistency, construction and operation air quality impacts of each discretionary land use application will be evaluated to ensure that emissions do not exceed daily thresholds established by MBARD.

¹⁵ Correspondence with Krysten McCue, Circlepoint, January 29, 2026. File from Fehr & Peers: *Watsonville GPU_Traffic_Data.xlsx*.

As described under Impact AIR-2, development under the Watsonville GPU would not exceed regional emissions for criteria air pollutants with the exception of ROG and CO. Therefore, development under the Watsonville GPU could conflict with the AQMP and impacts are *potentially significant*.

Mitigation Measure AQ-1: Require Project-Level Construction Assessment for Projects in the Watsonville GPU Area.

Prior to discretionary approval by the City of Watsonville for development projects subject to California Environmental Quality Act (CEQA) review (i.e., non-exempt projects), project applicants shall submit construction criteria pollutant and TAC quantification for individual projects developed under the Watsonville GPU to the City once those details are available through modeling to identify impacts prior to project approval and, if necessary, include measures to reduce emissions below the applicable MBARD construction thresholds. Reductions in emissions can be accomplished through, though is not limited to, the following measures:

- Construction equipment selection for low emissions (e.g., U.S. EPA Tier 4 standards);
- Use of alternative fuels, engine retrofits, and added exhaust devices;
- Low-VOC paints;
- Modify construction schedule; and
- Implementation of measures to control fugitive dust due to construction, including but not limited to:
 - Water all active construction areas at least twice daily. Frequency should be based on the type of operation, soil, and wind exposure.
 - Prohibit all grading activities during periods of high wind (over 15 mph).
 - Cover all trucks hauling dirt, sand, or loose materials.
 - Cover inactive storage piles.
 - Maintain at least 2'0" of freeboard in haul trucks.
 - Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days).

Mitigation Measure AQ-2 Require Project-Level Operational Assessment for Projects in the Watsonville GPU.

Prior to discretionary approval by the City of Watsonville for development projects subject to California Environmental Quality Act (CEQA) review (i.e., non-exempt projects), project applicants shall submit, operational criteria pollutant analysis shall be conducted in accordance with the latest guidance provided by the MBARD for projects with a potential to exceed project emission thresholds. The MBARD CEQA Air Quality Guidelines provide project screening level sizes (Table 5-4) to determine if projects warrant modeling to evaluate their emissions. Projects that are found to not meet these screening criteria or have emissions above significant thresholds would be required to implement additional mitigation including but not limited to:

- Proposed residential and commercial developments within the Watsonville GPU should implement TDM programs to reduce VMT as recommended by a traffic consultant. The TDM programs would be reviewed and approved by the City prior to issuance of building

permits. An annual TDM monitoring report shall be submitted to the City to document each development is meeting the required TDM program reductions.

- Proposed developments within the Watsonville GPU shall have electricity delivered from 3CE and participate in the 3Cchoice program at a minimum.
- Proposed developments within the Watsonville GPU that have stationary or off-road equipment with diesel engines larger than 50-HP would be subject to CARB's Stationary Diesel ATCM and require permits from the MBARD that will have to meet BACT for air toxics.
- Proposed development within the Watsonville GPU shall incorporate additional green building measures such as rooftop solar photovoltaic (PV) systems, rough-ins for electric vehicle charging, use of efficient lighting and irrigation, and recycled water, as feasible, to the satisfaction of the Community Development Director.
- Developed parcels shall require within their CC&Rs and/or ground leases requirements for all future interior spaces to be repainted only with architectural coatings that meet the "Low-VOC" or "Super-Compliant" requirements.

Effectiveness of Mitigation Measures AQ-1 and AQ-2

Implementation of Mitigation Measure AQ-1 and AQ-2, in addition to applicable regulatory State measures and MBARD rules related to reducing construction and operational-related emissions, would reduce criteria air pollutant emissions from construction and operational-related activities to the extent feasible and may result in reducing construction and operational-related regional air quality impacts of subsequent individual projects to less than significant. However, it is unknown if these reductions would reduce the GPU construction and operational emissions to below regulatory thresholds. Additionally, there are no feasible mitigation measures available to reduce population and be consistent with the objectives of the GPU. *Therefore, impacts related to conflict with an AQMP would remain, and the impact would be significant and unavoidable.*

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

The NCCAB is considered in attainment for most air pollutants regulated under the NAAQS. However, the NCCAB is a non-attainment area for ground-level O₃ and PM₁₀ under the California Clean Air Act. The area has attained federal ambient air quality standards for carbon monoxide, and is unclassified under State standards. As part of an effort to attain and maintain ambient air quality standards for O₃ and particulate matter (i.e., PM_{2.5} and PM₁₀), the MBARD has established thresholds of significance for these air pollutants and their precursors. These thresholds are for O₃ precursor pollutants (ROG and NO_x), PM₁₀, and PM_{2.5} and apply to both construction period and operational period impacts for projects. They generally do not apply to plans, such as the Watsonville GPU.

Past, present, and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to by itself, result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's contribution to the cumulative impact is considerable, then the project's impact on air quality would be considered significant.

Watsonville GPU Construction Period Emission

Implementation of the Watsonville GPU would result in temporary emissions from construction activities associated with subsequent development, including demolition, site grading, asphalt paving, building construction, and architectural coating. Emissions commonly associated with construction activities include fugitive dust from soil disturbance, fuel combustion from mobile heavy-duty diesel- and gasoline-powered equipment, portable auxiliary equipment, and worker commute trips. During construction, fugitive dust, the dominant source of PM₁₀ and PM_{2.5} emissions, is generated when wheels or blades disturb surface materials. Uncontrolled dust from construction can become a nuisance and potential health hazard to those living and working nearby. The potential health risk impact from construction is described under Impact AIR-3.

Construction activities, particularly during site preparation and grading, would temporarily generate fugitive dust in the form of PM₁₀ and PM_{2.5}. Sources of fugitive dust 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 would be an additional source of airborne dust after it dries. Construction exhaust emissions include those from equipment (i.e., off-road) and traffic (on-road vehicles and trucks). Off-road construction equipment is often diesel-powered and can be a substantial source of NO_x emissions, in addition to PM₁₀ and PM_{2.5} emissions. In addition, NO_x emissions are also caused during grading and soil import/export. Architectural coatings and application of asphalt pavement are dominant sources of ROG emissions.

The MBARD CEQA Air Quality Guidelines do not identify quantified plan level thresholds for construction emissions. There are project-level thresholds of 137 pounds per average day for NO_x, and ROG, 82 pounds per average day for PM₁₀, 55 pounds per average day for PM_{2.5}, and 550 pounds per average day for CO. Unless controlled, the combination of temporary dust from activities and diesel exhaust from construction equipment and related traffic may pose a nuisance impact to nearby receptors or exceed acceptable levels for projects.

There are General Plan Action Measures that address construction measures which would apply to projects developed within the Watsonville GPU Area, including but not limited to:

Goal C-4: Energy and Air Quality. Maximize energy efficiency and protect regional air quality.

Policy C-4.1. Energy Efficiency and Emissions Reduction in Municipal Operations. The City shall implement measures in the operation of City facilities and its vehicle fleet that reduce energy use, reduce exhaust emissions and contribute to the improvement of local, regional and global air quality.

Action C-4.1.1 Air Quality Evaluation. As part of the review process for discretionary projects the City shall refer projects to the MBARD for recommendations on appropriate air quality impact mitigations.

Policy C-4.2. Climate Action and Adaptation Plan Implementation and Monitoring. The City shall continue to implement and update as necessary the CAAP to ensure that City operations, actions, and land use approvals are consistent with the CAAP. The City shall monitor and report on progress toward the emissions reduction targets on a periodic basis.

Action C-4.2.1 Climate Action and Adaptation Plan. Maintain an updated and current Climate Action and Adaptation Plan. Implement policies and actions listed in the Climate and Adaptation Action Plan.

Action C-4.2.6 Green Building Leadership and Private Development Guidance. The City shall provide leadership and guidance to encourage the application of green building practices in private sector development, generating long-term cost savings to the City's taxpayers due to substantial improvements in life-cycle performance and reduced life-cycle costs.

Action C-4.2.7 Green Building, Private Developer Projects. The City shall develop a public education program to inform private project developers, architects, designers and engineers as to the benefits of implementing a sustainable building design program such as the LEED or other similar Green Building standards. The City shall encourage all private project developers to follow the LEED Green Building standards by offering fee credits or other incentives.

However, without application of appropriate control measures to reduce construction dust and exhaust, construction period impacts at the program level would be considered a *potentially significant impact*.

See Mitigation Measure AQ-1

Effectiveness of Mitigation Measures AQ-1

Build out of the Watsonville GPU would occur over 20 years. Construction activities associated with development allowed under the proposed GPU could generate construction emissions that exceed the MBARD's significance thresholds during this time and cumulatively contribute to the nonattainment designations of the MBARD. Implementation of Mitigation Measure AQ-1, in addition to applicable regulatory measures (e.g., MBARD rules) related to reducing construction-related emissions, would reduce criteria air pollutant emissions from construction-related activities to the extent feasible and may result in reducing construction-related regional air quality impacts of subsequent individual projects to less than significant. However, due to the programmatic nature of the proposed project, construction time frames and equipment for individual site-specific projects are not available and there is a potential for multiple developments to be constructed at

any one time, resulting in significant construction-related emissions. *Therefore, despite implementation of Mitigation Measure AQ-1, this impact would be significant and unavoidable.*

Watsonville GPU Operational Period Emissions

Implementation of the Watsonville GPU would result in long-term area and mobile source emissions from operation and use of subsequent development. There are no significance thresholds applicable to emissions associated with plan-level development; however, there are project-level thresholds. There are project-level thresholds of 137 pounds for NO_x and ROG, 82 pounds for PM₁₀, 55 pounds for PM_{2.5}, and 550 pounds for CO.

CalEEMod Modeling Assumptions

Operational air emissions from the Watsonville GPU would be generated primarily from autos driven by future residents and employees. Evaporative emissions from architectural coatings and maintenance products (classified as consumer products) are typical ROG emissions from these types of land uses. CalEEMod was used to estimate the net emissions of the operation of the proposed Watsonville GPU assuming full buildout in 2050 from the operations of the 2023 existing conditions.

CalEEMod Land Uses

An operational model scenario for the net change of the Watsonville GPU (i.e., 2050 GPU – 2023 Existing Conditions) was developed for CalEEMod. Inputs are summarized in Table 7.

Table 7. Operational Land Uses Entered into CalEEMod

Project Land Uses	Size	Units
Proposed 2050 GPU Project – 2023 Existing Conditions		
Single Family Housing	426	Dwelling Units
Apartments Low Rise	1,090	Dwelling Units
Apartments Mid Rise	4,464	Dwelling Units
General Heavy Industry*	280.217	1,000 sf
Refrigerated Warehouse – No Rail	49.399	1,000 sf
Unrefrigerated Warehouse – No Rail	419.910	1,000 sf
Discount Club	200	1,000 sf
Strip Mall	833.344	1,000 sf
Automobile Care Center	32.182	1,000 sf
Convenience Market (24 hour)	28.577	1,000 sf
General Office Building	263.977	1,000 sf
Hotel	421.082	1,000 sf
Research & Development	142.924	1,000 sf
City Park	62	Acres
* General Heavy Industry was used as CalEEMod limits the General Light Industry square footage to a maximum of 50,000-sf.		

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. Emissions associated with build-out later than 2050 may be lower.

Traffic Inputs

The Watsonville GPU net change (i.e., 2050 GPU – 2023 Existing Conditions) daily trip generation and total daily VMT was provided by the traffic consultant.¹⁶ However, a breakdown of the traffic information into each land use type was not available for this analysis. Therefore, a separate CalEEMod run was developed to capture just the GPU traffic emissions. The GPU itself would produce approximately 47,440 daily trips and produce approximately 77,340 daily VMT. The daily trips were entered into the CalEEMod model. The average trip length (in miles per trip) was calculated and entered into the model based on the provided daily trips and the provided daily VMT. The default trip types specified by CalEEMod were used.

Truck Traffic

Some warehouse and industrial projects could include truck traffic that is not specifically captured in this analysis. The CalEEMod modeling uses CARB's EMFAC2021 on-road traffic emissions model that includes an assumed travel mix. This mix does include a certain percentage of trucks in an attempt to account for the regional traffic mix. Some projects may have a unique mix of truck traffic that would not be properly represented by the CalEEMod modeling. An example would include a warehouse project that includes truck traffic with fairly long travel distances. Since this analysis is not project specific, these emissions cannot be accurately predicted.

Stationary and Off-Road Equipment

Some non-residential uses may include stationary and off-road equipment that emits air pollutants. Emergency generators, forklifts, aerial lifts, and other off-road equipment powered by diesel fuel or natural gas are common sources. Large commercial boilers powered by natural gas could be included in some industrial projects or hotels. These types of sources cannot be identified at this level of analysis, but maybe included in projects built out under the GPU. These emissions cannot be predicted at this level of analysis.

Energy

CalEEMod defaults for energy use were used which include the 2019 Title 24 Building Standards. These defaults are conservative, as the Watsonville GPU would need to meet the latest Title 24 Building Standards. For the GPU uses, an emission factor of 417 pounds of CO₂ per megawatt of

¹⁶ Correspondence with Krysten McCue, Circlepoint, January 29, 2026. File from Fehr & Peers: *Watsonville GPU_Traffic_Data.xlsx*.

electricity produced was entered into CalEEMod, which is based on Central Coast Community Energy’s (3CE) annual content power label for 2024.¹⁷

Other Inputs

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

Summary of Operational Period Emissions

Table 8 reports the predicted emissions from the Watsonville GPU net change (i.e., 2050 GPU – 2023 Existing Conditions) in terms of average daily operational emissions. There are no emission thresholds that apply to potential emissions generated by a plan, such as the GPU. As shown in Table 8, average daily emissions for ROG and CO would exceed the MBARD significance thresholds that is applied to projects. *Attachment 1* to this report includes the operational assumptions, CalEEMod model output files, and emissions calculations for the Watsonville GPU.

Table 8. Watsonville GPU Operational Period Emissions

Scenario	NO _x	ROG	PM ₁₀	PM _{2.5}	CO
GPU Daily Emissions in 2045 (lbs./day) (2050 GPU Project – 2023 Existing Conditions)	88.97	339.00	62.34	22.27	697.50
MBARD Project-Level Thresholds (lbs./day)	<i>137 lbs./day</i>	<i>137 lbs./day</i>	<i>82 lbs./day</i>	<i>55 lbs./day</i>	<i>550 lbs./day*</i>

*Significant if emissions that exceed the threshold and cause violations of ambient air quality standards.

While the emissions associated with the Watsonville GPU are above the Air District project-level significance thresholds, the Watsonville GPU is a plan level document and cannot as a whole be held to these project-level thresholds. Only ROG emissions would exceed the thresholds. CO emissions exceed the thresholds; however, these emissions do not lead to violations of ambient air quality standards (see discussion below). Additionally, there are conditions that may change the pollutant analysis. As discussed above, these include warehouse and industrial projects that could have truck traffic with long travel distances or stationary and off-road equipment that emits air pollutants. These specific conditions cannot be modeled on a plan level analysis, and therefore the operational criteria pollutant emissions could be *potentially significant*.

Carbon Monoxide

Carbon monoxide (CO) is a pollutant that affects air quality locally, as it is primarily caused by traffic. Areas of vehicle congestion with poor air circulation have the potential to create pockets of CO called hotspots. These pockets have the potential to exceed the State 1-hour standard of 20 ppm or the 8-hour standard of 9.0 ppm. Monitoring data from all ambient air quality monitoring stations in the NCCAB indicate that existing carbon monoxide levels are currently below national and California ambient air quality standards. Monitored CO levels have decreased substantially

¹⁷ Annual Power Content Labels for 2024. Web: <https://www.energy.ca.gov/filebrowser/download/9435>

since 1990 as newer vehicles with greatly improved exhaust emission control systems have replaced older vehicles. The NCCAB has been designated as an attainment area for the CO standards. No CO hotspots have been reported in the NCCAB even at the most congested intersections.

The entire State has met CO NAAQS and CAAQS. This includes highly urbanized areas with much greater traffic conditions than those found in Watsonville. Additionally, the draft transportation analysis¹⁸ studied 20 street segments in Watsonville and found that all segments (existing and cumulative scenarios) would have traffic congestion operating within acceptable or minimum acceptable level of service. Therefore, build out under the GPU would not cause CO levels to exceed ambient air quality standards.

See Mitigation Measure AQ-2

Effectiveness of Mitigation Measures AQ-2

Application of State and MBARD rules and regulation and implementation of the proposed GPU goals, policies, and actions would contribute to reducing operation-related criteria air pollutants generated from energy, area, and mobile sources to the extent feasible. Incorporation of Mitigation Measure AQ-2 would also contribute in reducing criteria air pollutants. Implementation of the aforementioned rules, goals and policies, and mitigation could contribute in reducing operation-phase criteria pollutants of future individual projects to a less than significant level. However, it is unknown if these reductions would reduce the GPU operational emissions to below regulatory thresholds. *Therefore, the impact would be significant and unavoidable.*

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

To address exposure of sensitive receptors to substantial pollutant levels, the MBARD CEQA Guidelines developed thresholds that address health risk impacts. These include increased cancer risk and non-cancer hazards. Sources of TACs led to increased health risk levels. DPM is the predominant TAC in the area.

Impacts related to increased health risk can occur either by introducing a new source of TACs with the potential to adversely affect existing sensitive receptors in the GPU area vicinity or by significantly exacerbating existing cumulative TAC impacts. The build-out of the Watsonville GPU would introduce a new temporary source of TACs during construction (i.e., on-site construction and truck hauling emissions) and long-term sources of TACs during operation (i.e., mobile and stationary sources).

Potential TAC impacts to sensitive and worker receptors are evaluated within 1,000 feet of a project site to make sure that any potential significant health risk impacts are identified and evaluated. There are sensitive receptors within 1,000 feet of the Watsonville GPU. The GPU area construction activity would generate dust and equipment exhaust that would affect nearby sensitive receptors. In addition, the Watsonville GPU would place sensitive receptors within the GPU area. Traffic would be generated by the Watsonville GPU and the GPU may introduce new stationary

¹⁸ Fehr & Peers, *Draft Transportation Analysis Report Watsonville 2050 General Plan Update*, December 1, 2025.

sources such as emergency diesel-powered generators, which would produce TAC and air pollutant emissions in the area.

The Watsonville GPU 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 GPU area. The impact of the existing sources of TAC was also assessed in terms of describing the cumulative risk which includes the Watsonville GPU contribution, as well as the risk on the new sensitive receptors introduced by the Watsonville GPU.

Watsonville GPU Construction TAC Exposure

Subsequent land use activities associated with implementation of the Watsonville GPU could include short-term construction sources of TACs. There are sensitive receptors adjacent to many portions of the GPU Area and there will be future residents in the Watsonville GPU development areas that could potentially be exposed to construction TACs during construction activity.

Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known TAC. The construction exhaust emissions may pose health risks for sensitive receptors such as nearby residents. The primary health risk impact issues associated with construction emissions are cancer risk. Diesel exhaust poses both a potential health and nuisance impact to nearby receptors. A health risk assessment of the construction activities would have to be conducted at a project level to quantify these impacts.

Since specific construction plans and schedules for construction are not known, it is not possible to quantify the impacts and determine the significance. For large construction projects of two acres or greater and lasting more than one year, there is the potential to cause significant health risk impacts. There are various measures that can be incorporated into construction plans that could minimize these potential impacts. Because residential development in the GPU would be developed over time, there could be new on-site residences (sensitive receptors) occupied while construction would be occurring in other areas of the GPU. Health risks impacts to nearby existing and future sensitive receptors associated with temporary construction of the future development is considered *potentially significant*.

Implementation of Mitigation Measure AQ-1, in addition to applicable regulatory measures (e.g., MBARD rules) related to reducing construction-related emissions, would reduce health risk concentrations from construction-related activities to the extent feasible and may result in reducing construction-related health risk impacts of subsequent individual projects to less than significant. However, due to the programmatic nature of the proposed project, construction time frames and equipment for individual site-specific projects are not available and there is a potential for multiple developments to be constructed at any one time, resulting in significant construction-related health risk impacts. *Therefore, despite adherence to Mitigation Measure AQ-1, this impact would be significant and unavoidable.*

Watsonville GPU Operation TAC Exposure

Traffic

Traffic volumes would increase with the implementation of the Watsonville GPU. However, TAC emissions from traffic are anticipated to decrease for several reasons:

- Vehicles, especially heavy-duty trucks, that meet newer diesel emissions standards will replace older vehicles (Note that trucks are the highest source of traffic TAC emissions);
- Overall increase in fuel efficiency of automobiles and trucks; and
- An increase in the percentage of vehicles that have zero emissions.

Nonetheless localized increases in traffic emissions of TACs may occur as the Watsonville GPU is built out. These increases would likely be dependent on the specific types and sizes of land uses and the amount of truck traffic generated. Increased build out of the Watsonville GPU would involve residential and local-serving retail, which would not generate substantial truck traffic that leads to significant health risk impacts.

Stationary Sources

Development of Watsonville GPU may include stationary equipment such as backup power generators powered by diesel engines. Operation of diesel generators would be a source of TAC emissions in the form of DPM. There are no specific plans to include this equipment nor plans that would reasonably allow identification of potential equipment. These diesel engines would be subject to CARB's Stationary Diesel Airborne Toxics Control Measure (ATCM), since they will be equipped with engines larger than 50-horsepower. Best Available Control Technology (BACT) for Toxics requirements would apply to these generators that would limit DPM emissions. As part of the MBARD permit requirements for toxics screening analysis, the engine emissions will have to meet BACT for Toxics and pass the toxic risk screening level of less than ten in a million. The risk assessment would be prepared by MBARD. Depending on results, MBARD would set limits for DPM emissions (e.g., more restricted engine operation periods). Sources of air pollutant emissions complying with all applicable MBARD regulations generally will not be considered to have a significant air quality health risk impact on their own. However, combined with other GPU sources, such as traffic or construction equipment, this could lead to a *significant* impact.

Health Risk Impacts – Construction and Operation

Sources of TAC emissions associated in the Plan Update Area have not been identified. The mix of land uses envisioned under the MBARD could include sources such that significant exposures might occur. The impacts may be caused by a combination of construction activity, truck traffic, diesel-powered emergency generators, etc. This would be a *potentially significant impact*.

Mitigation Measure AQ-3: Require Project-Level Health Risk Assessments for Projects near Sensitive Receptors.

Prior to discretionary approval by the City of Watsonville for development projects subject to California Environmental Quality Act (CEQA) review (i.e., non-exempt projects), project applicants proposing development of two acres or greater and lasting more than one year within 1,000 feet of existing sensitive receptors or worker receptors as defined by the MBARD (e.g., residential, schools) shall prepare a site-specific construction and operational health risk assessment (HRA) and submit to the City. If the HRA demonstrates, to the satisfaction of the City, that the health risk exposures for adjacent receptors will be less than MBARD project-level thresholds, then additional mitigation would be unnecessary. However, if the HRA demonstrates that health risks would exceed MBARD project-level thresholds, additional feasible on- and off-site mitigation shall be analyzed to further reduce risks to the greatest extent practicable. Measures to reduce significant health risk impacts include:

- Implementation of *Mitigation Measure AQ-1*.
- Site design modifications, such as locating TAC emitting equipment at portion of a site that have the least impact.
- Operational modifications, such as limiting the number of operational hours of TAC emitting equipment or activities.

Effectiveness of *Mitigation Measure AQ-3*

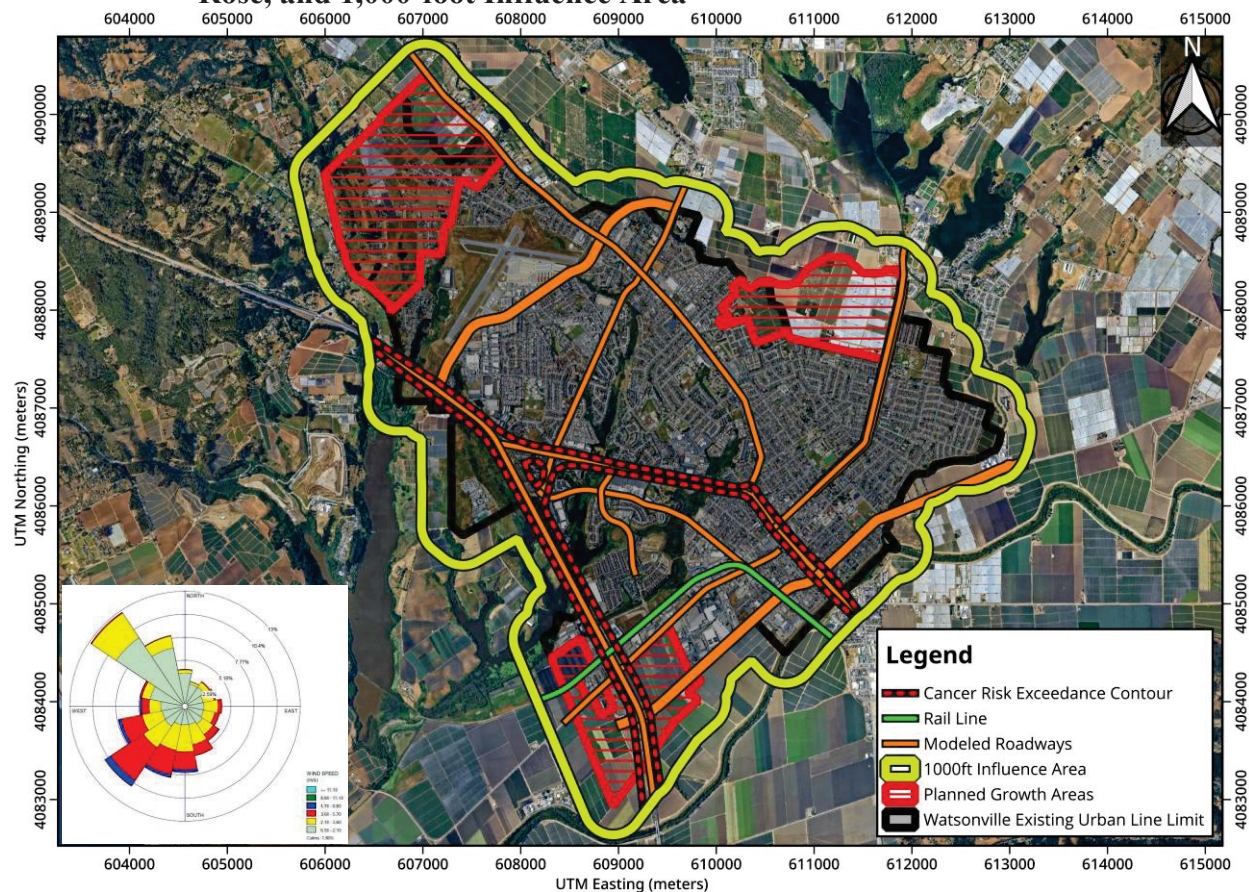
Implementation of measures identified in *Mitigation Measure AQ-3* through future project-specific assessments would reduce on-site diesel exhaust emissions. The implementation of General Plan Implementation Measure 9.C.10, measures described under *Mitigation Measure AQ-1*, and those listed above would reduce emissions substantially. For example, the use of diesel-powered construction equipment that meets U.S. EPA particulate matter emissions standards for Tier 4 engines or included DPM filters certified by CARB would substantially reduce DPM emissions. Additional measures to reduce TAC emissions would include hourly limits for equipment use, electrification or use of alternative fuels for equipment, and appropriate siting and design of equipment. Implementation of the aforementioned rules, goals and policies, and mitigation could contribute in reducing health risk impacts of future individual projects to a less than significant level. However, it is unknown if these reductions would reduce the health risk caused by projects developed under the Watsonville GPU to below regulatory thresholds. *Therefore, the impacts would be significant and unavoidable.*

TAC Effects on Watsonville GPU Sensitive Receptors

The Watsonville GPU would include new sensitive receptors, primarily in the form of residents. Substantial sources of existing air pollution can adversely affect sensitive receptors proposed as part of new projects. MBARD does not have a recommended screening radius for identifying health risk impacts from citing a new source of TACs or new sensitive receptors; therefore, the Bay Area Air District's screening radius of 1,000-feet around a project site was used. A review of

the GPU area was conducted to identify the existing health risks from nearby TAC sources. Traffic projections provided by the plan's traffic consultant were also reviewed to confirm roadways with the potential to emit significant TAC.¹⁹ Of the roadways in the GPU area, nine have the potential to affect new sensitive receptors. These roadways are Airport Boulevard, Beach Street, East Lake Avenue, Freedom Boulevard, Green Valley Road, Main Street, Ohlone Parkway, Riverside Drive, and Walker Street. Figure 2 shows the existing TAC sources, the GPU Area, a wind rose from the Watsonville Municipal Airport, and the 1,000-foot influence area. For existing stationary sources, MBARD provides a map (Figure 3) that shows the location of every existing stationary source in the GPU area.

Figure 2. Watsonville GPU Area, Road & Rail TAC Sources, Watsonville Airport Wind Rose, and 1,000-foot Influence Area



High-Volume Roadways

TAC exposure from the busiest roadways in Watsonville were modeled. The exposure caused by other sources (i.e., rail and permitted stationary sources) were addressed using available information reported by MBARD or CARB.

¹⁹ Correspondence with Krysten McCue, Circlepoint, January 29, 2026. File from Fehr & Peers: *Watsonville GPU_Traffic_Data.xlsx*.

Highways – State Route 1

State Route 1 (SR-1) runs through the western side of the GPU area. A refined analysis of the impacts of TACs to potential new sensitive receptors is necessary to evaluate cancer risks from SR-1. A review of the traffic information reported by Caltrans indicates that SR-1 traffic includes 46,500 vehicles per day (based on an annual average)²⁰ that are about 8 percent trucks, of which 3.4 percent are considered diesel heavy duty trucks and 4.6 percent are medium duty trucks.²¹

While parts of Main Street, East Lake Avenue, and Beach Street are included in SR-152 and part of Riverside Drive is included in SR-129, these sections have relatively low traffic volumes for a highway and are more indicative of local roadway traffic volumes. Therefore, Main Street, East Lake Avenue, Beach Street, and Riverside Drive are analyzed as local roadways, as discussed below.

Local Roadways – Airport Boulevard, Beach Street, East Lake Avenue, Freedom Boulevard, Green Valley Road, Main Street, Ohlone Parkway, Riverside Drive, and Walker Street

Local roadways with traffic volumes of over 10,000 vehicles per day that are within the influence area could potentially have a significant TAC effect on the proposed GPU area. Based on traffic projections provided by the plan's traffic consultant, Airport Boulevard, Beach Street, East Lake Avenue, Freedom Boulevard, Green Valley Road, Main Street, Ohlone Parkway, Riverside Drive, and Walker Street are projected to have average daily traffic (ADT) counts over 10,000 vehicles per day. Figure 2 shows the locations of these roadways.

Traffic Emissions Modeling

This analysis involved the development of DPM and organic TACs emissions for traffic on SR-1, Airport Boulevard, Beach Street, East Lake Avenue, Freedom Boulevard, Green Valley Road, Main Street, Ohlone Parkway, Riverside Drive, and Walker Street 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 and total organic compounds (TOG), and running evaporative losses for TOG. DPM emissions are projected to decrease in the future and are reflected in the CT-EMFAC2021 emissions data. Inputs to the model include region (Santa Cruz County), type of road (freeway and major/collector), traffic mix assigned by CT-EMFAC2021 for the county, adjusted for the local truck mix on SR-1, year of analysis (2030), and season (annual).

To estimate TAC emissions over the 30-year exposure period used for calculating the increased cancer risks for sensitive receptors within the GPU, the CT-EMFAC2021 model was used to develop vehicle emission factors for the year 2030. 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

²⁰ Caltrans. 2025. *2023 Traffic Volumes California State Highways*. Web: <https://dot.ca.gov/programs/traffic-operations/census>.

²¹ Caltrans. 2025. *2023 Annual Average Daily Truck Traffic on the California State Highway System*. Web: <https://dot.ca.gov/programs/traffic-operations/census>.

utilized by CT-EMFAC2021. Year 2030 emissions were conservatively assumed as being representative of future conditions over the time period that cancer risks are evaluated since, as discussed above, overall vehicle emissions, and in particular diesel truck emissions, will decrease in the future.

The ADT volumes and truck percentages were based on Caltrans data for SR-1. Traffic volumes were assumed to increase 1 percent per year due to overall regional growth for a total of 49,755 vehicles. Hourly traffic distributions specific to these segments of SR-1 were obtained from Caltrans Performance Measurement System (PeMS). PeMS data is collected in real-time from nearly 40,000 individual detectors spanning the freeway system across all major metropolitan areas of California.²² The fraction of traffic volume each hour was calculated and applied to the 2030 average daily traffic volumes estimate to estimate hourly traffic emission rates for SR-1. The hourly traffic distributions calculated for SR-1 were averaged together then utilized for both travel directions on each local roadway.

Based on traffic data from the Caltrans PeMS, traffic speeds during the daytime and nighttime periods were identified. For all traffic on northbound and southbound SR-1, a travel speed of 65 miles per hour (mph) was utilized for the modeling.

The ADT for each local roadway was provided by the plan's traffic consultant while travel speeds were based on speed limit signs posted along each roadway. The following ADTs and vehicle speeds were used for each roadway.

- Airport Boulevard – 20,300 vehicles, 45 mph
- Beach Street – 13,300 vehicles, 25 mph
- East Lake Avenue – 17,800 vehicles, 25 mph
- Freedom Boulevard – 25,300 vehicles, 30 mph
- Green Valley Road – 24,300 vehicles, 35 mph
- Main Street – 32,500 vehicles, 25 mph
- Ohlone Parkway – 11,000 vehicles, 35 mph
- Riverside Drive – 23,000 vehicles, 25 mph
- Walker Street – 12,100 vehicles, 30 mph

TAC concentrations were developed by inputting the emissions rates into an air quality dispersion model (AERMOD). Buffer distances for cancer risk were then computed using the modeled TAC concentrations and MBARD methods and exposure parameters described in the CEQA guidance document. These buffer distances represent the modeled extent at which roadway cancer risk equals MBARD's significance threshold; receptors within the buffer may experience impacts exceeding the threshold.

Dispersion Modeling

Dispersion modeling of TAC emissions was conducted using the EPA AERMOD air quality dispersion model. Pollutant emissions from traffic on each roadway within 1,000 feet of the plan

²² <https://dot.ca.gov/programs/traffic-operations/mpr/pems-source>

area were evaluated as RLINE sources (roadway line sources) for each opposing travel direction on the roadways. The modeling used a five-year meteorological data set (2015-2019) from the Watsonville Municipal Airport prepared for use with the AERMOD model by the CARB. Other inputs to the model included road geometry, hourly traffic emissions, and receptor locations and heights. Annual TAC concentrations using 2030 emissions from traffic on each roadway were calculated using the model. Concentrations were calculated along each roadway at a receptor height of 1.5 meters (5 feet) above ground level, consistent with standard practice for near-road dispersion modeling and representative of the breathing zone where ground-level roadway concentrations are typically maximized. Receptors were placed every 100 meters along each roadway at setback distances of 100, 200, and 500 feet.

Computed Cancer and Non-Cancer Health Impacts

The buffer distances along the roadways within the GPU area that had health risk exceedances are shown in Table 9. Figure 2 shows the roadway links modeled and receptor locations where concentrations were calculated. Details of the roadway emission calculations, dispersion modeling, and cancer risk calculations are provided in *Attachment 2*.

Table 9. Watsonville GPU Area Roadway TAC Sources and Buffer Distances for Exceedance

Source	Type	Buffer Distance for Exceedance (feet)
State Route 1	Traffic 49,755 ADT	300
Main Street	Traffic 32,500 ADT	200

Railway

The Santa Cruz County Regional Transportation Commission (SCCRTC) has begun preliminary plans for reactivating passenger rail service as part of the Zero Emission Passenger Rail & Trail (ZEPRT) Project, which, if implemented, would provide passenger rail service between Santa Cruz and Pajaro through Watsonville. A potential Downtown Watsonville Passenger Rail Station is also proposed at the Walker Street junction and would create a new regional transit connection. Future phases of the ZEPRT project would require separate environmental reviews and funding. There is an existing Santa Cruz Branch Rail Line that runs within Main Street until it intersects with Beach Street, then proceeds west until it exits the GPU area. This existing rail line would be used as the potential passenger rail line. Although it is uncertain if the passenger rail would occur, to be conservative, this analysis assumed this service would occur.

Per the Federal Railroad Administration's Highway-Rail Crossing Inventory, the Santa Cruz Branch Line through the GPU area currently sees approximately four freight trains per week.²³ The Santa Cruz County Regional Transportation Commission's planned Zero Emission Passenger Rail and Trail Project would introduce passenger service using zero-emission trainsets, avoiding the DPM emissions associated with conventional passenger rail. Given the low existing freight activity

²³ Federal Railroad Administration, Crossing Inventory Data. Crossing #752379R. File: *Crossing_Inventory_Data_(Form_71) - _Current_20251117.csv*

and the zero-emission nature of planned passenger service, rail-related TAC emissions are anticipated to be less than significant at the General Plan level and the Project level.

MBARD Permitted Stationary Sources

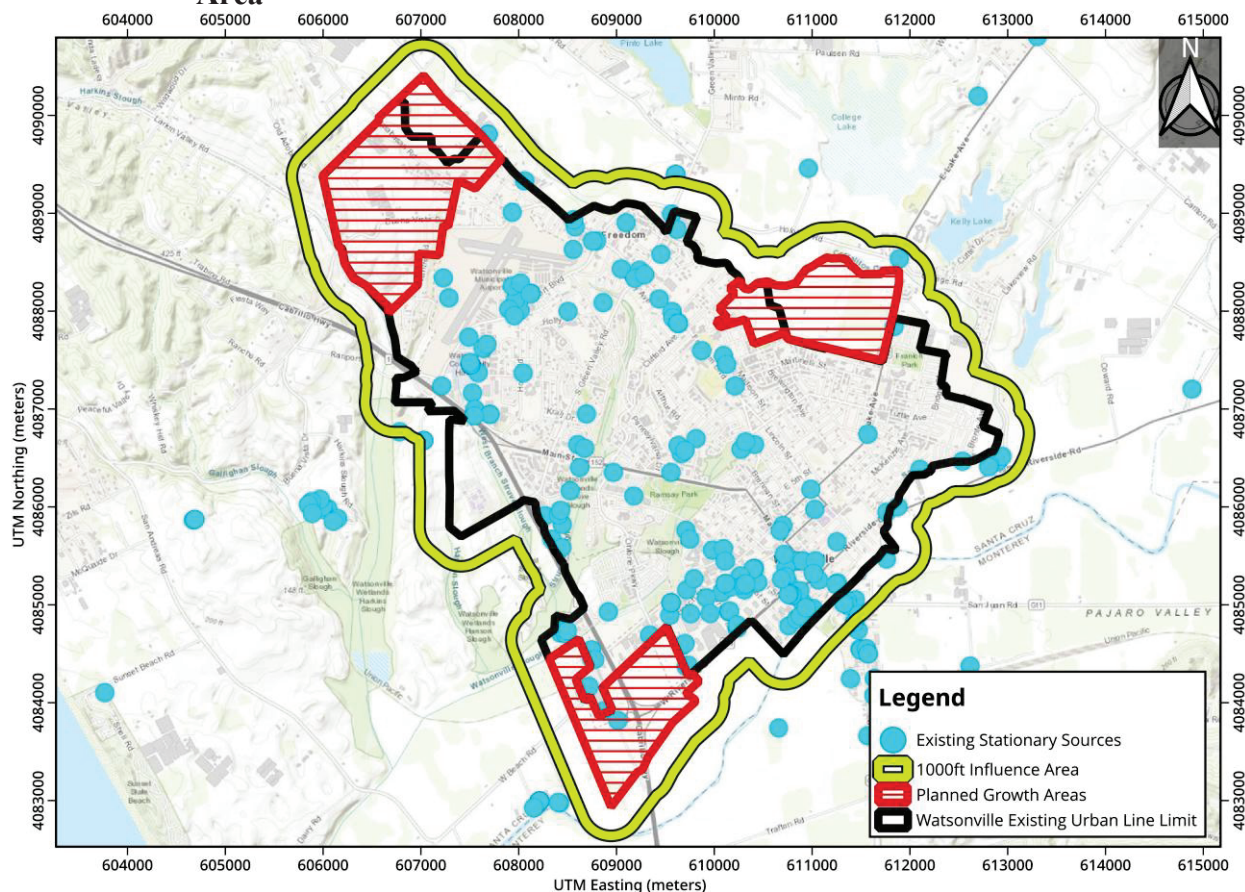
Permitted stationary sources of air pollution within and near the GPU area were identified using MBARD's *Permit Map*,²⁴ which identifies the location of nearby stationary sources. Over 100 existing stationary sources are within the GPU Area. However, since MBARD's website does not identify the stationary sources risk and hazard impacts, the estimated distance sensitive receptors should be from these sources in order to have health risk impacts below the significance thresholds could not be calculated. Generally, the risks from the types of sources listed in Table 10 are low, and therefore, the risks are localized. Projects located near such sources should be evaluated for adverse effects. This would be done by submitting public records requests to MBARD to determine source health risk impacts. Figure 3 shows the stationary sources within the GPU area. Estimated screening buffer distances are provided in Table 10.

Table 10. Watsonville GPU Area Existing Stationary TAC Sources and Estimated Screening Buffer Distances for Exceedance

Source	Type	Estimated Screening Buffer Distance for Exceedance (feet)
Gas Stations	Benzene from evaporative emissions	300
Diesel generators	Diesel particulate matter from testing and maintenance operation	300
Miscellaneous	Consult MBARD	Up to 1,000

²⁴ MBARD, <https://www.mbard.org/permit-search>

Figure 3. Watsonville GPU Area, Existing Stationary Sources, and 1,000-foot Influence Area



Summary of Existing TAC Health Risks

Figure 2 and 3 identify the existing TAC sources within the GPU area. Any development of sensitive receptors within affected areas identified in the sections above would potentially expose sensitive receptors to significant exposure of cancer and non-cancer risks. This would be a *potentially significant impact*.

Mitigation Measure AQ-4: Projects developed within the Watsonville GPU area that are affected by TAC sources shall implement appropriate measures to minimize long-term TAC exposure for new project occupants.

This mitigation measure applies to any project developed within affected GPU areas that are near high volume roadways or stationary sources, as indicated above. For such a project, the project applicant would either need to include measures to reduce long-term exposure to TAC, as described below, or conduct site-specific analysis to identify the level of exposure to TACs in terms of cancer risk concentrations. The analysis shall use procedures prescribed by MBARD (e.g., the MBARD CEQA Air Quality Guidelines) to predict these exposures. Where cancer risk exceeds 10 chances per million from any single source (i.e., within 1,000 feet) and where HI exceeds 1.0

from any single source, the following measures to reduce risk impacts may include but are not limited to:

- a. Design project developments to limit exposure from sources of TACs emissions, using setbacks to buffer sensitive portions of the development.
- b. Install air filtration at units that have predicted cancer risk levels above 10 chances per million and HI above 1.0. Air filtration devices shall be rated MERV13 or higher. Alternately, at the approval of the City, equivalent control technology may be used if it is shown by a qualified air quality consultant or heating, ventilation, and air conditioning (HVAC) engineer that it would reduce risk below significance thresholds.
- c. As part of implementing this measure, an ongoing maintenance plan for the building's HVAC air filtration system shall be required.
- d. Ensure that any lease agreements and other property documents (1) require cleaning, maintenance, and monitoring of the affected units for air flow leaks; (2) include assurance that new owners and tenants are provided information on the ventilation system; and (3) include provisions that fees associated with owning or leasing a unit(s) in the building include funds for cleaning, maintenance, monitoring, and replacements of the filters, as needed.
- e. Require that, prior to building occupancy, an authorized air pollutant consultant or HVAC engineer verify the installation of all necessary measures to reduce cancer risk below 10 chances per million and HI below 1.0 from any source.

Measures identified in the HRA shall be identified as mitigation measures in the environmental document and/or incorporated into the site development plan as a component of the proposed project.

Effectiveness of Mitigation Measure AQ-4

Air filtration systems should be installed on either an individual unit-by-unit basis, with individual air intake and exhaust ducts ventilating each unit separately, or through a centralized building ventilation system. The ventilation system should be certified to achieve certain effectiveness.

The air filtration systems using MERV13, can reduce exposures by 70 to 85 percent. There are filtration systems that can achieve greater reductions. The effective particulate control efficiency using a MERV13 filtration system is about 85 percent and 70 percent when accounting for 3 hours of non-filtered air (e.g., being outside or having windows open). Assuming the effectiveness of filtration systems described above, implementation of *Mitigation Measure AQ-4* would reduce maximum cancer risk and HI to below respective threshold levels. Therefore, with implementation of *Mitigation Measure AQ-4*, this impact would be reduced to a *less than significant* level.

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

The construction of projects built out under the Watsonville GPU would generate localized emissions of diesel exhaust during construction equipment operation and truck activity. These emissions may be noticeable from time to time by adjacent receptors. However, they would be

localized and are not likely to adversely affect people off site by resulting in confirmed odor complaints. The Watsonville GPU does not identify any uses that are typical sources of odors that could lead to objectionable odors that generate frequent odor complaints.

Odor impacts could occur if residents associated with the project experienced objectionable odors and made complaints. Due to the subjective nature of odor impacts, the number of variables that can influence the potential for an odor impact, and the variety of odor sources, there are no quantitative methodologies to determine the presence of a significant odor impact. The significance of odor impacts is based on the potential to cause odor complaints.

Land uses typically producing objectionable odors include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, animal farms, fiberglass molding, and other industrial uses. While the majority of land uses identified under the GPU would not be associated with objectionable odors, there is the potential for some of the industrial development envisioned in the GPU to fall within food processing or other potential odor source categories in proximity to residential uses. Therefore, the GPU would have the potential to result in significant impacts during operation of development envisioned in the GPU.

During construction activities for development in the GPU, short-term, temporary odors from vehicle exhaust and construction equipment would occur. The GPU area does not have substantially tall buildings that would block air movement and possibly cause a buildup of odors. Construction-related odors would disperse and dissipate fairly quickly and would not cause substantial odors at the closest sensitive receptors. In addition, construction-related odors would be relatively short-term. Therefore, impacts related to objectionable odors during construction or operation of development envisioned in the GPU would be less than significant.

Effectiveness of Mitigation Measure AQ-1 and AQ-2

Implementation of Mitigation Measures AQ-1 and AQ-2 requires the analysis of air pollutant emissions of future individual projects in the plan area subject to CEQA. As part of the analysis, odor emissions would be analyzed for those projects that may fall into an odor source category. Where emissions of odors are found to be potentially significant, odor emissions would be mitigated to less than significant levels through measures developed specific to that individual project. The applicant or owner of that project would implement the specific measures. Air Districts, such as MBARD,²⁵ also have regulations for reducing odors. *Therefore, with the implementation of Mitigation Measure AQ-1 and AQ-2, overall GPU odor emissions would be reduced to less than significant levels.*

²⁵ MBARD, CEQA Air Quality Guidelines, 2008. Web: <https://www.mbard.org/ceqa#docaccess-426de1e78c13c6a445169ae5ca92c44dc1510c976b1a7ec4f949e2534f573e88>

SUPPORTING DOCUMENTATION

Attachment 1 includes the CalEEMod output for project operational criteria air pollutants. Also included are any modeling assumptions.

Attachment 2 includes the roadway emissions modeling and health risk calculations. AERMOD dispersion modeling files for this assessment, which are quite voluminous, are available upon request and would be provided in digital format.

Attachment 1: CalEEMod Modeling and Assumptions

Operational Criteria Air Pollutants					
Unmitigated	NOX	ROG	Total PM10	Total PM2.5	CO
Year	Tons				
Total	16.24	61.87	11.38	4.06	127.29
	Net Annual Operational Emissions				
Tons/year	16.24	61.87	11.38	4.06	127.29
	Average Daily Emissions				
Pounds Per Day	88.97	339.00	62.34	22.27	697.50
Threshold - lbs/day	137.0	137.0	82.0	55.0	550.0

Traffic Consultant Daily Trips & VMT				
	Existing Conditions (2023)	2050 No Project	2050 GP Project	Change 2050 GP Project - Existing
Total Trips	264,680	281,900	312,120	47,440
Total VMT	2,562,780	2,437,970	2,640,120	77,340
Average Trip Length (Miles per Trip)	9.68	8.65	8.46	1.63
	9.682560073	8.648350479	8.458669742	1.630269815

25-050 2050 Watsonville General Plan Project - Existing Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	25-050 2050 Watsonville General Plan Project - Existing
Operational Year	2050
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	1.80000
Precipitation (days)	37.2000
Location	Watsonville, CA, USA
County	Santa Cruz
City	Watsonville
Air District	Monterey Bay ARD
Air Basin	North Central Coast
TAZ	3133
EDFZ	6
Electric Utility	Central Coast Community Energy
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.43

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
Single Family Housing	426.000	Dwelling Unit	138.312	830,700	4,989,677	—	1,120.00	—

Apartments Low Rise	1,090.00	Dwelling Unit	68.1250	1,155,400	0.00000	—	2,867.00	—
Apartments Mid Rise	4,464.00	Dwelling Unit	117.474	4,285,440	0.00000	—	11,740.0	—
General Heavy Industry	280.217	1000sqft	6.43290	280,217	0.00000	—	—	—
Refrigerated Warehouse-No Rail	49.3990	1000sqft	1.13404	49,399.0	0.00000	—	—	—
Unrefrigerated Warehouse-No Rail	419.910	1000sqft	9.63981	419,910	0.00000	—	—	—
Discount Club	200.000	1000sqft	4.59137	200,000	0.00000	—	—	—
Strip Mall	833.344	1000sqft	19.1309	833,344	0.00000	—	—	—
Automobile Care Center	32.1820	1000sqft	0.73880	32,182.0	0.00000	—	—	—
Convenience Market (24 hour)	28.5770	1000sqft	0.65604	28,577.0	0.00000	—	—	—
General Office Building	263.977	1000sqft	6.06008	263,977	0.00000	—	—	—
Hotel	1,053.00	Room	35.1000	421,082	0.00000	—	—	—
Research & Development	142.924	1000sqft	3.28108	142,924	0.00000	—	—	—
City Park	62.0000	Acre	62.0000	0.00000	0.00000	0.00000	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.3. 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	CO	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
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Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	273.224	62.6964	500.369	6.84982	0.00000	6.84982	6.76264	0.00000	6.76264	0.00000	6.76264	160,408		
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	224.656	58.5867	43.1945	6.49179	0.00000	6.49179	6.49179	0.00000	6.49179	0.00000	6.49179	159,018		
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	251.910	57.3762	369.536	8.70383	0.00000	8.70383	8.50538	0.00000	8.50538	0.00000	8.50538	154,958		
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	45.9737	10.4712	67.4403	1.58845	0.00000	1.58845	1.55223	0.00000	1.55223	0.00000	1.55223	25,655.1		

2.4. 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	CO	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Mobile	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Area	270.261	11.3707	473.772	2.75575	—	2.75575	2.66857	—	2.66857	10,387.1
Energy	2.96281	51.3257	26.5972	4.09407	—	4.09407	4.09407	—	4.09407	120,891
Water	—	—	—	—	—	—	—	—	—	6,149.73
Waste	—	—	—	—	—	—	—	—	—	14,952.9
Refrig.	—	—	—	—	—	—	—	—	—	8,027.67
Total	273.224	62.6964	500.369	6.84982	0.00000	6.84982	6.76264	0.00000	6.76264	160,408
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Mobile	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Area	221.694	7.26099	16.5973	2.39772	—	2.39772	2.39772	—	2.39772	8,997.26
Energy	2.96281	51.3257	26.5972	4.09407	—	4.09407	4.09407	—	4.09407	120,891
Water	—	—	—	—	—	—	—	—	—	6,149.73

Waste	—	—	—	—	—	—	—	—	—	—	—	14,952.9
Refrig.	—	—	—	—	—	—	—	—	—	—	—	8,027.67
Total	224.656	58.5867	43.1945	6.49179	0.00000	6.49179	6.49179	0.00000	6.49179	0.00000	6.49179	159,018
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Area	248.948	6.05049	342.939	4.60976	—	4.60976	4.41131	—	4.41131	—	4.41131	4,937.43
Energy	2.96281	51.3257	26.5972	4.09407	—	4.09407	4.09407	—	4.09407	—	4.09407	120,891
Water	—	—	—	—	—	—	—	—	—	—	—	6,149.73
Waste	—	—	—	—	—	—	—	—	—	—	—	14,952.9
Refrig.	—	—	—	—	—	—	—	—	—	—	—	8,027.67
Total	251.910	57.3762	369.536	8.70383	0.00000	8.70383	8.50538	0.00000	8.50538	0.00000	8.50538	154,958
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Area	45.4329	1.10421	62.5863	0.84128	—	0.84128	0.80506	—	0.80506	—	0.80506	817.448
Energy	0.54071	9.36695	4.85399	0.74717	—	0.74717	0.74717	—	0.74717	—	0.74717	20,014.8
Water	—	—	—	—	—	—	—	—	—	—	—	1,018.16
Waste	—	—	—	—	—	—	—	—	—	—	—	2,475.63
Refrig.	—	—	—	—	—	—	—	—	—	—	—	1,329.07
Total	45.9737	10.4712	67.4403	1.58845	0.00000	1.58845	1.55223	0.00000	1.55223	0.00000	1.55223	25,655.1

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	CO	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—

Single Family Housing	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Apartments Low Rise	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Apartments Mid Rise	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
General Heavy Industry	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Refrigerated Warehouse-No Rail	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Unrefrigerated Warehouse-No Rail	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Discount Club	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Strip Mall	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Automobile Care Center	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Convenience Market (24 hour)	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
General Office Building	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hotel	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Research & Development	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
City Park	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Apartments Low Rise	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Apartments Mid Rise	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
General Heavy Industry	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Refrigerated Warehouse-No Rail	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Unrefrigerated Warehouse-No Rail	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Discount Club	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Strip Mall	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Automobile Care Center	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Convenience Market (24 hour)	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
General Office Building	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hotel	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Research & Development	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
City Park	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Apartments Low Rise	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Apartments Mid Rise	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
General Heavy Industry	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Refrigerated Warehouse-No Rail	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Unrefrigerated Warehouse-No Rail	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Discount Club	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Strip Mall	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Automobile Care Center	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Convenience Market (24 hour)	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
General Office Building	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hotel	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Research & Development	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
City Park	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

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	CO	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	2,965.25
Apartments Low Rise	—	—	—	—	—	—	—	—	—	3,947.38

Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	15,209.4
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,244.59
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,366.52
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5,107.86
Discount Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,900.43
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7,918.56
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	372.630
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,670.10
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6,324.93
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2,985.21
Research & Development	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,424.48
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	56,437.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2,965.25
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,947.38
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	15,209.4
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,244.59

Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,366.52
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5,107.86
Discount Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,900.43
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7,918.56
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	372.630
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,670.10
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6,324.93
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2,985.21
Research & Development	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,424.48
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	56,437.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	490.931
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	653.534
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2,518.09
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	537.178
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	226.242
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	845.665

[illegible]

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	CO	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.25110	4.29159	1.82621	0.34698	—	0.34698	0.34698	—	0.34698	5,462.54
Apartments Low Rise	0.43144	7.37377	3.13778	0.59618	—	0.59618	0.59618	—	0.59618	9,385.69
Apartments Mid Rise	1.64909	28.1844	11.9933	2.27874	—	2.27874	2.27874	—	2.27874	35,874.4
General Heavy Industry	0.17467	3.17581	2.66768	0.24136	—	0.24136	0.24136	—	0.24136	3,799.79
Refrigerated Warehouse-No Rail	0.00157	0.02850	0.02394	0.00217	—	0.00217	0.00217	—	0.00217	34.0999

Unrefrigerated Warehouse-No Rail	0.03687	0.67031	0.56306	0.05094	—	0.05094	—	0.05094	—	0.05094	802.014
Discount Club	0.01765	0.32086	0.26953	0.02439	—	0.02439	—	0.02439	—	0.02439	383.906
Strip Mall	0.07353	1.33695	1.12304	0.10161	—	0.10161	—	0.10161	—	0.10161	1,599.63
Automobile Care Center	0.02006	0.36473	0.30637	0.02772	—	0.02772	—	0.02772	—	0.02772	436.393
Convenience Market (24 hour)	0.01040	0.18904	0.15880	0.01437	—	0.01437	—	0.01437	—	0.01437	226.185
General Office Building	0.08809	1.60158	1.34533	0.12172	—	0.12172	—	0.12172	—	0.12172	1,916.26
Hotel	0.16066	2.92108	2.45371	0.22200	—	0.22200	—	0.22200	—	0.22200	3,495.00
Research & Development	0.04769	0.86714	0.72840	0.06590	—	0.06590	—	0.06590	—	0.06590	1,037.51
City Park	0.00000	0.00000	0.00000	0.00000	—	0.00000	—	0.00000	—	0.00000	0.00000
Total	2.96281	51.3257	26.5972	4.09407	—	4.09407	—	4.09407	—	4.09407	64,453.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.25110	4.29159	1.82621	0.34698	—	0.34698	—	0.34698	—	0.34698	5,462.54
Apartments Low Rise	0.43144	7.37377	3.13778	0.59618	—	0.59618	—	0.59618	—	0.59618	9,385.69
Apartments Mid Rise	1.64909	28.1844	11.9933	2.27874	—	2.27874	—	2.27874	—	2.27874	35,874.4
General Heavy Industry	0.17467	3.17581	2.66768	0.24136	—	0.24136	—	0.24136	—	0.24136	3,799.79
Refrigerated Warehouse-No Rail	0.00157	0.02850	0.02394	0.00217	—	0.00217	—	0.00217	—	0.00217	34.0999
Unrefrigerated Warehouse-No Rail	0.03687	0.67031	0.56306	0.05094	—	0.05094	—	0.05094	—	0.05094	802.014
Discount Club	0.01765	0.32086	0.26953	0.02439	—	0.02439	—	0.02439	—	0.02439	383.906

Strip Mall	0.07353	1.33695	1.12304	0.10161	—	0.10161	0.10161	—	0.10161	—	0.10161	1,599.63
Automobile Care Center	0.02006	0.36473	0.30637	0.02772	—	0.02772	0.02772	—	0.02772	—	0.02772	436.393
Convenience Market (24 hour)	0.01040	0.18904	0.15880	0.01437	—	0.01437	0.01437	—	0.01437	—	0.01437	226.185
General Office Building	0.08809	1.60158	1.34533	0.12172	—	0.12172	0.12172	—	0.12172	—	0.12172	1,916.26
Hotel	0.16066	2.92108	2.45371	0.22200	—	0.22200	0.22200	—	0.22200	—	0.22200	3,495.00
Research & Development	0.04769	0.86714	0.72840	0.06590	—	0.06590	0.06590	—	0.06590	—	0.06590	1,037.51
City Park	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000
Total	2.96281	51.3257	26.5972	4.09407	—	4.09407	4.09407	—	4.09407	—	4.09407	64,453.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.04583	0.78322	0.33328	0.06332	—	0.06332	0.06332	—	0.06332	—	0.06332	904.386
Apartments Low Rise	0.07874	1.34571	0.57264	0.10880	—	0.10880	0.10880	—	0.10880	—	0.10880	1,553.91
Apartments Mid Rise	0.30096	5.14365	2.18879	0.41587	—	0.41587	0.41587	—	0.41587	—	0.41587	5,939.41
General Heavy Industry	0.03188	0.57959	0.48685	0.04405	—	0.04405	0.04405	—	0.04405	—	0.04405	629.098
Refrigerated Warehouse-No Rail	0.00029	0.00520	0.00437	0.00040	—	0.00040	0.00040	—	0.00040	—	0.00040	5.64563
Unrefrigerated Warehouse-No Rail	0.00673	0.12233	0.10276	0.00930	—	0.00930	0.00930	—	0.00930	—	0.00930	132.783
Discount Club	0.00322	0.05856	0.04919	0.00445	—	0.00445	0.00445	—	0.00445	—	0.00445	63.5600
Strip Mall	0.01342	0.24399	0.20495	0.01854	—	0.01854	0.01854	—	0.01854	—	0.01854	264.837
Automobile Care Center	0.00366	0.06656	0.05591	0.00506	—	0.00506	0.00506	—	0.00506	—	0.00506	72.2498

Convenience Market (24 hour)	0.00190	0.03450	0.02898	0.00262	—	0.00262	0.00262	—	0.00262	—	0.00262	37.4476
General Office Building	0.01608	0.29229	0.24552	0.02221	—	0.02221	0.02221	—	0.02221	—	0.02221	317.258
Hotel	0.02932	0.53310	0.44780	0.04052	—	0.04052	0.04052	—	0.04052	—	0.04052	578.637
Research & Development	0.00870	0.15825	0.13293	0.01203	—	0.01203	0.01203	—	0.01203	—	0.01203	171.772
City Park	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000
Total	0.54071	9.36695	4.85399	0.74717	—	0.74717	0.74717	—	0.74717	—	0.74717	10,671.0

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	CO	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Hearths	12.6250	7.26099	16.5973	2.39772	—	2.39772	2.39772	—	2.39772	8,997.26
Consumer Products	191.383	—	—	—	—	—	—	—	—	—
Architectural Coatings	17.6851	—	—	—	—	—	—	—	—	—
Landscape Equipment	48.5675	4.10970	457.175	0.35803	—	0.35803	0.27085	—	0.27085	1,389.81
Total	270.261	11.3707	473.772	2.75575	—	2.75575	2.66857	—	2.66857	10,387.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Hearths	12.6250	7.26099	16.5973	2.39772	—	2.39772	2.39772	—	2.39772	8,997.26
Consumer Products	191.383	—	—	—	—	—	—	—	—	—

Architectural Coatings	17.6851	—	—	—	—	—	—	—	—	—	—	—	—
Total	221.694	7.26099	16.5973	2.39772	—	2.39772	2.39772	2.39772	—	2.39772	2.39772	8,997.26	
Annual	—	—	—	—	—	—	—	—	—	—	—	—	
Hearths	1.20701	0.59050	5.43942	0.79653	—	0.79653	0.77121	0.77121	—	0.77121	0.77121	659,845	
Consumer Products	34.9275	—	—	—	—	—	—	—	—	—	—	—	
Architectural Coatings	3.22752	—	—	—	—	—	—	—	—	—	—	—	
Landscape Equipment	6.07093	0.51371	57.1469	0.04475	—	0.04475	0.03386	0.03386	—	0.03386	0.03386	157,602	
Total	45.4329	1.10421	62.5863	0.84128	—	0.84128	0.80506	0.80506	—	0.80506	0.80506	817,448	

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	CO	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	366.013
Apartments Low Rise	—	—	—	—	—	—	—	—	—	358.211
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	1,467.02
General Heavy Industry	—	—	—	—	—	—	—	—	—	643.015
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	113.356

Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	963.568
Discount Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	147.005
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	612.528
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	30.0442
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21.0048
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	465.565
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	265.056
Research & Development	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	697.340
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6,149.73
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	366.013
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	358.211
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,467.02
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	643.015
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	113.356
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	963.568
Discount Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	147.005

Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3,477.58
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	77,079.6
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	43,883.1
Research & Development	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	115,453
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,018.16

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	CO	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	475,699
Apartments Low Rise	—	—	—	—	—	—	—	—	—	1,520.01
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	6,224.24
General Heavy Industry	—	—	—	—	—	—	—	—	—	655.175
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	87,556.3
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	744,261
Discount Club	—	—	—	—	—	—	—	—	—	1,621.85

Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	161.934
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	462.903
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,087.06
Research & Development	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.4795
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.0538
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14,952.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	78.7574
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	251.655
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,030.49
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	108.472
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14.4959
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	123.221
Discount Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	268.516
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	273.158
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	38.3775
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26.8100
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	76.6389

Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	179.975
Research & Development	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.39062
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.66453
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2,475.63

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	CO	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	5.94948
Apartments Low Rise	—	—	—	—	—	—	—	—	—	8.27498
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	30.6923
General Heavy Industry	—	—	—	—	—	—	—	—	—	72.9417
Refrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	1,316.50
Discount Club	—	—	—	—	—	—	—	—	—	0.96012
Strip Mall	—	—	—	—	—	—	—	—	—	5.19026
Automobile Care Center	—	—	—	—	—	—	—	—	—	0.05026
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	5,924.56
General Office Building	—	—	—	—	—	—	—	—	—	0.64199

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

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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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	CO	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

5.9. 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
Single Family Housing	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Apartments Low Rise	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Apartments Mid Rise	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
General Heavy Industry	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Refrigerated Warehouse-No Rail	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Unrefrigerated Warehouse-No Rail	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Discount Club	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Strip Mall	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Automobile Care Center	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Convenience Market (24 hour)	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
General Office Building	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hotel	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Research & Development	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

City Park	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
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5.10. Operational Area Sources

5.10.1. Hearths

Land Use	Hearth Type	Unmitigated (number)							Mitigated (number)
Single Family Housing	Wood Fireplaces	13							13
Single Family Housing	Gas Fireplaces	383							383
Single Family Housing	Propane Fireplaces	30							30
Single Family Housing	Electric Fireplaces	0							0
Single Family Housing	No Fireplaces	0							0
Single Family Housing	Conventional Wood Stoves	0							0
Single Family Housing	Catalytic Wood Stoves	21							21
Single Family Housing	Non-Catalytic Wood Stoves	21							21
Single Family Housing	Pellet Wood Stoves	30							30
Apartments Low Rise	Wood Fireplaces	0							0
Apartments Low Rise	Gas Fireplaces	1,090							1,090
Apartments Low Rise	Propane Fireplaces	0							0
Apartments Low Rise	Electric Fireplaces	0							0
Apartments Low Rise	No Fireplaces	0							0
Apartments Low Rise	Conventional Wood Stoves	0							0
Apartments Low Rise	Catalytic Wood Stoves	0							0
Apartments Low Rise	Non-Catalytic Wood Stoves	0							0
Apartments Low Rise	Pellet Wood Stoves	0							0
Apartments Mid Rise	Wood Fireplaces	0							0
Apartments Mid Rise	Gas Fireplaces	4,464							4,464
Apartments Mid Rise	Propane Fireplaces	0							0
Apartments Mid Rise	Electric Fireplaces	0							0

Apartments Mid Rise	No Fireplaces	0	0
Apartments Mid Rise	Conventional Wood Stoves	0	0
Apartments Mid Rise	Catalytic Wood Stoves	0	0
Apartments Mid Rise	Non-Catalytic Wood Stoves	0	0
Apartments Mid Rise	Pellet Wood Stoves	0	0
General Heavy Industry	Wood Fireplaces	0	0
General Heavy Industry	Gas Fireplaces	0	0
General Heavy Industry	Propane Fireplaces	0	0
General Heavy Industry	Electric Fireplaces	0	0
General Heavy Industry	No Fireplaces	0	0
General Heavy Industry	Conventional Wood Stoves	0	0
General Heavy Industry	Catalytic Wood Stoves	0	0
General Heavy Industry	Non-Catalytic Wood Stoves	0	0
General Heavy Industry	Pellet Wood Stoves	0	0
Refrigerated Warehouse-No Rail	Wood Fireplaces	0	0
Refrigerated Warehouse-No Rail	Gas Fireplaces	0	0
Refrigerated Warehouse-No Rail	Propane Fireplaces	0	0
Refrigerated Warehouse-No Rail	Electric Fireplaces	0	0
Refrigerated Warehouse-No Rail	No Fireplaces	0	0
Refrigerated Warehouse-No Rail	Conventional Wood Stoves	0	0
Refrigerated Warehouse-No Rail	Catalytic Wood Stoves	0	0
Refrigerated Warehouse-No Rail	Non-Catalytic Wood Stoves	0	0
Refrigerated Warehouse-No Rail	Pellet Wood Stoves	0	0
Unrefrigerated Warehouse-No Rail	Wood Fireplaces	0	0
Unrefrigerated Warehouse-No Rail	Gas Fireplaces	0	0
Unrefrigerated Warehouse-No Rail	Propane Fireplaces	0	0
Unrefrigerated Warehouse-No Rail	Electric Fireplaces	0	0
Unrefrigerated Warehouse-No Rail	No Fireplaces	0	0

Unrefrigerated Warehouse-No Rail	Conventional Wood Stoves	0	0
Unrefrigerated Warehouse-No Rail	Catalytic Wood Stoves	0	0
Unrefrigerated Warehouse-No Rail	Non-Catalytic Wood Stoves	0	0
Unrefrigerated Warehouse-No Rail	Pellet Wood Stoves	0	0
Discount Club	Wood Fireplaces	0	0
Discount Club	Gas Fireplaces	0	0
Discount Club	Propane Fireplaces	0	0
Discount Club	Electric Fireplaces	0	0
Discount Club	No Fireplaces	0	0
Discount Club	Conventional Wood Stoves	0	0
Discount Club	Catalytic Wood Stoves	0	0
Discount Club	Non-Catalytic Wood Stoves	0	0
Discount Club	Pellet Wood Stoves	0	0
Strip Mall	Wood Fireplaces	0	0
Strip Mall	Gas Fireplaces	0	0
Strip Mall	Propane Fireplaces	0	0
Strip Mall	Electric Fireplaces	0	0
Strip Mall	No Fireplaces	0	0
Strip Mall	Conventional Wood Stoves	0	0
Strip Mall	Catalytic Wood Stoves	0	0
Strip Mall	Non-Catalytic Wood Stoves	0	0
Strip Mall	Pellet Wood Stoves	0	0
Automobile Care Center	Wood Fireplaces	0	0
Automobile Care Center	Gas Fireplaces	0	0
Automobile Care Center	Propane Fireplaces	0	0
Automobile Care Center	Electric Fireplaces	0	0
Automobile Care Center	No Fireplaces	0	0
Automobile Care Center	Conventional Wood Stoves	0	0

Automobile Care Center	Catalytic Wood Stoves	0	0
Automobile Care Center	Non-Catalytic Wood Stoves	0	0
Automobile Care Center	Pellet Wood Stoves	0	0
Convenience Market (24 hour)	Wood Fireplaces	0	0
Convenience Market (24 hour)	Gas Fireplaces	0	0
Convenience Market (24 hour)	Propane Fireplaces	0	0
Convenience Market (24 hour)	Electric Fireplaces	0	0
Convenience Market (24 hour)	No Fireplaces	0	0
Convenience Market (24 hour)	Conventional Wood Stoves	0	0
Convenience Market (24 hour)	Catalytic Wood Stoves	0	0
Convenience Market (24 hour)	Non-Catalytic Wood Stoves	0	0
Convenience Market (24 hour)	Pellet Wood Stoves	0	0
General Office Building	Wood Fireplaces	0	0
General Office Building	Gas Fireplaces	0	0
General Office Building	Propane Fireplaces	0	0
General Office Building	Electric Fireplaces	0	0
General Office Building	No Fireplaces	0	0
General Office Building	Conventional Wood Stoves	0	0
General Office Building	Catalytic Wood Stoves	0	0
General Office Building	Non-Catalytic Wood Stoves	0	0
General Office Building	Pellet Wood Stoves	0	0
Hotel	Wood Fireplaces	0	0
Hotel	Gas Fireplaces	0	0
Hotel	Propane Fireplaces	0	0
Hotel	Electric Fireplaces	0	0
Hotel	No Fireplaces	0	0
Hotel	Conventional Wood Stoves	0	0
Hotel	Catalytic Wood Stoves	0	0

Hotel	Non-Catalytic Wood Stoves	0	0	0
Hotel	Pellet Wood Stoves	0		0
Research & Development	Wood Fireplaces	0		0
Research & Development	Gas Fireplaces	0		0
Research & Development	Propane Fireplaces	0		0
Research & Development	Electric Fireplaces	0		0
Research & Development	No Fireplaces	0		0
Research & Development	Conventional Wood Stoves	0		0
Research & Development	Catalytic Wood Stoves	0		0
Research & Development	Non-Catalytic Wood Stoves	0		0
Research & Development	Pellet Wood Stoves	0		0
City Park	Wood Fireplaces	0		0
City Park	Gas Fireplaces	0		0
City Park	Propane Fireplaces	0		0
City Park	Electric Fireplaces	0		0
City Park	No Fireplaces	0		0
City Park	Conventional Wood Stoves	0		0
City Park	Catalytic Wood Stoves	0		0
City Park	Non-Catalytic Wood Stoves	0		0
City Park	Pellet Wood Stoves	0		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)
12,699,869	4,233,290	4,007,418	1,335,806	—

5.10.3. Landscape Equipment

Season	Unit	Value
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Snow Days	day/yr	0.00000
Summer Days	day/yr	250.000

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)
Single Family Housing	2,582,988	417.000	0.0330	0.0040	16,997,450
Apartments Low Rise	3,438,511	417.000	0.0330	0.0040	29,204,855
Apartments Mid Rise	13,248,688	417.000	0.0330	0.0040	111,628,061
General Heavy Industry	2,826,314	417.000	0.0330	0.0040	11,823,556
Refrigerated Warehouse-No Rail	1,190,353	417.000	0.0330	0.0040	106,107
Unrefrigerated Warehouse-No Rail	4,449,390	417.000	0.0330	0.0040	2,495,576
Discount Club	1,655,438	417.000	0.0330	0.0040	1,194,575
Strip Mall	6,897,749	417.000	0.0330	0.0040	4,977,461
Automobile Care Center	324,593	417.000	0.0330	0.0040	1,357,896
Convenience Market (24 hour)	1,454,800	417.000	0.0330	0.0040	703,807
General Office Building	5,509,563	417.000	0.0330	0.0040	5,962,700
Hotel	2,600,372	417.000	0.0330	0.0040	10,875,178
Research & Development	2,983,020	417.000	0.0330	0.0040	3,228,361
City Park	0.00000	417.000	0.0330	0.0040	0.00000

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
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Single Family Housing	14,108,385	50,891,014
Apartments Low Rise	36,098,920	0.00000
Apartments Mid Rise	147,839,980	0.00000
General Heavy Industry	64,800,181	0.00000
Refrigerated Warehouse-No Rail	11,423,519	0.00000
Unrefrigerated Warehouse-No Rail	97,104,188	0.00000
Discount Club	14,814,504	0.00000
Strip Mall	61,727,891	0.00000
Automobile Care Center	3,027,718	0.00000
Convenience Market (24 hour)	2,116,770	0.00000
General Office Building	46,917,622	0.00000
Hotel	26,711,209	0.00000
Research & Development	70,274,866	0.00000
City Park	0.00000	0.00000

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	252.285	0.00000
Apartments Low Rise	806.129	0.00000
Apartments Mid Rise	3,301.00	0.00000
General Heavy Industry	347.469	0.00000
Refrigerated Warehouse-No Rail	46.4351	0.00000
Unrefrigerated Warehouse-No Rail	394.715	0.00000
Discount Club	860.140	0.00000
Strip Mall	875.011	0.00000
Automobile Care Center	122.935	0.00000

Convenience Market (24 hour)	85.8809	0.00000
General Office Building	245.499	0.00000
Hotel	576.518	0.00000
Research & Development	10.8612	0.00000
City Park	5.33200	0.00000

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088.00	0.00225	2.50000	2.50000	10.00000
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430.00	0.11538	0.60000	0.00000	1.000000
Apartments Low Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088.00	0.00225	2.50000	2.50000	10.00000
Apartments Low Rise	Household refrigerators and/or freezers	R-134a	1,430.00	0.11538	0.60000	0.00000	1.000000
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088.00	0.00225	2.50000	2.50000	10.00000
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430.00	0.11538	0.60000	0.00000	1.000000
General Heavy Industry	Other commercial A/C and heat pumps	R-410A	2,088.00	0.30000	4.00000	4.00000	18.0000
Refrigerated Warehouse-No Rail	Cold storage	R-404A	3,922.00	7.50000	7.50000	7.50000	25.0000
Discount Club	Other commercial A/C and heat pumps	R-410A	2,088.00	0.00180	4.00000	4.00000	18.0000

Discount Club	Stand-alone retail refrigerators and freezers	R-134a	1,430.00	0.03750	1.000000	0.00000	1.000000
Strip Mall	Other commercial A/C and heat pumps	R-410A	2,088.00	0.00180	4.00000	4.00000	18.0000
Strip Mall	Stand-alone retail refrigerators and freezers	R-134a	1,430.00	0.03750	1.000000	0.00000	1.000000
Strip Mall	Walk-in refrigerators and freezers	R-404A	3,922.00	0.00040	7.50000	7.50000	20.0000
Automobile Care Center	Other commercial A/C and heat pumps	R-410A	2,088.00	0.00180	4.00000	4.00000	18.0000
Convenience Market (24 hour)	Other commercial A/C and heat pumps	R-410A	2,088.00	0.00180	4.00000	4.00000	18.0000
Convenience Market (24 hour)	Supermarket refrigeration and condensing units	R-404A	3,922.00	26.5200	16.5000	16.5000	18.0000
General Office Building	Household refrigerators and/or freezers	R-134a	1,430.00	0.01679	0.60000	0.00000	1.000000
General Office Building	Other commercial A/C and heat pumps	R-410A	2,088.00	0.00180	4.00000	4.00000	18.0000
Hotel	Household refrigerators and/or freezers	R-134a	1,430.00	0.00000	0.60000	0.00000	1.000000
Hotel	Other commercial A/C and heat pumps	R-410A	2,088.00	1.80000	4.00000	4.00000	18.0000
Hotel	Walk-in refrigerators and freezers	R-404A	3,922.00	0.00040	7.50000	7.50000	20.0000
Research & Development	Household refrigerators and/or freezers	R-134a	1,430.00	0.45455	0.60000	0.00000	1.000000
Research & Development	Other commercial A/C and heat pumps	R-410A	2,088.00	0.00230	4.00000	4.00000	18.0000
City Park	Other commercial A/C and heat pumps	R-410A	2,088.00	0.00180	4.00000	4.00000	18.0000

City Park	Stand-alone retail refrigerators and freezers	R-134a	1,430.00	0.03750	1.000000	0.00000	1.000000
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5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

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. Biomass Cover Type

5.18.1.1. Unmitigated

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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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	6.83000	annual days of extreme heat
Extreme Precipitation	6.05000	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	14.1600	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	16.7766
AQ-PM	4.16926
AQ-DPM	79.9502
Drinking Water	31.4974
Lead Risk Housing	94.8582
Pesticides	78.5517
Toxic Releases	6.98925
Traffic	38.1875
Effect Indicators	—
CleanUp Sites	81.3736
Groundwater	90.5695
Haz Waste Facilities/Generators	20.3177
Impaired Water Bodies	98.0680
Solid Waste	25.7274
Sensitive Population	—
Asthma	65.3539
Cardio-vascular	45.0274
Low Birth Weights	28.9582
Socioeconomic Factor Indicators	—
Education	97.4310
Housing	83.6502
Linguistic	97.9564
Poverty	87.7638
Unemployment	77.0953

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	7.481072758
Employed	41.67842936
Median HI	18.87591428
Education	—
Bachelor's or higher	2.912870525
High school enrollment	0.731425638
Preschool enrollment	40.94700372
Transportation	—
Auto Access	11.9209547
Active commuting	60.55434364
Social	—
2-parent households	37.28987553
Voting	21.90427307
Neighborhood	—
Alcohol availability	9.944822276
Park access	81.35506224
Retail density	90.60695496
Supermarket access	94.25125112
Tree canopy	20.92903888
Housing	—
Homeownership	3.926600796
Housing habitability	1.398691133
Low-inc homeowner severe housing cost burden	7.583728988
Low-inc renter severe housing cost burden	34.94161427
Uncrowded housing	3.554471962
Health Outcomes	—

Insured adults	18.3498011
Arthritis	0.0
Asthma ER Admissions	28.0
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	98.7
Cognitively Disabled	30.7
Physically Disabled	73.0
Heart Attack ER Admissions	57.0
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	80.5
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	28.3
Children	2.7
Elderly	96.3

English Speaking	1.3
Foreign-born	93.8
Outdoor Workers	0.7
Climate Change Adaptive Capacity	—
Impervious Surface Cover	15.1
Traffic Density	35.7
Traffic Access	0.0
Other Indices	—
Hardship	94.6
Other Decision Support	—
2016 Voting	33.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	80.0000
Healthy Places Index Score for Project Location (b)	5.00000
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
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 Healthy 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

8.1. Justifications

Screen	Justification
Characteristics: Utility Information	Watsonville default clean energy provider is Central Coast Community energy (CCCE). CCCE 2024 power content label = 417 lb/MWh.
Land Use	Information provided by land use table. Hotel rooms found out by taking average hotel room sf.
Operations: Vehicle Data	0'ed out. Traffic run separate.
Operations: Road Dust	100% paved roads.
Operations: Water and Waste Water	Wastewater treatment 100% aerobicic - no septic tanks or lagoons.

8.2. Project Characteristics

8.2.1. Project Details

Model Parameter	Default Value	New Value
Electric Utility	Pacific Gas & Electric Company	Central Coast Community Energy

8.2.2. Utility Information

Model Parameter	Units	Default Value	New Value
CO2	lb/MWh	9.99000	417.000

8.3. Land Use

Model Parameter	Units	Default Value	New Value
Building Area	sq. ft	1,528,956	421,082
Landscape Area	sq. ft	—	0.00000

8.5. Operations

8.5.1. Mobile Sources

8.5.1.1. Vehicle Data

Land Use	Model Parameter	Units	Default Value	New Value
Single Family Housing	Weekday Trip Rate	size/day	9.44000	0.00000
Single Family Housing	Saturday Trip Rate	size/day	9.54000	0.00000
Single Family Housing	Sunday Trip Rate	size/day	8.55000	0.00000
Apartments Low Rise	Weekday Trip Rate	size/day	7.32000	0.00000
Apartments Low Rise	Saturday Trip Rate	size/day	8.14000	0.00000
Apartments Low Rise	Sunday Trip Rate	size/day	6.28000	0.00000
Apartments Mid Rise	Weekday Trip Rate	size/day	5.44000	0.00000
Apartments Mid Rise	Saturday Trip Rate	size/day	4.91000	0.00000
Apartments Mid Rise	Sunday Trip Rate	size/day	4.09000	0.00000
General Heavy Industry	Weekday Trip Rate	size/day	3.93000	0.00000
General Heavy Industry	Saturday Trip Rate	size/day	6.42000	0.00000
General Heavy Industry	Sunday Trip Rate	size/day	5.09000	0.00000
Refrigerated Warehouse-No Rail	Weekday Trip Rate	size/day	2.12000	0.00000
Refrigerated Warehouse-No Rail	Saturday Trip Rate	size/day	2.12000	0.00000
Refrigerated Warehouse-No Rail	Sunday Trip Rate	size/day	2.12000	0.00000
Unrefrigerated Warehouse-No Rail	Weekday Trip Rate	size/day	1.74000	0.00000
Unrefrigerated Warehouse-No Rail	Saturday Trip Rate	size/day	1.74000	0.00000
Unrefrigerated Warehouse-No Rail	Sunday Trip Rate	size/day	1.74000	0.00000
Discount Club	Weekday Trip Rate	size/day	41.8000	0.00000
Discount Club	Saturday Trip Rate	size/day	53.7500	0.00000
Discount Club	Sunday Trip Rate	size/day	33.6700	0.00000
Strip Mall	Weekday Trip Rate	size/day	44.3200	0.00000

Strip Mall	Saturday Trip Rate	size/day	42.0400	0.00000
Strip Mall	Sunday Trip Rate	size/day	20.4300	0.00000
Automobile Care Center	Weekday Trip Rate	size/day	23.7200	0.00000
Automobile Care Center	Saturday Trip Rate	size/day	23.7200	0.00000
Automobile Care Center	Sunday Trip Rate	size/day	11.8800	0.00000
Convenience Market (24 hour)	Weekday Trip Rate	size/day	762.280	0.00000
Convenience Market (24 hour)	Saturday Trip Rate	size/day	1,084.17	0.00000
Convenience Market (24 hour)	Sunday Trip Rate	size/day	901.170	0.00000
General Office Building	Weekday Trip Rate	size/day	9.74000	0.00000
General Office Building	Saturday Trip Rate	size/day	2.21000	0.00000
General Office Building	Sunday Trip Rate	size/day	0.70000	0.00000
Hotel	Weekday Trip Rate	size/day	8.36000	0.00000
Hotel	Saturday Trip Rate	size/day	8.19000	0.00000
Hotel	Sunday Trip Rate	size/day	5.95000	0.00000
Research & Development	Weekday Trip Rate	size/day	11.2600	0.00000
Research & Development	Saturday Trip Rate	size/day	1.90000	0.00000
Research & Development	Sunday Trip Rate	size/day	1.11000	0.00000
City Park	Weekday Trip Rate	size/day	0.78000	0.00000
City Park	Saturday Trip Rate	size/day	1.96000	0.00000
City Park	Sunday Trip Rate	size/day	2.19000	0.00000

8.5.1.4. Road Dust

Model Parameter	Units	Default Value	New Value
% Paved	%	52.0000	100.0000

8.5.4. Water and Waste Water

Land Use	Model Parameter	Units	Default Value	New Value
Single Family Housing	Treated by Septic Tank	%	10.3300	0.00000

Single Family Housing	Treated by Aerobic Processes	%	87.4600	100.0000
Single Family Housing	Treated by Facultative Lagoons	%	2.21000	0.00000
Apartments Low Rise	Treated by Septic Tank	%	10.3300	0.00000
Apartments Low Rise	Treated by Aerobic Processes	%	87.4600	100.0000
Apartments Low Rise	Treated by Facultative Lagoons	%	2.21000	0.00000
Apartments Mid Rise	Treated by Septic Tank	%	10.3300	0.00000
Apartments Mid Rise	Treated by Aerobic Processes	%	87.4600	100.0000
Apartments Mid Rise	Treated by Facultative Lagoons	%	2.21000	0.00000
General Heavy Industry	Treated by Septic Tank	%	10.3300	0.00000
General Heavy Industry	Treated by Aerobic Processes	%	87.4600	100.0000
General Heavy Industry	Treated by Facultative Lagoons	%	2.21000	0.00000
Refrigerated Warehouse-No Rail	Treated by Septic Tank	%	10.3300	0.00000
Refrigerated Warehouse-No Rail	Treated by Aerobic Processes	%	87.4600	100.0000
Refrigerated Warehouse-No Rail	Treated by Facultative Lagoons	%	2.21000	0.00000
Unrefrigerated Warehouse-No Rail	Treated by Septic Tank	%	10.3300	0.00000
Unrefrigerated Warehouse-No Rail	Treated by Aerobic Processes	%	87.4600	100.0000
Unrefrigerated Warehouse-No Rail	Treated by Facultative Lagoons	%	2.21000	0.00000
Discount Club	Treated by Septic Tank	%	10.3300	0.00000
Discount Club	Treated by Aerobic Processes	%	87.4600	100.0000
Discount Club	Treated by Facultative Lagoons	%	2.21000	0.00000
Strip Mall	Treated by Septic Tank	%	10.3300	0.00000
Strip Mall	Treated by Aerobic Processes	%	87.4600	100.0000
Strip Mall	Treated by Facultative Lagoons	%	2.21000	0.00000
Automobile Care Center	Treated by Septic Tank	%	10.3300	0.00000
Automobile Care Center	Treated by Aerobic Processes	%	87.4600	100.0000
Automobile Care Center	Treated by Facultative Lagoons	%	2.21000	0.00000
Convenience Market (24 hour)	Treated by Septic Tank	%	10.3300	0.00000
Convenience Market (24 hour)	Treated by Aerobic Processes	%	87.4600	100.0000

Convenience Market (24 hour)	Treated by Facultative Lagoons	%	2.21000	0.00000
General Office Building	Treated by Septic Tank	%	10.3300	0.00000
General Office Building	Treated by Aerobic Processes	%	87.4600	100.00000
General Office Building	Treated by Facultative Lagoons	%	2.21000	0.00000
Hotel	Treated by Septic Tank	%	10.3300	0.00000
Hotel	Treated by Aerobic Processes	%	87.4600	100.00000
Hotel	Treated by Facultative Lagoons	%	2.21000	0.00000
Research & Development	Treated by Septic Tank	%	10.3300	0.00000
Research & Development	Treated by Aerobic Processes	%	87.4600	100.00000
Research & Development	Treated by Facultative Lagoons	%	2.21000	0.00000
City Park	Treated by Septic Tank	%	10.3300	0.00000
City Park	Treated by Aerobic Processes	%	87.4600	100.00000
City Park	Treated by Facultative Lagoons	%	2.21000	0.00000

25-050 2050 Watsonville Project - Existing Traffic Only Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	25-050 2050 Watsonville Project - Existing Traffic Only
Operational Year	2050
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	1.80000
Precipitation (days)	37.2000
Location	Watsonville, CA, USA
County	Santa Cruz
City	Watsonville
Air District	Monterey Bay ARD
Air Basin	North Central Coast
TAZ	3133
EDFZ	6
Electric Utility	Central Coast Community Energy
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.43

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
Single Family Housing	1.000000	Dwelling Unit	0.32468	1,950.00	0.00000	—	3.00000	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.3. 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	CO	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Unmit.	87.7926	28.5033	302.865	0.22159	54.7158	54.9374	0.20588	13.8873	14.0931	53,777.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Unmit.	88.3699	33.7793	361.643	0.22193	54.7158	54.9377	0.20621	13.8873	14.0935	52,363.6
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—
Unmit.	87.0870	31.5932	327.967	0.22174	53.4104	53.6321	0.20602	13.5609	13.7669	52,257.8
Annual (Max)	—	—	—	—	—	—	—	—	—	—
Unmit.	15.8934	5.76576	59.8539	0.04047	9.74739	9.78786	0.03760	2.47487	2.51247	8,651.87

2.4. 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	CO	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Mobile	87.7926	28.5033	302.865	0.22159	54.7158	54.9374	0.20588	13.8873	14.0931	53,777.4
Area	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000
Energy	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000
Water	—	—	—	—	—	—	—	—	—	0.00000

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	CO	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Single Family Housing	87.7926	28.5033	302.865	0.22159	54.7158	54.9374	0.20588	13.8873	14.0931	53,777.4
Total	87.7926	28.5033	302.865	0.22159	54.7158	54.9374	0.20588	13.8873	14.0931	53,777.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Single Family Housing	88.3699	33.7793	361.643	0.22193	54.7158	54.9377	0.20621	13.8873	14.0935	52,363.6
Total	88.3699	33.7793	361.643	0.22193	54.7158	54.9377	0.20621	13.8873	14.0935	52,363.6
Annual	—	—	—	—	—	—	—	—	—	—
Single Family Housing	15.8934	5.76576	59.8539	0.04047	9.74739	9.78786	0.03760	2.47487	2.51247	8,651.87
Total	15.8934	5.76576	59.8539	0.04047	9.74739	9.78786	0.03760	2.47487	2.51247	8,651.87

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	CO	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	0.00000
Total	—	—	—	—	—	—	—	—	—	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000

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	CO	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000
Total	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000
Total	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000
Total	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000

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	CO	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
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Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	—	0.00000	0.00000	0.00000	0.00000
Consumer Products	0.00000	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00000	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000
Consumer Products	0.00000	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00000	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000
Consumer Products	0.00000	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00000	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000

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	CO	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—

[illegible]

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)

[illegible]

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

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	CO	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	CO	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	CO	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	CO	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	CO	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	CO	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

5.9. 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
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Single Family Housing	47,440.0	47,440.0	47,440.0	17,315,600	77,340.0	77,340.0	77,340.0	28,229,100
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5.10. Operational Area Sources

5.10.1. Hearths

Land Use	Hearth Type	Unmitigated (number)		Mitigated (number)	
Single Family Housing	Wood Fireplaces	0		0	
Single Family Housing	Gas Fireplaces	0		0	
Single Family Housing	Propane Fireplaces	0		0	
Single Family Housing	Electric Fireplaces	0		0	
Single Family Housing	No Fireplaces	0		0	
Single Family Housing	Conventional Wood Stoves	0		0	
Single Family Housing	Catalytic Wood Stoves	0		0	
Single Family Housing	Non-Catalytic Wood Stoves	0		0	
Single Family Housing	Pellet Wood Stoves	0		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)
0.00000	0.00000	0.00000	0.00000	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00000
Summer Days	day/yr	0.00000

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)
Single Family Housing	0.00000	417.000	0.0330	0.0040	0.00000

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	0.00000	0.00000

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	0.00000	0.00000

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

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. Biomass Cover Type

5.18.1.1. Unmitigated

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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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	6.83000	annual days of extreme heat
Extreme Precipitation	6.05000	annual days with precipitation above 20 mm

Sea Level Rise	—	meters of inundation depth
Wildfire	14.1600	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 ¾ 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	N/A
Sea Level Rise	N/A	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A	N/A
Air Quality Degradation	1	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	16.7766				
AQ-PM	4.16926				
AQ-DPM	79.9502				
Drinking Water	31.4974				
Lead Risk Housing	94.8582				
Pesticides	78.5517				
Toxic Releases	6.98925				
Traffic	38.1875				
Effect Indicators	—				

CleanUp Sites	81.3736
Groundwater	90.5695
Haz Waste Facilities/Generators	20.3177
Impaired Water Bodies	98.0680
Solid Waste	25.7274
Sensitive Population	—
Asthma	65.3539
Cardio-vascular	45.0274
Low Birth Weights	28.9582
Socioeconomic Factor Indicators	—
Education	97.4310
Housing	83.6502
Linguistic	97.9564
Poverty	87.7638
Unemployment	77.0953

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	7.481072758
Employed	41.67842936
Median HI	18.87591428
Education	—
Bachelor's or higher	2.912870525
High school enrollment	0.731425638
Preschool enrollment	40.94700372
Transportation	—

Auto Access	11.9209547
Active commuting	60.55434364
Social	—
2-parent households	37.28987553
Voting	21.90427307
Neighborhood	—
Alcohol availability	9.944822276
Park access	81.35506224
Retail density	90.60695496
Supermarket access	94.25125112
Tree canopy	20.92903888
Housing	—
Homeownership	3.926600796
Housing habitability	1.398691133
Low-inc homeowner severe housing cost burden	7.583728988
Low-inc renter severe housing cost burden	34.94161427
Uncrowded housing	3.554471962
Health Outcomes	—
Insured adults	18.3498011
Arthritis	0.0
Asthma ER Admissions	28.0
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	98.7

Cognitively Disabled	30.7
Physically Disabled	73.0
Heart Attack ER Admissions	57.0
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	80.5
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	28.3
Children	2.7
Elderly	96.3
English Speaking	1.3
Foreign-born	93.8
Outdoor Workers	0.7
Climate Change Adaptive Capacity	—
Impervious Surface Cover	15.1
Traffic Density	35.7
Traffic Access	0.0
Other Indices	—
Hardship	94.6
Other Decision Support	—

2016 Voting	33.0
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7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	80.0000
Healthy Places Index Score for Project Location (b)	5.00000
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
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 Healthy 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

8.1. Justifications

Screen	Justification
Characteristics: Utility Information	Watsonville default clean energy provider is Central Coast Community Energy (CCCE). CCCE 2024 power content label = 417 lb/MWh.
Land Use	Traffic run only.
Operations: Vehicle Data	Provided total trips.
Operations: Road Dust	100% paved.

Operations: Hearths	Traffic run only.
Operations: Consumer Products	Traffic run only.
Operations: Architectural Coatings	Traffic only.
Operations: Landscape Equipment	Traffic run only.
Operations: Energy Use	Traffic run only.
Operations: Water and Waste Water	Traffic run only.
Operations: Solid Waste	Traffic run only
Operations: Refrigerants	Traffic run only.

8.2. Project Characteristics

8.2.1. Project Details

Model Parameter	Default Value	New Value
Electric Utility	Pacific Gas & Electric Company	Central Coast Community Energy

8.2.2. Utility Information

Model Parameter	Units	Default Value	New Value
CO2	lb/MWh	9,99000	417.000

8.3. Land Use

Model Parameter	Units	Default Value	New Value
Landscape Area	sq. ft	11,713.0	0.00000

8.5. Operations

8.5.1. Mobile Sources

8.5.1.1. Vehicle Data

Land Use	Model Parameter	Units	Default Value	New Value
Single Family Housing	Weekday Trip Rate	size/day	9.44000	47,440.0
Single Family Housing	Saturday Trip Rate	size/day	9.54000	47,440.0
Single Family Housing	Sunday Trip Rate	size/day	8.55000	47,440.0
Single Family Housing	Res H-W Trip Length	miles	8.27313	1.63027
Single Family Housing	Res H-S Trip Length	miles	2.60799	1.63027
Single Family Housing	Res H-O Trip Length	miles	3.83042	1.63027

8.5.1.4. Road Dust

Model Parameter	Units	Default Value	New Value
% Paved	%	52.0000	100.0000

8.5.2. Area Sources

8.5.2.1. Hearths

Land Use	Model Parameter	Units	Default Value	New Value
Single Family Housing	Wood Fireplaces	—	0	0
Single Family Housing	Gas Fireplaces	—	1	0
Single Family Housing	Propane Fireplaces	—	0	0
Single Family Housing	Hours/Day	—	3	0
Single Family Housing	Days/Year	—	120	0
Single Family Housing	Wood Mass	lb/year	1,000	0
Single Family Housing	Catalytic Wood Stoves	—	0	0
Single Family Housing	Non-Catalytic Wood Stoves	—	0	0
Single Family Housing	Pellet Wood Stoves	—	0	0
Single Family Housing	Wood Mass	lb/year	3,120	0

8.5.2.2. Consumer Products

Model Parameter	Units	Default Value	New Value
General Category	lb/sqft/day	0.00002	0.00000
City Park/Golf Course Pesticides/Fertilizers	lb/sqft/day	< 0.000005	0.00000
Parking Degreaser	lb/sqft/day	< 0.000005	0.00000

8.5.2.3. Architectural Coatings

Model Parameter	Units	Default Value	New Value
Residential Interior VOC	g/L	50.0000	0.00000
Non-Residential Interior VOC	g/L	50.0000	0.00000
Residential Exterior VOC	g/L	100.0000	0.00000
Non-Residential Exterior VOC	g/L	100.0000	0.00000
VOC for Parking Paint	g/L	50.0000	0.00000
Residential Interior Area	sq ft	3,948.75	0.00000
Residential Exterior Area	sq ft	1,316.25	0.00000

8.5.2.4. Landscape Equipment

Model Parameter	Units	Default Value	New Value
Summer Days	day/yr	250.000	0.00000

8.5.3. Energy Usage

Land Use	Model Parameter	Units	Default Value	New Value
Single Family Housing	Electricity	kWh/yr	6,063.35	0.00000
Single Family Housing	Electricity (Subject to Title 24)	kWh/yr	950.451	0.00000
Single Family Housing	Electricity (Not Subject to Title 24)	kWh/yr	5,112.90	0.00000
Single Family Housing	Natural Gas	kBTU/yr	39,900.1	0.00000
Single Family Housing	Natural Gas (Subject to Title 24)	kBTU/yr	37,533.9	0.00000
Single Family Housing	Natural Gas (Not Subject to Title 24)	kBTU/yr	2,366.17	0.00000

8.5.4. Water and Waste Water

Land Use	Model Parameter	Units	Default Value	New Value
Single Family Housing	Indoor Water	gal/year	33,118.3	0.00000
Single Family Housing	Electricity Intensity Factor to Supply	kWh/Mgal	1,577.38	0.00000
Single Family Housing	Electricity Intensity Factor to Treat	kWh/Mgal	753.974	0.00000
Single Family Housing	Electricity Intensity Factor to Distribute	kWh/Mgal	1,537.28	0.00000
Single Family Housing	Electricity Intensity Factor for Waste Treatment	kWh/Mgal	1,541.92	0.00000
Single Family Housing	Treated by Septic Tank	%	10.3300	0.00000
Single Family Housing	Treated by Aerobic Processes	%	87.4600	100.0000
Single Family Housing	Treated by Facultative Lagoons	%	2.21000	0.00000

8.5.5. Solid Waste

Land Use	Model Parameter	Units	Default Value	New Value
Single Family Housing	Solid Waste Generation Rate	ton/resident/yr	0.22525	0.00000

Attachment 2: Roadway Emissions and Health Risk Calculations

File Name: Local Roadways 2030.EF
CT-EMFAC2021 Version: 1.0.2.0
Run Date: #####
Area: Santa Cruz (NCC)
Analysis Year: 2030
Season: Annual

Vehicle Category VMT Fract Diesel VM Gas VMT Fraction
Across Cal Within Cat Within Category
Truck 1 0.038 0.43 0.512
Truck 2 0.028 0.851 0.051
Non-Truck 0.934 0.008 0.918

Road Type: Major/Collector
Silt Loading Factor: CARB 0.032 g/m2
Precipitation Correction: CARB P = 70 day N = 365 days

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

Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
PM2.5	0.008719	0.005956	0.004169	0.00305	0.002355	0.001907	0.001616	0.001441	0.001359	0.001358	0.001434	0.001579	0.001797	0.001919	0.001919
TOG	0.148599	0.098633	0.067641	0.049387	0.038386	0.031346	0.026724	0.02373	0.021924	0.021126	0.021196	0.022226	0.024302	0.025824	0.025824
Diesel PM	0.002395	0.002027	0.001558	0.001215	0.001002	0.000853	0.00075	0.000691	0.000674	0.000699	0.000765	0.000853	0.000947	0.000954	0.000954

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

Pollutant Name	Emission Factor
TOG	1.283875

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

Pollutant Name	Emission Factor
PM2.5	0.002114

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

Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
PM2.5	0.004277	0.004824	0.005366	0.005899	0.006132	0.006172	0.006169	0.005681	0.004672	0.003676	0.003044	0.002741	0.002439	0.002439	0.002439

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

Pollutant Name	Emission Factor
PM2.5	0.016645

=====END=====

File Name: SR 1 2030.EF
CT-EMFAC2021 Version: 1.0.2.0
Run Date: #####
Area: Santa Cruz (NCC)
Analysis Year: 2030
Season: Annual

Vehicle Category VMT Fract Diesel VM Gas VMT Fraction
Across Cal Within Cat Within Category
Truck 1 0.038 0.43 0.512
Truck 2 0.028 0.851 0.051
Non-Truck 0.934 0.008 0.918

Road Type: Freeway
Silt Loading Factor: CARB 0.015 g/m2
Precipitation Correction: CARB P = 70 day N = 365 days

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

Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
PM2.5	0.008719	0.005956	0.004169	0.00305	0.002355	0.001907	0.001616	0.001441	0.001359	0.001358	0.001434	0.001579	0.001797	0.001919	0.001919
TOG	0.148599	0.098633	0.067641	0.049387	0.038386	0.031346	0.026724	0.02373	0.021924	0.021126	0.021196	0.022226	0.024302	0.025824	0.025824
Diesel PM	0.002395	0.002027	0.001558	0.001215	0.001002	0.000853	0.00075	0.000691	0.000674	0.000699	0.000765	0.000853	0.000947	0.000954	0.000954

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

Pollutant Name	Emission Factor
TOG	1.283875

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

Pollutant Name	Emission Factor
PM2.5	0.002114

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

Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
PM2.5	0.004277	0.004824	0.005366	0.005899	0.006132	0.006172	0.006169	0.005681	0.004672	0.003676	0.003044	0.002741	0.002439	0.002439	0.002439

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

Pollutant Name	Emission Factor
PM2.5	0.008353

=====END=====

Watsonville General Plan, Watsonville, CA - Onsite Residential
Plan Area Trips - Airport Boulevard
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2030

RLINE

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 (lb/hr/ft2)	Emission (g/s/m2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
DPM_NB_AIR	Airport Boulevard Northbound	NB	2	3369.3	2.09	13.3	43.7	3.4	45	10,150	44,863	482,900	2.724E-09	3.695E-09	6.8	3.16
DPM_SB_AIR	Airport Boulevard Southbound	SB	2	3337.1	2.07	13.3	43.7	3.4	45	10,150	44,434	478,285	2.724E-09	3.695E-09	6.8	3.16
Total										20,300						

Emission Factors

Speed Category Travel Speed (mph)	1	2	3	4
	45			
Emissions per Vehicle (g/VMT)				
	0.00067			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and DPM Emissions - DPM_NB_AIR

Hour	% Per Hour	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.60%	9	5.90%	2.39E-05	9	5.90%	599	2.35E-04	17	7.37%	748	2.93E-04
2	0.37%	10	5.74%	1.48E-05	10	5.74%	583	2.29E-04	18	6.95%	705	2.76E-04
3	0.31%	11	6.01%	1.22E-05	11	6.01%	610	2.39E-04	19	5.76%	584	2.29E-04
4	0.41%	12	6.28%	1.63E-05	12	6.28%	638	2.50E-04	20	4.09%	416	1.63E-04
5	0.91%	13	6.46%	3.63E-05	13	6.46%	655	2.57E-04	21	3.12%	316	1.24E-04
6	2.59%	14	6.56%	1.03E-04	14	6.56%	666	2.61E-04	22	2.42%	246	9.64E-05
7	5.20%	15	6.98%	2.07E-04	15	6.98%	709	2.78E-04	23	1.73%	176	6.90E-05
8	5.76%	16	7.38%	2.29E-04	16	7.38%	749	2.93E-04	24	1.10%	111	4.36E-05
Total										10,150		

2030 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_SB_AIR

Hour	% Per Hour	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	0.60%	9	5.90%	2.37E-05	9	5.90%	599	2.32E-04	17	7.37%	748	2.90E-04
2	0.37%	10	5.74%	1.47E-05	10	5.74%	583	2.26E-04	18	6.95%	705	2.74E-04
3	0.31%	11	6.01%	1.21E-05	11	6.01%	610	2.37E-04	19	5.76%	584	2.27E-04
4	0.41%	12	6.28%	1.61E-05	12	6.28%	638	2.48E-04	20	4.09%	416	1.61E-04
5	0.91%	13	6.46%	3.59E-05	13	6.46%	655	2.54E-04	21	3.12%	316	1.23E-04
6	2.59%	14	6.56%	1.02E-04	14	6.56%	666	2.58E-04	22	2.42%	246	9.55E-05
7	5.20%	15	6.98%	2.05E-04	15	6.98%	709	2.75E-04	23	1.73%	176	6.83E-05
8	5.76%	16	7.38%	2.27E-04	16	7.38%	749	2.91E-04	24	1.10%	111	4.32E-05
Total										10,150		

Year = 2030

Road Link				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) Vertical Dimension
TEXH_NB_AIR				2	3369.3	2.09	13.3	44	1.3	45	10,150	44,863	482,900	1.20E-07	8.86E-08	2.6	1.21
TEXH_SB_AIR				2	3337.1	2.07	13.3	44	1.3	45	10,150	44,434	478,285	1.20E-07	8.86E-08	2.6	1.21
										Total	20,300						

Emission Factors - TOG Exhaust

	1	2	3	4
Speed Category				
Travel Speed (mph)	45			
Emissions per Vehicle (g/VMT)	0.02192			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH NB AIR

[illegible]

2030 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH SB AIR

[illegible]

Watsonville General Plan, Watsonville, CA - Onsite Residential
 Plan Area Trips - Airport Boulevard
 TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
 Year = 2030

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_AIR	Airport Boulevard Northbound	NB	2	3369.3	2.09	13.3	44	1.3	45	10,150	44,863	482,900	1.56E-07	1.15E-07	2.6	1.21
TEVAP_SB_AIR	Airport Boulevard Southbound	SB	2	3337.1	2.07	13.3	44	1.3	45	10,150	44,434	478,285	1.56E-07	1.15E-07	2.6	1.21
									Total	20,300						

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	Travel Speed (mph)			
	1	2	3	4
	45			
Emissions per Vehicle per Hour (g/hour)	1.28388			
Emissions per Vehicle per Mile (g/VMT)	0.02853			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_NB_AIR

Hour	% Per Hour		VPH	g/s		% Per Hour		VPH	g/s		% Per Hour		VPH	g/s	
	Hour			Hour		Hour			Hour		Hour			Hour	
1	0.60%	61	1.01E-03	9	5.90%	599	9.93E-03	17	7.37%	748	1.24E-02	748	1.24E-02		
2	0.37%	38	6.27E-04	10	5.74%	583	9.67E-03	18	6.95%	705	1.17E-02	705	1.17E-02		
3	0.31%	31	5.17E-04	11	6.01%	610	1.01E-02	19	5.76%	584	9.70E-03	584	9.70E-03		
4	0.41%	42	6.89E-04	12	6.28%	638	1.06E-02	20	4.09%	416	6.89E-03	416	6.89E-03		
5	0.91%	93	1.54E-03	13	6.46%	655	1.09E-02	21	3.12%	316	5.25E-03	316	5.25E-03		
6	2.59%	263	4.37E-03	14	6.56%	666	1.10E-02	22	2.42%	246	4.08E-03	246	4.08E-03		
7	5.20%	528	8.76E-03	15	6.98%	709	1.18E-02	23	1.73%	176	2.92E-03	176	2.92E-03		
8	5.76%	584	9.69E-03	16	7.38%	749	1.24E-02	24	1.10%	111	1.85E-03	111	1.85E-03		
Total													10,150		

2030 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP_SB_AIR

Hour	% Per Hour		VPH	g/mile		% Per Hour		VPH	g/mile		% Per Hour		VPH	g/mile	
	Hour			Hour		Hour			Hour		Hour			Hour	
1	0.60%	61	1.00E-03	9	5.90%	599	9.84E-03	17	7.37%	748	1.23E-02	748	1.23E-02		
2	0.37%	38	6.21E-04	10	5.74%	583	9.58E-03	18	6.95%	705	1.16E-02	705	1.16E-02		
3	0.31%	31	5.12E-04	11	6.01%	610	1.00E-02	19	5.76%	584	9.60E-03	584	9.60E-03		
4	0.41%	42	6.82E-04	12	6.28%	638	1.05E-02	20	4.09%	416	6.83E-03	416	6.83E-03		
5	0.91%	93	1.52E-03	13	6.46%	655	1.08E-02	21	3.12%	316	5.20E-03	316	5.20E-03		
6	2.59%	263	4.33E-03	14	6.56%	666	1.09E-02	22	2.42%	246	4.04E-03	246	4.04E-03		
7	5.20%	528	8.67E-03	15	6.98%	709	1.16E-02	23	1.73%	176	2.89E-03	176	2.89E-03		
8	5.76%	584	9.60E-03	16	7.38%	749	1.23E-02	24	1.10%	111	1.83E-03	111	1.83E-03		
Total													10,150		

Year = 2030

Road Link			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_AIR				2	3369.3	2.09	13.3	44	1.3	45	10,150	44,863	482,900	1.28E-07	9.47E-08	2.6	1.21
FUG_SB_AIR				2	3337.1	2.07	13.3	44	1.3	45	10,150	44,434	478,285	1.28E-07	9.47E-08	2.6	1.21
										Total	20,300						

Emission Factors - Fugitive PM_{2.5}

	Speed Category	1	2	3	4
	Travel Speed (mph)	45			
	Tire Wear - Emissions per Vehicle (g/VMT)	0.00211			
	Brake Wear - Emissions per Vehicle (g/VMT)	0.00467			
	Road Dust - Emissions per Vehicle (g/VMT)	0.01665			
	Total Fugitive PM _{2.5} - Emissions per Vehicle (g/VMT)	0.02343			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and Fugitive PM_{2.5} Emissions - FUG_NB_AIR

Hour	% Per			% Per			% Per			g/s
	Hour	VPH	g/s	Hour	VPH	g/s	Hour	VPH	g/s	
1	0.60%	61	8.32E-04	9	5.90%	8.16E-03	17	7.37%	748	1.02E-02
2	0.37%	38	5.15E-04	10	5.74%	7.95E-03	18	6.95%	705	9.61E-03
3	0.31%	31	4.25E-04	11	6.01%	8.31E-03	19	5.76%	584	7.96E-03
4	0.41%	42	5.66E-04	12	6.28%	8.69E-03	20	4.09%	416	5.66E-03
5	0.91%	93	1.26E-03	13	6.46%	8.93E-03	21	3.12%	316	4.31E-03
6	2.59%	263	3.59E-03	14	6.56%	9.07E-03	22	2.42%	246	3.35E-03
7	5.20%	528	7.19E-03	15	6.98%	9.66E-03	23	1.73%	176	2.40E-03
8	5.76%	584	7.96E-03	16	7.38%	1.02E-02	24	1.10%	111	1.52E-03
							Total		10,150	

2030 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG SB AIR

Hour	% Per		VPH	g/mile	% Per		VPH	g/mile	% Per		VPH	g/mile
	Hour	Hour			Hour	Hour			Hour	Hour		
1	0.60%	61	8.24E-04	9	5.90%	599	8.08E-03	17	7.37%	748	1.01E-02	
2	0.37%	38	5.10E-04	10	5.74%	583	7.87E-03	18	6.95%	705	9.52E-03	
3	0.31%	31	4.21E-04	11	6.01%	610	8.23E-03	19	5.76%	584	7.89E-03	
4	0.41%	42	5.60E-04	12	6.28%	638	8.61E-03	20	4.09%	416	5.61E-03	
5	0.91%	93	1.25E-03	13	6.46%	655	8.84E-03	21	3.12%	316	4.27E-03	
6	2.59%	263	3.55E-03	14	6.56%	666	8.98E-03	22	2.42%	246	3.32E-03	
7	5.20%	528	7.12E-03	15	6.98%	709	9.57E-03	23	1.73%	176	2.38E-03	
8	5.76%	584	7.88E-03	16	7.38%	749	1.01E-02	24	1.10%	111	1.50E-03	
								Total			10,150	

Watsonville General Plan, Watsonville, CA - Onsite Residential
 Plan Area Trips - Beach St
 DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
 Year = 2030

RLINE

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
DPM_EB_BEA	Beach St Eastbound	EB	1	2799.1	1.74	9.7	31.7	3.4	25	6,650	27,033	290,976	4.962E-09	3.659E-09	6.8	3.16
DPM_WB_BEA	Beach St Westbound	WB	1	2792.1	1.73	9.7	31.7	3.4	25	6,650	26,965	290,249	4.962E-09	3.659E-09	6.8	3.16
Total										13,300						

Emission Factors

Speed Category Travel Speed (mph)	Emissions per Vehicle (g/VMT)			
	1	2	3	4
25 0.00100				

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and DPM Emissions - DPM_EB_BEA

Hour	% Per Hour	VPH	g/mile	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.60%	40	1.94E-05	9	5.90%	392	1.90E-04	17	7.37%	490	2.37E-04	490
2	0.37%	25	1.20E-05	10	5.74%	382	1.85E-04	18	6.95%	462	2.24E-04	462
3	0.31%	20	9.89E-06	11	6.01%	400	1.94E-04	19	5.76%	383	1.85E-04	383
4	0.41%	27	1.32E-05	12	6.28%	418	2.02E-04	20	4.09%	272	1.32E-04	272
5	0.91%	61	2.93E-05	13	6.46%	429	2.08E-04	21	3.12%	207	1.00E-04	207
6	2.59%	172	8.35E-05	14	6.56%	436	2.11E-04	22	2.42%	161	7.80E-05	161
7	5.20%	346	1.67E-04	15	6.98%	464	2.25E-04	23	1.73%	115	5.58E-05	115
8	5.76%	383	1.85E-04	16	7.38%	490	2.37E-04	24	1.10%	73	3.53E-05	73
Total										6,650		

2030 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_WB_BEA

Hour	% Per Hour	VPH	g/mile	g/s	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	0.60%	40	1.93E-05	9	5.90%	392	1.89E-04	17	7.37%	490	2.37E-04	490
2	0.37%	25	1.19E-05	10	5.74%	382	1.84E-04	18	6.95%	462	2.23E-04	462
3	0.31%	20	9.86E-06	11	6.01%	400	1.93E-04	19	5.76%	383	1.85E-04	383
4	0.41%	27	1.31E-05	12	6.28%	418	2.02E-04	20	4.09%	272	1.31E-04	272
5	0.91%	61	2.93E-05	13	6.46%	429	2.07E-04	21	3.12%	207	1.00E-04	207
6	2.59%	172	8.33E-05	14	6.56%	436	2.11E-04	22	2.42%	161	7.78E-05	161
7	5.20%	346	1.67E-04	15	6.98%	464	2.24E-04	23	1.73%	115	5.57E-05	115
8	5.76%	383	1.85E-04	16	7.38%	490	2.37E-04	24	1.10%	73	3.52E-05	73
Total										6,650		

Watsonville General Plan, Watsonville, CA - Onsite Residential
Plan Area Trips - Beach St
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2030

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 BEA	Beach St Eastbound	EB	1	2799.1	1.74	9.7	32	1.3	25	6,650	27,033	290,976	1.17E-08	8.60E-09	2.6	1.21
PM2.5 WB BEA	Beach St Westbound	WB	1	2792.1	1.73	9.7	32	1.3	25	6,650	26,965	290,249	1.17E-08	8.60E-09	2.6	1.21
Total										13,300						

Emission Factors - PM2.5

Speed Category Travel Speed (mph)	Emissions per Vehicle (g/VMT)			
	1	2	3	4
25	0.00236			

Emission Factors from CT-EMF/AC2021

2030 Hourly Traffic Volumes and PM2.5 Emissions - PM2.5 EB BEA

	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
	1	0.60%	40	4.55E-05	9	5.90%	392	4.46E-04	17	7.37%	490	5.58E-04
	2	0.37%	25	2.82E-05	10	5.74%	382	4.35E-04	18	6.95%	462	5.26E-04
	3	0.31%	20	2.32E-05	11	6.01%	400	4.55E-04	19	5.76%	383	4.36E-04
	4	0.41%	27	3.10E-05	12	6.28%	418	4.75E-04	20	4.09%	272	3.10E-04
	5	0.91%	61	6.90E-05	13	6.46%	429	4.88E-04	21	3.12%	207	2.36E-04
	6	2.59%	172	1.96E-04	14	6.56%	436	4.96E-04	22	2.42%	161	1.83E-04
	7	5.20%	346	3.93E-04	15	6.98%	464	5.28E-04	23	1.73%	115	1.31E-04
	8	5.76%	383	4.35E-04	16	7.38%	490	5.58E-04	24	1.10%	73	8.29E-05
Total										6,650		

2030 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM2.5 WB BEA

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	0.60%	40	4.54E-05	9	5.90%	392	4.45E-04	17	7.37%	490	5.56E-04
2	0.37%	25	2.81E-05	10	5.74%	382	4.34E-04	18	6.95%	462	5.24E-04
3	0.31%	20	2.32E-05	11	6.01%	400	4.54E-04	19	5.76%	383	4.35E-04
4	0.41%	27	3.09E-05	12	6.28%	418	4.74E-04	20	4.09%	272	3.09E-04
5	0.91%	61	6.88E-05	13	6.46%	429	4.87E-04	21	3.12%	207	2.35E-04
6	2.59%	172	1.96E-04	14	6.56%	436	4.95E-04	22	2.42%	161	1.83E-04
7	5.20%	346	3.92E-04	15	6.98%	464	5.27E-04	23	1.73%	115	1.31E-04
8	5.76%	383	4.34E-04	16	7.38%	490	5.57E-04	24	1.10%	73	8.27E-05
Total										6,650	

**Watsonville General Plan, Watsonville, CA - Onsite Residential
Plan Area Trips - Beach St
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2030**

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) Vertical Dimension
TEXH_EB_BEA	Beach St Eastbound	EB	1	2799.1	1.74	9.7	32	1.3	25	6,650	27,033	290,976	1.90E-07	1.40E-07	2.6	1.21
TEXH_WB_BEA	Beach St Westbound	WB	1	2792.1	1.73	9.7	32	1.3	25	6,650	26,965	290,249	1.90E-07	1.40E-07	2.6	1.21
									Total	13,300						

Emission Factors - TOG Exhaust

	1	2	3	4
Speed Category				
Travel Speed (mph)	25			
Emissions per Vehicle (g/VMT)	0.03839			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH EB BEA

	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
	1	0.60%	40	7.42E-04	9	5.90%	392	7.27E-03	17	7.37%	490	9.09E-03
	2	0.37%	25	4.59E-04	10	5.74%	382	7.08E-03	18	6.95%	462	8.57E-03
	3	0.31%	20	3.79E-04	11	6.01%	400	7.41E-03	19	5.76%	383	7.10E-03
	4	0.41%	27	5.04E-04	12	6.28%	418	7.75E-03	20	4.09%	272	5.05E-03
	5	0.91%	61	1.12E-03	13	6.46%	429	7.96E-03	21	3.12%	207	3.85E-03
	6	2.59%	172	3.20E-03	14	6.56%	436	8.09E-03	22	2.42%	161	2.99E-03
	7	5.20%	346	6.41E-03	15	6.98%	464	8.61E-03	23	1.73%	115	2.14E-03
	8	5.76%	383	7.10E-03	16	7.38%	490	9.10E-03	24	1.10%	73	1.35E-03
					Total				Total		6,650	

2030 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH WB BEA

	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
	1	0.60%	40	7.40E-04	9	5.90%	392	7.26E-03	17	7.37%	490	9.07E-03
	2	0.37%	25	4.58E-04	10	5.74%	382	7.07E-03	18	6.95%	462	8.55E-03
	3	0.31%	20	3.78E-04	11	6.01%	400	7.39E-03	19	5.76%	383	7.08E-03
	4	0.41%	27	5.03E-04	12	6.28%	418	7.73E-03	20	4.09%	272	5.04E-03
	5	0.91%	61	1.12E-03	13	6.46%	429	7.94E-03	21	3.12%	207	3.84E-03
	6	2.59%	172	3.19E-03	14	6.56%	436	8.07E-03	22	2.42%	161	2.98E-03
	7	5.20%	346	6.40E-03	15	6.98%	464	8.59E-03	23	1.73%	115	2.13E-03
	8	5.76%	383	7.08E-03	16	7.38%	490	9.07E-03	24	1.10%	73	1.35E-03
					Total						6,650	

Watsonville General Plan, Watsonville, CA - Onsite Residential
 Plan Area Trips - Beach St
 TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
 Year = 2030

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_BEA	Beach St Eastbound	EB	1	2799.1	1.74	9.7	32	1.3	25	6,650	27,033	290,976	2.54E-07	1.88E-07	2.6	1.21
TEVAP_WB_BEA	Beach St Westbound	WB	1	2792.1	1.73	9.7	32	1.3	25	6,650	26,965	290,249	2.54E-07	1.88E-07	2.6	1.21
Total										13,300						

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	Travel Speed (mph)			
	1	2	3	4
	25			
Emissions per Vehicle per Hour (g/hour)	1.28388			
Emissions per Vehicle per Mile (g/VMT)	0.05136			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_EB_BEA

Hour	% Per Hour		VPH	g/s	Hour	% Per Hour		VPH	g/s	Hour	% Per Hour		VPH	g/s
	Hour	% Per				Hour	% Per				Hour	% Per		
1	0.60%	40	9.93E-04	9	5.90%	392	9.73E-03	17	7.37%	490	1.22E-02	490	1.22E-02	
2	0.37%	25	6.14E-04	10	5.74%	382	9.48E-03	18	6.95%	462	1.15E-02	462	1.15E-02	
3	0.31%	20	5.07E-04	11	6.01%	400	9.92E-03	19	5.76%	383	9.50E-03	383	9.50E-03	
4	0.41%	27	6.75E-04	12	6.28%	418	1.04E-02	20	4.09%	272	6.75E-03	272	6.75E-03	
5	0.91%	61	1.50E-03	13	6.46%	429	1.07E-02	21	3.12%	207	5.14E-03	207	5.14E-03	
6	2.59%	172	4.28E-03	14	6.56%	436	1.08E-02	22	2.42%	161	4.00E-03	161	4.00E-03	
7	5.20%	346	8.58E-03	15	6.98%	464	1.15E-02	23	1.73%	115	2.86E-03	115	2.86E-03	
8	5.76%	383	9.50E-03	16	7.38%	490	1.22E-02	24	1.10%	73	1.81E-03	73	1.81E-03	
Total														6,650

2030 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP_WB_BEA

Hour	% Per		VPH	g/mile	Hour	% Per		VPH	g/mile	Hour	% Per		VPH	g/mile
	Hour	Hour				Hour	Hour				Hour	Hour		
1	0.60%	40	9.90E-04	9	5.90%	392	9.71E-03	17	7.37%	490	1.21E-02	490	1.21E-02	
2	0.37%	25	6.12E-04	10	5.74%	382	9.45E-03	18	6.95%	462	1.14E-02	462	1.14E-02	
3	0.31%	20	5.06E-04	11	6.01%	400	9.89E-03	19	5.76%	383	9.48E-03	383	9.48E-03	
4	0.41%	27	6.73E-04	12	6.28%	418	1.03E-02	20	4.09%	272	6.74E-03	272	6.74E-03	
5	0.91%	61	1.50E-03	13	6.46%	429	1.06E-02	21	3.12%	207	5.13E-03	207	5.13E-03	
6	2.59%	172	4.27E-03	14	6.56%	436	1.08E-02	22	2.42%	161	3.99E-03	161	3.99E-03	
7	5.20%	346	8.56E-03	15	6.98%	464	1.15E-02	23	1.73%	115	2.85E-03	115	2.85E-03	
8	5.76%	383	9.47E-03	16	7.38%	490	1.21E-02	24	1.10%	73	1.80E-03	73	1.80E-03	
Total														6,650

Watsonville General Plan, Watsonville, CA - Onsite Residential
Plan Area Trips - Beach St
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2030

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_BEA	Beach St Eastbound	EB	1	2799.1	1.74	9.7	32	1.3	25	6,650	27,033	290,976	1.23E-07	9.09E-08	2.6	1.21
FUG_WB_BEA	Beach St Westbound	WB	1	2792.1	1.73	9.7	32	1.3	25	6,650	26,965	290,249	1.23E-07	9.09E-08	2.6	1.21
Total										13,300						

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
	Travel Speed (mph)			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00211			
Brake Wear - Emissions per Vehicle (g/VMT)	0.00613			
Road Dust - Emissions per Vehicle (g/VMT)	0.01665			
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.02489			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_EB_BEA

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.60%	40	4.81E-04	9	5.90%	392	4.72E-03	17	7.37%	490	5.89E-03
2	0.37%	25	2.98E-04	10	5.74%	382	4.59E-03	18	6.95%	462	5.56E-03
3	0.31%	20	2.46E-04	11	6.01%	400	4.81E-03	19	5.76%	383	4.61E-03
4	0.41%	27	3.27E-04	12	6.28%	418	5.02E-03	20	4.09%	272	3.27E-03
5	0.91%	61	7.29E-04	13	6.46%	429	5.16E-03	21	3.12%	207	2.49E-03
6	2.59%	172	2.07E-03	14	6.56%	436	5.24E-03	22	2.42%	161	1.94E-03
7	5.20%	346	4.16E-03	15	6.98%	464	5.58E-03	23	1.73%	115	1.39E-03
8	5.76%	383	4.60E-03	16	7.38%	490	5.90E-03	24	1.10%	73	8.76E-04
Total								6,650			

2030 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG_WB_BEA

	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
	1	0.60%	40	4.80E-04	9	5.90%	392	4.71E-03	17	7.37%	490	5.88E-03
	2	0.37%	25	2.97E-04	10	5.74%	382	4.58E-03	18	6.95%	462	5.54E-03
	3	0.31%	20	2.45E-04	11	6.01%	400	4.79E-03	19	5.76%	383	4.59E-03
	4	0.41%	27	3.26E-04	12	6.28%	418	5.01E-03	20	4.09%	272	3.27E-03
	5	0.91%	61	7.27E-04	13	6.46%	429	5.15E-03	21	3.12%	207	2.49E-03
	6	2.59%	172	2.07E-03	14	6.56%	436	5.23E-03	22	2.42%	161	1.93E-03
	7	5.20%	346	4.15E-03	15	6.98%	464	5.57E-03	23	1.73%	115	1.38E-03
	8	5.76%	383	4.59E-03	16	7.38%	490	5.88E-03	24	1.10%	73	8.74E-04
Total										6,650		

Watsonville General Plan, Watsonville, CA - Onsite Residential
Plan Area Trips - Freedom Blvd
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2030

RLINE

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		Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
											(sq m)	(sq ft)				
DPM_NB_FRE	Freedom Blvd Northbound	NB	2	5790.8	3.60	13.3	43.7	3.4	30	12,650	77,106	829,958	5.828E-09	4.297E-09	6.8	3.16
DPM_SB_FRE	Freedom Blvd Southbound	SB	2	5774.4	3.59	13.3	43.7	3.4	30	12,650	76,887	827,608	5.828E-09	4.297E-09	6.8	3.16
Total										25,300						

Emission Factors

Speed Category Travel Speed (mph)	1	2	3	4
	30			
Emissions per Vehicle (g/VMT)				
0.00085				

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and DPM Emissions - DPM_NB_FRE

Hour	% Per Hour	Hour	% Per Hour	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.60%	76	6.47E-05	9	5.90%	746	6.36E-04	17	7.37%	932	7.95E-04	7.95E-04
2	0.37%	47	4.01E-05	10	5.74%	727	6.20E-04	18	6.95%	879	7.49E-04	7.49E-04
3	0.31%	39	3.31E-05	11	6.01%	760	6.48E-04	19	5.76%	728	6.21E-04	6.21E-04
4	0.41%	52	4.41E-05	12	6.28%	795	6.78E-04	20	4.09%	518	4.42E-04	4.42E-04
5	0.91%	115	9.83E-05	13	6.46%	817	6.96E-04	21	3.12%	394	3.36E-04	3.36E-04
6	2.59%	328	2.80E-04	14	6.56%	830	7.07E-04	22	2.42%	306	2.61E-04	2.61E-04
7	5.20%	658	5.61E-04	15	6.98%	883	7.53E-04	23	1.73%	219	1.87E-04	1.87E-04
8	5.76%	728	6.21E-04	16	7.38%	933	7.95E-04	24	1.10%	139	1.18E-04	1.18E-04
Total										12,650		

2030 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_SB_FRE

Hour	% Per Hour	Hour	% Per Hour	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	0.60%	76	6.47E-05	9	5.90%	746	6.34E-04	17	7.37%	932	7.93E-04	7.93E-04
2	0.37%	47	4.00E-05	10	5.74%	727	6.18E-04	18	6.95%	879	7.47E-04	7.47E-04
3	0.31%	39	3.30E-05	11	6.01%	760	6.46E-04	19	5.76%	728	6.19E-04	6.19E-04
4	0.41%	52	4.40E-05	12	6.28%	795	6.76E-04	20	4.09%	518	4.40E-04	4.40E-04
5	0.91%	115	9.80E-05	13	6.46%	817	6.94E-04	21	3.12%	394	3.35E-04	3.35E-04
6	2.59%	328	2.79E-04	14	6.56%	830	7.05E-04	22	2.42%	306	2.61E-04	2.61E-04
7	5.20%	658	5.59E-04	15	6.98%	883	7.51E-04	23	1.73%	219	1.86E-04	1.86E-04
8	5.76%	728	6.19E-04	16	7.38%	933	7.93E-04	24	1.10%	139	1.18E-04	1.18E-04
Total										12,650		

Watsonville General Plan, Watsonville, CA - Onsite Residential
 Plan Area Trips - Freedom Blvd
 TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
 Year = 2030

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	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_FRE	Freedom Blvd Northbound	NB	2	5790.8	3.60	13.3	44	1.3	30	77,106	829,958	2.14E-07	1.58E-07	2.6	1.21
TEXH_SB_FRE	Freedom Blvd Southbound	SB	2	5774.4	3.59	13.3	44	1.3	30	76,887	827,608	2.14E-07	1.58E-07	2.6	1.21
Total									25,300						

Emission Factors - TOG Exhaust

Speed Category	Travel Speed (mph)			
	1	2	3	4
	30			
Emissions per Vehicle (g/VMT)				
	0.03135			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH NB FRE

Hour	% Per Hour		VPH	g/s	% Per Hour		VPH	g/s	Hour	% Per Hour		VPH	g/s
	Hour	Hour			Hour	Hour				Hour	Hour		
1	0.60%	76	2.38E-03	9	5.90%	746	2.34E-02	17	7.37%	932	2.92E-02		
2	0.37%	47	1.47E-03	10	5.74%	727	2.28E-02	18	6.95%	879	2.75E-02		
3	0.31%	39	1.22E-03	11	6.01%	760	2.38E-02	19	5.76%	728	2.28E-02		
4	0.41%	52	1.62E-03	12	6.28%	795	2.49E-02	20	4.09%	518	1.62E-02		
5	0.91%	115	3.61E-03	13	6.46%	817	2.56E-02	21	3.12%	394	1.24E-02		
6	2.59%	328	1.03E-02	14	6.56%	830	2.60E-02	22	2.42%	306	9.60E-03		
7	5.20%	658	2.06E-02	15	6.98%	883	2.77E-02	23	1.73%	219	6.87E-03		
8	5.76%	728	2.28E-02	16	7.38%	933	2.92E-02	24	1.10%	139	4.34E-03		
Total									12,650				

2030 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH SB FRE

Hour	% Per Hour		VPH	g/mile	% Per Hour		VPH	g/mile	Hour	% Per Hour		VPH	g/mile
	Hour	Hour			Hour	Hour				Hour	Hour		
1	0.60%	76	2.38E-03	9	5.90%	746	2.33E-02	17	7.37%	932	2.91E-02		
2	0.37%	47	1.47E-03	10	5.74%	727	2.27E-02	18	6.95%	879	2.75E-02		
3	0.31%	39	1.21E-03	11	6.01%	760	2.38E-02	19	5.76%	728	2.28E-02		
4	0.41%	52	1.62E-03	12	6.28%	795	2.48E-02	20	4.09%	518	1.62E-02		
5	0.91%	115	3.60E-03	13	6.46%	817	2.55E-02	21	3.12%	394	1.23E-02		
6	2.59%	328	1.02E-02	14	6.56%	830	2.59E-02	22	2.42%	306	9.57E-03		
7	5.20%	658	2.05E-02	15	6.98%	883	2.76E-02	23	1.73%	219	6.85E-03		
8	5.76%	728	2.27E-02	16	7.38%	933	2.91E-02	24	1.10%	139	4.33E-03		
Total									12,650				

Watsonville General Plan, Watsonville, CA - Onsite Residential
 Plan Area Trips - Freedom Blvd
 TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
 Year = 2030

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_FRE	Freedom Blvd Northbound	NB	2	5790.8	3.60	13.3	44	1.3	30	12,650	77,106	829,958	2.92E-07	2.16E-07	2.6	1.21
TEVAP_SB_FRE	Freedom Blvd Southbound	SB	2	5774.4	3.59	13.3	44	1.3	30	12,650	76,887	827,608	2.92E-07	2.16E-07	2.6	1.21
Total										25,300						

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	Travel Speed (mph)			
	1	2	3	4
	30			
Emissions per Vehicle per Hour (g/hour)	1.28388			
Emissions per Vehicle per Mile (g/VMT)	0.04280			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_NB_FRE

Hour	% Per Hour		VPH	g/s	% Per Hour		VPH	g/s	% Per Hour		VPH	g/s
	Hour				Hour				Hour			
1	0.60%	76	3.26E-03	9	5.90%	746	3.19E-02	17	7.37%	932	3.99E-02	
2	0.37%	47	2.01E-03	10	5.74%	727	3.11E-02	18	6.95%	879	3.76E-02	
3	0.31%	39	1.66E-03	11	6.01%	760	3.25E-02	19	5.76%	728	3.12E-02	
4	0.41%	52	2.21E-03	12	6.28%	795	3.40E-02	20	4.09%	518	2.22E-02	
5	0.91%	115	4.93E-03	13	6.46%	817	3.49E-02	21	3.12%	394	1.69E-02	
6	2.59%	328	1.40E-02	14	6.56%	830	3.55E-02	22	2.42%	306	1.31E-02	
7	5.20%	658	2.81E-02	15	6.98%	883	3.78E-02	23	1.73%	219	9.38E-03	
8	5.76%	728	3.11E-02	16	7.38%	933	3.99E-02	24	1.10%	139	5.93E-03	
Total										12,650		

2030 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP_SB_FRE

Hour	% Per Hour		VPH	g/mile	% Per Hour		VPH	g/mile	% Per Hour		VPH	g/mile
	Hour				Hour				Hour			
1	0.60%	76	3.25E-03	9	5.90%	746	3.18E-02	17	7.37%	932	3.98E-02	
2	0.37%	47	2.01E-03	10	5.74%	727	3.10E-02	18	6.95%	879	3.75E-02	
3	0.31%	39	1.66E-03	11	6.01%	760	3.24E-02	19	5.76%	728	3.11E-02	
4	0.41%	52	2.21E-03	12	6.28%	795	3.39E-02	20	4.09%	518	2.21E-02	
5	0.91%	115	4.92E-03	13	6.46%	817	3.48E-02	21	3.12%	394	1.68E-02	
6	2.59%	328	1.40E-02	14	6.56%	830	3.54E-02	22	2.42%	306	1.31E-02	
7	5.20%	658	2.81E-02	15	6.98%	883	3.77E-02	23	1.73%	219	9.36E-03	
8	5.76%	728	3.11E-02	16	7.38%	933	3.98E-02	24	1.10%	139	5.91E-03	
Total										12,650		

Year = 2030

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)
FUG_NB_FRE	Freedom Blvd Northbound	NB	2	5790.8	3.60	13.3	44	1.3	30	12,650	77,106	829,958	1.70E-07	1.26E-07	2.6	1.21
FUG_SB_FRE	Freedom Blvd Southbound	SB	2	5774.4	3.59	13.3	44	1.3	30	12,650	76,887	827,608	1.70E-07	1.26E-07	2.6	1.21
									Total	25,300						

Emission Factors - Fugitive PM_{2.5}

	1	2	3	4
Speed Category				
Travel Speed (mph)	30			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00211			
Brake Wear - Emissions per Vehicle (g/VMT)	0.00617			
Road Dust - Emissions per Vehicle (g/VMT)	0.01665			
Total Fugitive PM_{2.5} - Emissions per Vehicle (g/VMT)	0.02493			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and Fugitive PM_{2.5} Emissions - FUG NB FREE

	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
	1	0.60%	76	1.90E-03	9	5.90%	746	1.86E-02	17	7.37%	932	2.32E-02
	2	0.37%	47	1.17E-03	10	5.74%	727	1.81E-02	18	6.95%	879	2.19E-02
	3	0.31%	39	9.68E-04	11	6.01%	760	1.89E-02	19	5.76%	728	1.82E-02
	4	0.41%	52	1.29E-03	12	6.28%	795	1.98E-02	20	4.09%	518	1.29E-02
	5	0.91%	115	2.87E-03	13	6.46%	817	2.04E-02	21	3.12%	394	9.83E-03
	6	2.59%	328	8.17E-03	14	6.56%	830	2.07E-02	22	2.42%	306	7.64E-03
	7	5.20%	658	1.64E-02	15	6.98%	883	2.20E-02	23	1.73%	219	5.47E-03
	8	5.76%	728	1.81E-02	16	7.38%	933	2.32E-02	24	1.10%	139	3.45E-03
					Total				Total		12,650	

2030 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG_SB_FRE

Hour	% Per	VPH	g/mile	Hour	% Per	VPH	g/mile	Hour	% Per	VPH	g/mile
1	0.60%	76	1.89E-03	9	5.90%	746	1.85E-02	17	7.37%	932	2.32E-02
2	0.37%	47	2.17E-03	10	5.74%	727	1.81E-02	18	6.95%	879	2.18E-02
3	0.31%	39	9.66E-04	11	6.01%	760	1.89E-02	19	5.76%	728	1.81E-02
4	0.41%	52	1.29E-03	12	6.28%	795	1.98E-02	20	4.09%	518	1.29E-02
5	0.91%	115	2.87E-03	13	6.46%	817	2.03E-02	21	3.12%	394	9.80E-03
6	2.59%	328	8.15E-03	14	6.56%	830	2.06E-02	22	2.42%	306	7.62E-03
7	5.20%	658	1.63E-02	15	6.98%	883	2.19E-02	23	1.73%	219	5.45E-03
8	5.76%	728	1.81E-02	16	7.38%	933	2.32E-02	24	1.10%	139	3.44E-03
				Total				12,650			

Year = 2030

**(Sigma z)
Initial
Vertical
Dimension**

Emission Factors

2030 Hourly Traffic Volumes and DPM Emissions - DPM NB GRE

Total

2030 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM SB GRE

Watsonville General Plan, Watsonville, CA - Onsite Residential
Plan Area Trips - Green Valley Road
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2030

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 GRE	Green Valley Road Northbound	NB	2	3522.7	2.19	13.3	44	1.3	35	12,150	46,905	504,886	1.06E-08	7.82E-09	2.6	1.21
PM2.5 SB GRE	Green Valley Road Southbound	SB	2	3517.1	2.19	13.3	44	1.3	35	12,150	46,831	504,084	1.06E-08	7.82E-09	2.6	1.21
Total										24,300						

Emission Factors - PM2.5

Speed Category Travel Speed (mph)	Emissions per Vehicle (g/VMT)			
	1	2	3	4
35	0.00162			

Emission Factors from CT-EMF/AC2021

2030 Hourly Traffic Volumes and PM2.5 Emissions - PM2.5 NB GRE

	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
	1	0.60%	73	7.18E-05	9	5.90%	717	7.04E-04	17	7.37%	895	8.80E-04
	2	0.37%	45	4.44E-05	10	5.74%	698	6.86E-04	18	6.95%	844	8.30E-04
	3	0.31%	37	3.67E-05	11	6.01%	730	7.18E-04	19	5.76%	700	6.87E-04
	4	0.41%	50	4.88E-05	12	6.28%	763	7.50E-04	20	4.09%	497	4.89E-04
	5	0.91%	111	1.09E-04	13	6.46%	784	7.71E-04	21	3.12%	379	3.72E-04
	6	2.59%	315	3.10E-04	14	6.56%	797	7.83E-04	22	2.42%	294	2.89E-04
	7	5.20%	632	6.21E-04	15	6.98%	848	8.34E-04	23	1.73%	211	2.07E-04
	8	5.76%	699	6.87E-04	16	7.38%	896	8.81E-04	24	1.10%	133	1.31E-04
Total										12,150		

2030 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM2.5 SB GRE

Hour	% Per	VPH	g/mile	Hour	% Per	VPH	g/mile	Hour	% Per	VPH	g/mile
1	0.60%	73	7.17E-05	9	5.90%	717	7.03E-04	17	7.37%	895	8.78E-04
2	0.37%	45	4.43E-05	10	5.74%	698	6.85E-04	18	6.95%	844	8.28E-04
3	0.31%	37	3.66E-05	11	6.01%	730	7.16E-04	19	5.76%	700	6.86E-04
4	0.41%	50	4.88E-05	12	6.28%	763	7.49E-04	20	4.09%	497	4.88E-04
5	0.91%	111	1.09E-04	13	6.46%	784	7.70E-04	21	3.12%	379	3.72E-04
6	2.59%	315	3.09E-04	14	6.56%	797	7.82E-04	22	2.42%	294	2.89E-04
7	5.20%	632	6.20E-04	15	6.98%	848	8.32E-04	23	1.73%	211	2.07E-04
8	5.76%	699	6.86E-04	16	7.38%	896	8.79E-04	24	1.10%	133	1.31E-04
Total										12,150	

Watsonville General Plan, Watsonville, CA - Onsite Residential
 Plan Area Trips - Green Valley Road
 TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
 Year = 2030

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (ft)	Link Width (m)	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_GRE	Green Valley Road Northbound	NB	2	3522.7	2.19	13.3	44	1.3	35	12,150	46,905	504,886	1.75E-07	1.29E-07	2.6	1.21
TEXH_SB_GRE	Green Valley Road Southbound	SB	2	3517.1	2.19	13.3	44	1.3	35	12,150	46,831	504,084	1.75E-07	1.29E-07	2.6	1.21
Total										24,300						

Emission Factors - TOG Exhaust

Speed Category	Travel Speed (mph)			
	1	2	3	4
Emissions per Vehicle (g/VMT)	35			
	0.02672			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH NB GRE

Hour	% Per Hour		VPH	g/s	% Per Hour		VPH	g/s	Hour	% Per Hour		VPH	g/s
	Hour	Hour			Hour	Hour				Hour	Hour		
1	0.60%	73	1.19E-03	9	5.90%	717	1.16E-02	17	7.37%	895	1.46E-02	895	1.46E-02
2	0.37%	45	7.35E-04	10	5.74%	698	1.13E-02	18	6.95%	844	1.37E-02	844	1.37E-02
3	0.31%	37	6.06E-04	11	6.01%	730	1.19E-02	19	5.76%	700	1.14E-02	700	1.14E-02
4	0.41%	50	8.08E-04	12	6.28%	763	1.24E-02	20	4.09%	497	8.08E-03	497	8.08E-03
5	0.91%	111	1.80E-03	13	6.46%	784	1.27E-02	21	3.12%	379	6.16E-03	379	6.16E-03
6	2.59%	315	5.12E-03	14	6.56%	797	1.29E-02	22	2.42%	294	4.78E-03	294	4.78E-03
7	5.20%	632	1.03E-02	15	6.98%	848	1.38E-02	23	1.73%	211	3.42E-03	211	3.42E-03
8	5.76%	699	1.14E-02	16	7.38%	896	1.46E-02	24	1.10%	133	2.16E-03	133	2.16E-03
Total										12,150			

2030 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH SB GRE

Hour	% Per Hour		VPH	g/mile	% Per Hour		VPH	g/mile	Hour	% Per Hour		VPH	g/mile
	Hour	Hour			Hour	Hour				Hour	Hour		
1	0.60%	73	1.19E-03	9	5.90%	717	1.16E-02	17	7.37%	895	1.45E-02	895	1.45E-02
2	0.37%	45	7.33E-04	10	5.74%	698	1.13E-02	18	6.95%	844	1.37E-02	844	1.37E-02
3	0.31%	37	6.05E-04	11	6.01%	730	1.18E-02	19	5.76%	700	1.14E-02	700	1.14E-02
4	0.41%	50	8.06E-04	12	6.28%	763	1.24E-02	20	4.09%	497	8.07E-03	497	8.07E-03
5	0.91%	111	1.80E-03	13	6.46%	784	1.27E-02	21	3.12%	379	6.15E-03	379	6.15E-03
6	2.59%	315	5.11E-03	14	6.56%	797	1.29E-02	22	2.42%	294	4.78E-03	294	4.78E-03
7	5.20%	632	1.02E-02	15	6.98%	848	1.38E-02	23	1.73%	211	3.42E-03	211	3.42E-03
8	5.76%	699	1.13E-02	16	7.38%	896	1.45E-02	24	1.10%	133	2.16E-03	133	2.16E-03
Total										12,150			

Year = 2030

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_GRE	Green Valley Road Northbound	NB	2	3522.7	2.19	13.3	44	1.3	35	12,150	46,905	504,886	2.41E-07	1.77E-07	2.6	1.21
TEVAP_SB_GRE	Green Valley Road Southbound	SB	2	3517.1	2.19	13.3	44	1.3	35	12,150	46,831	504,084	2.41E-07	1.77E-07	2.6	1.21
									Total	24,300						

Emission Factors - PM2.5 - Evaporative TOG

	Speed Category			
	1	2	3	4
Travel Speed (mph)	35			
Emissions per Vehicle per Hour (g/hour)	1.28388			
Emissions per Vehicle per Mile (g/VMT)	0.03668			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP NB GRE

	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
	1	0.60%	73	1.63E-03	9	5.90%	717	1.60E-02	17	7.37%	895	2.00E-02
	2	0.37%	45	1.01E-03	10	5.74%	698	1.56E-02	18	6.95%	844	1.88E-02
	3	0.31%	37	8.32E-04	11	6.01%	730	1.63E-02	19	5.76%	700	1.56E-02
	4	0.41%	50	1.11E-03	12	6.28%	763	1.70E-02	20	4.09%	497	1.11E-02
	5	0.91%	111	2.47E-03	13	6.46%	784	1.75E-02	21	3.12%	379	8.45E-03
	6	2.59%	315	7.03E-03	14	6.56%	797	1.78E-02	22	2.42%	294	6.57E-03
	7	5.20%	632	1.41E-02	15	6.98%	848	1.89E-02	23	1.73%	211	4.70E-03
	8	5.76%	699	1.56E-02	16	7.38%	896	2.00E-02	24	1.10%	133	2.97E-03
									Total		12,150	

2030 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP_SB_GRE

[illegible]

Year = 2030

Road Link			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_GRE				2	3522.7	2.19	13.3	44	1.3	35	12,150	46,905	504,886	1.64E-07	1.21E-07	2.6	1.21
FUG_SB_GRE				2	3517.1	2.19	13.3	44	1.3	35	12,150	46,831	504,084	1.64E-07	1.21E-07	2.6	1.21
										Total	24,300						

Emission Factors - Fugitive PM_{2.5}

	1	2	3	4
Speed Category				
Travel Speed (mph)	35			
Tire Wear - Emissions per Vehicle (g/V/Mt)	0.00211			
Brake Wear - Emissions per Vehicle (g/V/Mt)	0.00617			
Road Dust - Emissions per Vehicle (g/V/Mt)	0.01665			
Total Fugitive PM _{2.5} - Emissions per Vehicle (g/V/Mt)	0.02493			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and Fugitive PM_{2.5} Emissions - FUG_NB_GRE

Hour	g/s			g/s			g/s			g/s			Total
	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s		
1	0.60%	73	1.11E-03	9	5.90%	717	1.09E-02	17	7.37%	895	1.36E-02	12,150	
2	0.37%	45	6.85E-04	10	5.74%	698	1.06E-02	18	6.95%	844	1.28E-02		
3	0.31%	37	5.66E-04	11	6.01%	730	1.11E-02	19	5.76%	700	1.06E-02		
4	0.41%	50	7.53E-04	12	6.28%	763	1.16E-02	20	4.09%	497	7.54E-03		
5	0.91%	111	1.68E-03	13	6.46%	784	1.19E-02	21	3.12%	379	5.74E-03		
6	2.59%	315	4.78E-03	14	6.56%	797	1.21E-02	22	2.42%	294	4.46E-03		
7	5.20%	632	9.57E-03	15	6.98%	848	1.29E-02	23	1.73%	211	3.19E-03		
8	5.76%	699	1.06E-02	16	7.38%	896	1.36E-02	24	1.10%	133	2.02E-03		

2030 Hourly Traffic Volumes Per Direction and Fugitive PM_{2.5} Emissions - FUG_SB_GRE

	Run 1			Run 2			Run 3			Run 4		
	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	0.60%	73	1.11E-03	9	5.90%	717	1.08E-02	17	7.37%	895	1.36E-02	
2	0.37%	45	6.84E-04	10	5.74%	698	1.06E-02	18	6.95%	844	1.28E-02	
3	0.31%	37	5.65E-04	11	6.01%	730	1.11E-02	19	5.76%	700	1.06E-02	
4	0.41%	50	7.52E-04	12	6.28%	763	1.16E-02	20	4.09%	497	7.53E-03	
5	0.91%	111	1.68E-03	13	6.46%	784	1.19E-02	21	3.12%	379	5.73E-03	
6	2.59%	315	4.77E-03	14	6.56%	797	1.21E-02	22	2.42%	294	4.43E-03	
7	5.20%	632	9.56E-03	15	6.98%	848	1.28E-02	23	1.73%	211	3.19E-03	
8	5.76%	699	1.06E-02	16	7.38%	896	1.36E-02	24	1.10%	133	2.01E-03	
								Total			12,150	

2030

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Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and DPM Emissions - DPM EB LAK

	Hour	% Per	VPH	g/s	Hour	% Per	VPH	g/s	Hour	% Per	VPH	g/s
	1	0.60%	54	2.15E-05	9	5.90%	525	2.10E-04	17	7.37%	656	2.63E-04
	2	0.37%	33	1.33E-05	10	5.74%	511	2.05E-04	18	6.95%	618	2.48E-04
	3	0.31%	27	1.10E-05	11	6.01%	535	2.14E-04	19	5.76%	512	2.05E-04
	4	0.41%	36	1.46E-05	12	6.28%	559	2.24E-04	20	4.09%	364	1.46E-04
	5	0.91%	81	3.25E-05	13	6.46%	575	2.30E-04	21	3.12%	277	1.11E-04
	6	2.59%	231	9.25E-05	14	6.56%	584	2.34E-04	22	2.42%	216	8.64E-05
	7	5.20%	463	1.86E-04	15	6.98%	621	2.49E-04	23	1.73%	154	6.19E-05
	8	5.76%	512	2.05E-04	16	7.38%	656	2.63E-04	24	1.10%	98	3.91E-05
									Total		8,900	

2030 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_WB_LAK

	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
	1	0.60%	54	2.67E-05	9	5.90%	525	2.61E-04	17	7.37%	656	3.27E-04
	2	0.37%	33	1.65E-05	10	5.74%	511	2.55E-04	18	6.95%	618	3.08E-04
	3	0.31%	27	1.36E-05	11	6.01%	535	2.66E-04	19	5.76%	512	2.55E-04
	4	0.41%	36	1.81E-05	12	6.28%	559	2.78E-04	20	4.09%	364	1.81E-04
	5	0.91%	81	4.04E-05	13	6.46%	575	2.86E-04	21	3.12%	277	1.38E-04
	6	2.59%	231	1.15E-04	14	6.56%	584	2.91E-04	22	2.42%	216	1.07E-04
	7	5.20%	463	2.30E-04	15	6.98%	621	3.09E-04	23	1.73%	154	7.68E-05
	8	5.76%	512	2.55E-04	16	7.38%	656	3.27E-04	24	1.10%	98	4.86E-05
					Total						8,900	

Watsonville General Plan, Watsonville, CA - Onsite Residential
 Plan Area Trips - E Lake Ave
 PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
 Year = 2030

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 LAK	East Lake Ave Eastbound	EB	1	2318.2	1.44	9.7	32	1.3	25	8,900	22,388	240,985	1.56E-08	1.15E-08	2.6	1.21
PM2.5 WB LAK	East Lake Ave Westbound	WB	1	2878.9	1.79	9.7	32	1.3	25	8,900	27,803	299,272	1.56E-08	1.15E-08	2.6	1.21
Total										17,800						

Emission Factors - PM2.5

Speed Category Travel Speed (mph)	Emissions per Vehicle (g/VMT)			
	1	2	3	4
25	0.00236			

Emission Factors from CT-EMF/AC2021

2030 Hourly Traffic Volumes and PM2.5 Emissions - PM2.5 EB_LAK

	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
	1	0.60%	54	5.05E-05	9	5.90%	525	4.95E-04	17	7.37%	656	6.18E-04
	2	0.37%	33	3.12E-05	10	5.74%	511	4.82E-04	18	6.95%	618	5.83E-04
	3	0.31%	27	2.58E-05	11	6.01%	535	5.04E-04	19	5.76%	512	4.83E-04
	4	0.41%	36	3.43E-05	12	6.28%	559	5.27E-04	20	4.09%	364	3.43E-04
	5	0.91%	81	7.65E-05	13	6.46%	575	5.41E-04	21	3.12%	277	2.61E-04
	6	2.59%	231	2.17E-04	14	6.56%	584	5.50E-04	22	2.42%	216	2.03E-04
	7	5.20%	463	4.36E-04	15	6.98%	621	5.86E-04	23	1.73%	154	1.45E-04
	8	5.76%	512	4.83E-04	16	7.38%	656	6.19E-04	24	1.10%	98	9.19E-05
Total										8,900		

2030 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM2.5_WB_LAK

	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
	1	0.60%	54	6.27E-05	9	5.90%	525	6.14E-04	17	7.37%	656	7.68E-04
	2	0.37%	33	3.88E-05	10	5.74%	511	5.98E-04	18	6.95%	618	7.24E-04
	3	0.31%	27	3.20E-05	11	6.01%	535	6.26E-04	19	5.76%	512	6.00E-04
	4	0.41%	36	4.26E-05	12	6.28%	559	6.54E-04	20	4.09%	364	4.26E-04
	5	0.91%	81	9.49E-05	13	6.46%	575	6.72E-04	21	3.12%	277	3.25E-04
	6	2.59%	231	2.70E-04	14	6.56%	584	6.83E-04	22	2.42%	216	2.52E-04
	7	5.20%	463	5.41E-04	15	6.98%	621	7.27E-04	23	1.73%	154	1.81E-04
	8	5.76%	512	5.99E-04	16	7.38%	656	7.68E-04	24	1.10%	98	1.14E-04
Total										8,900		

Watsonville General Plan, Watsonville, CA - Onsite Residential
 Plan Area Trips - E Lake Ave
 TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
 Year = 2030

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_LAK	East Lake Ave Eastbound	EB	1	2318.2	1.44	9.7	32	1.3	25	8,900	22,388	240,985	2.54E-07	1.88E-07	2.6	1.21
TEXH_WB_LAK	East Lake Ave Westbound	WB	1	2878.9	1.79	9.7	32	1.3	25	8,900	27,803	299,272	2.54E-07	1.88E-07	2.6	1.21
Total										17,800						

Emission Factors - TOG Exhaust

Speed Category Travel Speed (mph)				
	1	2	3	4
Emissions per Vehicle (g/VMT)	0.03839			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_EB_LAK

Hour	% Per Hour		VPH	g/s	% Per Hour		VPH	g/s	Hour	% Per Hour		VPH	g/s
	Hour	Hour			Hour	Hour				Hour	Hour		
1	0.60%	54	8.22E-04	9	5.90%	525	8.06E-03	17	7.37%	656	1.01E-02	656	1.01E-02
2	0.37%	33	5.09E-04	10	5.74%	511	7.85E-03	18	6.95%	618	9.50E-03	618	9.50E-03
3	0.31%	27	4.20E-04	11	6.01%	535	8.22E-03	19	5.76%	512	7.87E-03	512	7.87E-03
4	0.41%	36	5.59E-04	12	6.28%	559	8.59E-03	20	4.09%	364	5.60E-03	364	5.60E-03
5	0.91%	81	1.25E-03	13	6.46%	575	8.83E-03	21	3.12%	277	4.26E-03	277	4.26E-03
6	2.59%	231	3.54E-03	14	6.56%	584	8.96E-03	22	2.42%	216	3.31E-03	216	3.31E-03
7	5.20%	463	7.11E-03	15	6.98%	621	9.55E-03	23	1.73%	154	2.37E-03	154	2.37E-03
8	5.76%	512	7.87E-03	16	7.38%	656	1.01E-02	24	1.10%	98	1.50E-03	98	1.50E-03
Total										8,900			

2030 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH_WB_LAK

Hour	% Per Hour		VPH	g/mile	% Per Hour		VPH	g/mile	Hour	% Per Hour		VPH	g/mile
	Hour	Hour			Hour	Hour				Hour	Hour		
1	0.60%	54	1.02E-03	9	5.90%	525	1.00E-02	17	7.37%	656	1.25E-02	656	1.25E-02
2	0.37%	33	6.32E-04	10	5.74%	511	9.75E-03	18	6.95%	618	1.18E-02	618	1.18E-02
3	0.31%	27	5.21E-04	11	6.01%	535	1.02E-02	19	5.76%	512	9.78E-03	512	9.78E-03
4	0.41%	36	6.94E-04	12	6.28%	559	1.07E-02	20	4.09%	364	6.95E-03	364	6.95E-03
5	0.91%	81	1.55E-03	13	6.46%	575	1.10E-02	21	3.12%	277	5.29E-03	277	5.29E-03
6	2.59%	231	4.40E-03	14	6.56%	584	1.11E-02	22	2.42%	216	4.11E-03	216	4.11E-03
7	5.20%	463	8.83E-03	15	6.98%	621	1.19E-02	23	1.73%	154	2.94E-03	154	2.94E-03
8	5.76%	512	9.77E-03	16	7.38%	656	1.25E-02	24	1.10%	98	1.86E-03	98	1.86E-03
Total										8,900			

Watsonville General Plan, Watsonville, CA - Onsite Residential
Plan Area Trips - E Lake Ave
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2030

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_LAK	East Lake Ave Eastbound	EB	1	2318.2	1.44	9.7	32	1.3	25	8,900	22,388	240,985	3.40E-07	2.51E-07	2.6	1.21
TEVAP_WB_LAK	East Lake Ave Westbound	WB	1	2878.9	1.79	9.7	32	1.3	25	8,900	27,803	299,272	3.40E-07	2.51E-07	2.6	1.21
Total										17,800						

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	Travel Speed (mph)			
	1	2	3	4
	25			
Emissions per Vehicle per Hour (g/hour)	1.28388			
Emissions per Vehicle per Mile (g/VMT)	0.05136			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_EB_LAK

Hour	% Per Hour		VPH	g/s	Hour	% Per Hour		VPH	g/s	Hour	% Per Hour		VPH	g/s
	Hour					Hour					Hour			
1	0.60%	54	1.10E-03	9	5.90%	525	1.08E-02	17	7.37%	656	1.35E-02	656	1.35E-02	
2	0.37%	33	6.80E-04	10	5.74%	511	1.05E-02	18	6.95%	618	1.27E-02	618	1.27E-02	
3	0.31%	27	5.62E-04	11	6.01%	535	1.10E-02	19	5.76%	512	1.05E-02	512	1.05E-02	
4	0.41%	36	7.48E-04	12	6.28%	559	1.15E-02	20	4.09%	364	7.49E-03	364	7.49E-03	
5	0.91%	81	1.67E-03	13	6.46%	575	1.18E-02	21	3.12%	277	5.70E-03	277	5.70E-03	
6	2.59%	231	4.74E-03	14	6.56%	584	1.20E-02	22	2.42%	216	4.43E-03	216	4.43E-03	
7	5.20%	463	9.51E-03	15	6.98%	621	1.28E-02	23	1.73%	154	3.17E-03	154	3.17E-03	
8	5.76%	512	1.05E-02	16	7.38%	656	1.35E-02	24	1.10%	98	2.00E-03	98	2.00E-03	
Total										8,900				

2030 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP_WB_LAK

Hour	Hour	% Per	VPH	g/mile	Hour	% Per	VPH	g/mile	Hour	% Per	VPH	g/mile
		Hour				Hour				Hour		
1	1	0.60%	54	1.37E-03	9	5.90%	525	1.34E-02	17	7.37%	656	1.67E-02
2	2	0.37%	33	8.45E-04	10	5.74%	511	1.30E-02	18	6.95%	618	1.58E-02
3	3	0.31%	27	6.98E-04	11	6.01%	535	1.37E-02	19	5.76%	512	1.31E-02
4	4	0.41%	36	9.29E-04	12	6.28%	559	1.43E-02	20	4.09%	364	9.30E-03
5	5	0.91%	81	2.07E-03	13	6.46%	575	1.47E-02	21	3.12%	277	7.08E-03
6	6	2.59%	231	5.89E-03	14	6.56%	584	1.49E-02	22	2.42%	216	5.50E-03
7	7	5.20%	463	1.18E-02	15	6.98%	621	1.59E-02	23	1.73%	154	3.94E-03
8	8	5.76%	512	1.31E-02	16	7.38%	656	1.68E-02	24	1.10%	98	2.49E-03
Total										8,900		

Watsonville General Plan, Watsonville, CA - Onsite Residential
Plan Area Trips - E Lake Ave
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2030

Road Link	Description	Direction	No. Lanes	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_LAK	East Lake Ave Eastbound	EB	1	2318.2	1.44	9.7	32	25	8,900	22,388	240,985	1.65E-07	1.22E-07	2.6	1.21
FUG_WB_LAK	East Lake Ave Westbound	WB	1	2878.9	1.79	9.7	32	25	8,900	27,803	299,272	1.65E-07	1.22E-07	2.6	1.21
Total									17,800						

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
	Travel Speed (mph)			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00211			
Brake Wear - Emissions per Vehicle (g/VMT)	0.00613			
Road Dust - Emissions per Vehicle (g/VMT)	0.01665			
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.02489			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_EB_LAK

	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
	1	0.60%	54	5.33E-04	9	5.90%	525	5.23E-03	17	7.37%	656	6.53E-03
	2	0.37%	33	3.30E-04	10	5.74%	511	5.09E-03	18	6.95%	618	6.16E-03
	3	0.31%	27	2.72E-04	11	6.01%	535	5.33E-03	19	5.76%	512	5.10E-03
	4	0.41%	36	3.63E-04	12	6.28%	559	5.57E-03	20	4.09%	364	3.63E-03
	5	0.91%	81	8.08E-04	13	6.46%	575	5.72E-03	21	3.12%	277	2.76E-03
	6	2.59%	231	2.30E-03	14	6.56%	584	5.81E-03	22	2.42%	216	2.15E-03
	7	5.20%	463	4.61E-03	15	6.98%	621	6.19E-03	23	1.73%	154	1.54E-03
	8	5.76%	512	5.10E-03	16	7.38%	656	6.54E-03	24	1.10%	98	9.71E-04
Total										8,900		

2030 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG_WB_LAK

	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
	1	0.60%	54	6.62E-04	9	5.90%	525	6.49E-03	17	7.37%	656	8.11E-03
	2	0.37%	33	4.10E-04	10	5.74%	511	6.32E-03	18	6.95%	618	7.65E-03
	3	0.31%	27	3.38E-04	11	6.01%	535	6.62E-03	19	5.76%	512	6.34E-03
	4	0.41%	36	4.50E-04	12	6.28%	559	6.92E-03	20	4.09%	364	4.51E-03
	5	0.91%	81	1.00E-03	13	6.46%	575	7.11E-03	21	3.12%	277	3.43E-03
	6	2.59%	231	2.85E-03	14	6.56%	584	7.22E-03	22	2.42%	216	2.67E-03
	7	5.20%	463	5.72E-03	15	6.98%	621	7.69E-03	23	1.73%	154	1.91E-03
	8	5.76%	512	6.34E-03	16	7.38%	656	8.12E-03	24	1.10%	98	1.21E-03
Total										8,900		

Watsonville General Plan, Watsonville, CA - Onsite Residential
Plan Area Trips - Main Street
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2030

RLINE

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
DPM_EB_MAI	Main St Eastbound	NB	2	4295.5	2.67	13.3	43.7	3.4	25	16,250	57,195	615,647	8.795E-09	6.484E-09	6.8	3.16
DPM_WB_MAI	Main St Westbound	SB	2	4354.4	2.71	13.3	43.7	3.4	25	16,250	57,980	624,088	8.795E-09	6.484E-09	6.8	3.16
Total										32,500						

Emission Factors

Speed Category Travel Speed (mph)	1	2	3	4
	25			
Emissions per Vehicle (g/VMT)				
	0.00100			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and DPM Emissions - DPM_EB_MAI

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.60%	98	7.26E-05	9	5.90%	959	7.12E-04	17	7.37%	1198	8.90E-04
2	0.37%	60	4.49E-05	10	5.74%	933	6.93E-04	18	6.95%	1129	8.39E-04
3	0.31%	50	3.71E-05	11	6.01%	977	7.26E-04	19	5.76%	936	6.95E-04
4	0.41%	66	4.94E-05	12	6.28%	1021	7.59E-04	20	4.09%	665	4.94E-04
5	0.91%	148	1.10E-04	13	6.46%	1049	7.79E-04	21	3.12%	507	3.76E-04
6	2.59%	421	3.13E-04	14	6.56%	1066	7.92E-04	22	2.42%	394	2.92E-04
7	5.20%	845	6.28E-04	15	6.98%	1135	8.43E-04	23	1.73%	282	2.09E-04
8	5.76%	935	6.95E-04	16	7.38%	1199	8.90E-04	24	1.10%	178	1.32E-04
Total								16,250			

2030 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_WB_MAI

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	0.60%	98	7.36E-05	9	5.90%	959	7.22E-04	17	7.37%	1198	9.02E-04
2	0.37%	60	4.55E-05	10	5.74%	933	7.03E-04	18	6.95%	1129	8.50E-04
3	0.31%	50	3.76E-05	11	6.01%	977	7.36E-04	19	5.76%	936	7.05E-04
4	0.41%	66	5.01E-05	12	6.28%	1021	7.69E-04	20	4.09%	665	5.01E-04
5	0.91%	148	1.12E-04	13	6.46%	1049	7.90E-04	21	3.12%	507	3.82E-04
6	2.59%	421	3.17E-04	14	6.56%	1066	8.03E-04	22	2.42%	394	2.96E-04
7	5.20%	845	6.36E-04	15	6.98%	1135	8.55E-04	23	1.73%	282	2.12E-04
8	5.76%	935	7.04E-04	16	7.38%	1199	9.03E-04	24	1.10%	178	1.34E-04
Total										16,250	

Watsonville General Plan, Watsonville, CA - Onsite Residential
 Plan Area Trips - Main Street
 PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
 Year = 2030

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 MAI	Main St Eastbound	NIB	2	4295.5	2.67	13.3	44	1.3	25	16,250	57,195	615,647	2.07E-08	1.52E-08	2.6	1.21
PM2.5 WB MAI	Main St Westbound	SB	2	4354.4	2.71	13.3	44	1.3	25	16,250	57,980	624,088	2.07E-08	1.52E-08	2.6	1.21
Total										32,500						

Emission Factors - PM2.5

Speed Category Travel Speed (mph)	Emissions per Vehicle (g/VMT)			
	1	2	3	4
25	0.00236			

Emission Factors from CT-EMF/AC2021

2030 Hourly Traffic Volumes and PM2.5 Emissions - PM2.5 EB_MAI

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.60%	98	1.71E-04	9	5.90%	959	1.67E-03	17	7.37%	1198	2.09E-03
2	0.37%	60	1.06E-04	10	5.74%	933	1.63E-03	18	6.95%	1129	1.97E-03
3	0.31%	50	8.72E-05	11	6.01%	977	1.71E-03	19	5.76%	936	1.63E-03
4	0.41%	66	1.16E-04	12	6.28%	1021	1.78E-03	20	4.09%	665	1.16E-03
5	0.91%	148	2.59E-04	13	6.46%	1049	1.83E-03	21	3.12%	507	8.85E-04
6	2.59%	421	7.36E-04	14	6.56%	1066	1.86E-03	22	2.42%	394	6.87E-04
7	5.20%	845	1.48E-03	15	6.98%	1135	1.98E-03	23	1.73%	282	4.92E-04
8	5.76%	935	1.63E-03	16	7.38%	1199	2.09E-03	24	1.10%	178	3.11E-04
Total								16,250			

2030 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM2.5 WB_MAI

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	0.60%	98	1.73E-04	9	5.90%	959	1.70E-03	17	7.37%	1198	2.12E-03
2	0.37%	60	1.07E-04	10	5.74%	933	1.65E-03	18	6.95%	1129	2.00E-03
3	0.31%	50	8.83E-05	11	6.01%	977	1.73E-03	19	5.76%	936	1.66E-03
4	0.41%	66	1.18E-04	12	6.28%	1021	1.81E-03	20	4.09%	665	1.18E-03
5	0.91%	148	2.62E-04	13	6.46%	1049	1.86E-03	21	3.12%	507	8.97E-04
6	2.59%	421	7.46E-04	14	6.56%	1066	1.89E-03	22	2.42%	394	6.97E-04
7	5.20%	845	1.50E-03	15	6.98%	1135	2.01E-03	23	1.73%	282	4.99E-04
8	5.76%	935	1.66E-03	16	7.38%	1199	2.12E-03	24	1.10%	178	3.15E-04
Total								16,250			

Watsonville General Plan, Watsonville, CA - Onsite Residential
Plan Area Trips - Main Street
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2030

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	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_MAI	Main St Eastbound	NB	2	4295.5	2.67	13.3	44	25	16,250	57,195	615,647	3.37E-07	2.48E-07	2.6	1.21
TEXH_WB_MAI	Main St Westbound	SB	2	4354.4	2.71	13.3	44	25	16,250	57,980	624,088	3.37E-07	2.48E-07	2.6	1.21
Total									32,500						

Emission Factors - TOG Exhaust

Speed Category Travel Speed (mph)	Emissions per Vehicle (g/VMT)			
	1	2	3	4
	0.03839			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_EB_MAI

Hour	% Per Hour		VPH	g/s	% Per Hour		VPH	g/s	Hour	% Per Hour		VPH	g/s
	Hour	Hour			Hour	Hour				Hour	Hour		
1	0.60%	98	2.78E-03	9	5.90%	959	2.73E-02	17	7.37%	1198	3.41E-02		
2	0.37%	60	1.72E-03	10	5.74%	933	2.66E-02	18	6.95%	1129	3.21E-02		
3	0.31%	50	1.42E-03	11	6.01%	977	2.78E-02	19	5.76%	936	2.66E-02		
4	0.41%	66	1.89E-03	12	6.28%	1021	2.91E-02	20	4.09%	665	1.89E-02		
5	0.91%	148	4.22E-03	13	6.46%	1049	2.99E-02	21	3.12%	507	1.44E-02		
6	2.59%	421	1.20E-02	14	6.56%	1066	3.03E-02	22	2.42%	394	1.12E-02		
7	5.20%	845	2.40E-02	15	6.98%	1135	3.23E-02	23	1.73%	282	8.02E-03		
8	5.76%	935	2.66E-02	16	7.38%	1199	3.41E-02	24	1.10%	178	5.07E-03		
Total									16,250				

2030 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH_WB_MAI

Hour	% Per		VPH	g/mile	% Per		VPH	g/mile	% Per		VPH	g/mile	
	Hour	Hour			Hour	Hour			Hour	Hour			
1	0.60%	98	2.82E-03	9	5.90%	959	2.77E-02	17	7.37%	1198	3.46E-02		
2	0.37%	60	1.74E-03	10	5.74%	933	2.69E-02	18	6.95%	1129	3.26E-02		
3	0.31%	50	1.44E-03	11	6.01%	977	2.82E-02	19	5.76%	936	2.70E-02		
4	0.41%	66	1.92E-03	12	6.28%	1021	2.95E-02	20	4.09%	665	1.92E-02		
5	0.91%	148	4.27E-03	13	6.46%	1049	3.03E-02	21	3.12%	507	1.46E-02		
6	2.59%	421	1.22E-02	14	6.56%	1066	3.07E-02	22	2.42%	394	1.14E-02		
7	5.20%	845	2.44E-02	15	6.98%	1135	3.27E-02	23	1.73%	282	8.13E-03		
8	5.76%	935	2.70E-02	16	7.38%	1199	3.46E-02	24	1.10%	178	5.14E-03		
Total									16,250				

Watsonville General Plan, Watsonville, CA - Onsite Residential
 Plan Area Trips - Main Street
 TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
 Year = 2030

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_MAI	Main St Eastbound	NB	2	4295.5	2.67	13.3	44	1.3	25	16,250	57,195	615,647	4.51E-07	3.32E-07	2.6	1.21
TEVAP_WB_MAI	Main St Westbound	SB	2	4354.4	2.71	13.3	44	1.3	25	16,250	57,980	624,088	4.51E-07	3.32E-07	2.6	1.21
Total										32,500						

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	Travel Speed (mph)			
	1	2	3	4
	25			
Emissions per Vehicle per Hour (g/hour)	1.28388			
Emissions per Vehicle per Mile (g/VMT)	0.05136			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_EB_MAI

Hour	% Per Hour		VPH	g/s	% Per Hour		VPH	g/s	% Per Hour		VPH	g/s
	Hour	Hour			Hour	Hour			Hour	Hour		
1	0.60%	98	3.72E-03	9	5.90%	959	3.65E-02	17	7.37%	1198	4.56E-02	
2	0.37%	60	2.30E-03	10	5.74%	933	3.55E-02	18	6.95%	1129	4.30E-02	
3	0.31%	50	1.90E-03	11	6.01%	977	3.72E-02	19	5.76%	936	3.56E-02	
4	0.41%	66	2.53E-03	12	6.28%	1021	3.89E-02	20	4.09%	665	2.53E-02	
5	0.91%	148	5.64E-03	13	6.46%	1049	3.99E-02	21	3.12%	507	1.93E-02	
6	2.59%	421	1.60E-02	14	6.56%	1066	4.06E-02	22	2.42%	394	1.50E-02	
7	5.20%	845	3.22E-02	15	6.98%	1135	4.32E-02	23	1.73%	282	1.07E-02	
8	5.76%	935	3.56E-02	16	7.38%	1199	4.56E-02	24	1.10%	178	6.78E-03	
Total										16,250		

2030 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP_WB_MAI

Hour	% Per Hour		VPH	g/mile	% Per Hour		VPH	g/mile	% Per Hour		VPH	g/mile
	Hour	Hour			Hour	Hour			Hour	Hour		
1	0.60%	98	3.77E-03	9	5.90%	959	3.70E-02	17	7.37%	1198	4.62E-02	
2	0.37%	60	2.33E-03	10	5.74%	933	3.60E-02	18	6.95%	1129	4.36E-02	
3	0.31%	50	1.93E-03	11	6.01%	977	3.77E-02	19	5.76%	936	3.61E-02	
4	0.41%	66	2.57E-03	12	6.28%	1021	3.94E-02	20	4.09%	665	2.57E-02	
5	0.91%	148	5.72E-03	13	6.46%	1049	4.05E-02	21	3.12%	507	1.96E-02	
6	2.59%	421	1.63E-02	14	6.56%	1066	4.11E-02	22	2.42%	394	1.52E-02	
7	5.20%	845	3.26E-02	15	6.98%	1135	4.38E-02	23	1.73%	282	1.09E-02	
8	5.76%	935	3.61E-02	16	7.38%	1199	4.63E-02	24	1.10%	178	6.87E-03	
Total										16,250		

Watsonville General Plan, Watsonville, CA - Onsite Residential
Plan Area Trips - Main Street
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2030

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_MAI	Main St Eastbound	NB	2	4295.5	2.67	13.3	44	1.3	25	16,250	57,195	615,647	2.18E-07	1.61E-07	2.6	1.21
FUG_WB_MAI	Main St Westbound	SB	2	4354.4	2.71	13.3	44	1.3	25	16,250	57,980	624,088	2.18E-07	1.61E-07	2.6	1.21
Total										32,500						

Emission Factors - Fugitive PM2.5

	Speed Category			
	1	2	3	4
Tire Wear - Emissions per Vehicle (g/VMT)	0.00211			
Brake Wear - Emissions per Vehicle (g/VMT)	0.00613			
Road Dust - Emissions per Vehicle (g/VMT)	0.01665			
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.02489			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_EB_MAI

Hour	% Per Hour	g/s	g/mile	Hour	% Per Hour	g/s	g/mile	Hour	% Per Hour	g/s	g/mile	VPH	Emission (g/s)
1	0.60%	98	1.80E-03	9	5.90%	959	1.77E-02	17	7.37%	1198	2.21E-02	1198	2.21E-02
2	0.37%	60	1.12E-03	10	5.74%	933	1.72E-02	18	6.95%	1129	2.08E-02	1129	2.08E-02
3	0.31%	50	9.21E-04	11	6.01%	977	1.80E-02	19	5.76%	936	1.73E-02	936	1.73E-02
4	0.41%	66	1.23E-03	12	6.28%	1021	1.88E-02	20	4.09%	665	1.23E-02	665	1.23E-02
5	0.91%	148	2.73E-03	13	6.46%	1049	1.94E-02	21	3.12%	507	9.35E-03	507	9.35E-03
6	2.59%	421	7.78E-03	14	6.56%	1066	1.97E-02	22	2.42%	394	7.27E-03	394	7.27E-03
7	5.20%	845	1.56E-02	15	6.98%	1135	2.09E-02	23	1.73%	282	5.20E-03	282	5.20E-03
8	5.76%	935	1.73E-02	16	7.38%	1199	2.21E-02	24	1.10%	178	3.29E-03	178	3.29E-03
Total										16,250			

2030 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG_WB_MAI

Hour	% Per Hour	g/s	g/mile	Hour	% Per Hour	g/s	g/mile	Hour	% Per Hour	g/s	g/mile	VPH	Emission (g/s)
1	0.60%	98	1.83E-03	9	5.90%	959	1.79E-02	17	7.37%	1198	2.24E-02	1198	2.24E-02
2	0.37%	60	1.13E-03	10	5.74%	933	1.75E-02	18	6.95%	1129	2.11E-02	1129	2.11E-02
3	0.31%	50	9.34E-04	11	6.01%	977	1.83E-02	19	5.76%	936	1.75E-02	936	1.75E-02
4	0.41%	66	1.24E-03	12	6.28%	1021	1.91E-02	20	4.09%	665	1.24E-02	665	1.24E-02
5	0.91%	148	2.77E-03	13	6.46%	1049	1.96E-02	21	3.12%	507	9.48E-03	507	9.48E-03
6	2.59%	421	7.88E-03	14	6.56%	1066	1.99E-02	22	2.42%	394	7.36E-03	394	7.36E-03
7	5.20%	845	1.58E-02	15	6.98%	1135	2.12E-02	23	1.73%	282	5.27E-03	282	5.27E-03
8	5.76%	935	1.75E-02	16	7.38%	1199	2.24E-02	24	1.10%	178	3.33E-03	178	3.33E-03
Total										16,250			

Watsonville General Plan, Watsonville, CA - Onsite Residential
Plan Area Trips - Ohlone Parkway
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2030

RLINE

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
DPM_NB_OHL	Ohlone Parkway Northbound	NB	1	1252.4	0.78	9.7	31.7	3.4	35	5,500	12,095	130,191	3.072E-09	2.265E-09	6.8	3.16
DPM_SB_OHL	Ohlone Parkway Southbound	SB	1	1260.4	0.78	9.7	31.7	3.4	35	5,500	12,172	131,023	3.072E-09	2.265E-09	6.8	3.16
Total										11,000						

Emission Factors

Speed Category Travel Speed (mph)	1	2	3	4
	35 0.00075			

Emissions per Vehicle (g/VMT)
Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and DPM Emissions - DPM_NB_OHL

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.60%	33	5.36E-06	9	5.90%	324	5.26E-05	17	7.37%	405	6.57E-05
2	0.37%	20	3.32E-06	10	5.74%	316	5.12E-05	18	6.95%	382	6.20E-05
3	0.31%	17	2.74E-06	11	6.01%	331	5.36E-05	19	5.76%	317	5.13E-05
4	0.41%	22	3.65E-06	12	6.28%	346	5.60E-05	20	4.09%	225	3.65E-05
5	0.91%	50	8.13E-06	13	6.46%	355	5.76E-05	21	3.12%	171	2.78E-05
6	2.59%	143	2.31E-05	14	6.56%	361	5.85E-05	22	2.42%	133	2.16E-05
7	5.20%	286	4.64E-05	15	6.98%	384	6.23E-05	23	1.73%	95	1.55E-05
8	5.76%	317	5.13E-05	16	7.38%	406	6.58E-05	24	1.10%	60	9.77E-06
Total										5,500	

2030 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_SB_OHL

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	0.60%	33	5.40E-06	9	5.90%	324	5.29E-05	17	7.37%	405	6.61E-05
2	0.37%	20	3.34E-06	10	5.74%	316	5.16E-05	18	6.95%	382	6.24E-05
3	0.31%	17	2.76E-06	11	6.01%	331	5.39E-05	19	5.76%	317	5.17E-05
4	0.41%	22	3.67E-06	12	6.28%	346	5.64E-05	20	4.09%	225	3.67E-05
5	0.91%	50	8.18E-06	13	6.46%	355	5.79E-05	21	3.12%	171	2.80E-05
6	2.59%	143	2.33E-05	14	6.56%	361	5.89E-05	22	2.42%	133	2.17E-05
7	5.20%	286	4.67E-05	15	6.98%	384	6.27E-05	23	1.73%	95	1.56E-05
8	5.76%	317	5.16E-05	16	7.38%	406	6.62E-05	24	1.10%	60	9.83E-06
Total										5,500	

**Watsonville General Plan, Watsonville, CA - Onsite Residential
Plan Area Trips - Ohlone Parkway
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2030**

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) Vertical Dimension
TEXH_NB_OHL	Ohlone Parkway Northbound	NB	1	1252.4	0.78	9.7	32	1.3	35	5,500	12,095	130,191	1.09E-07	8.07E-08	2.6	1.21
TEXH_SB_OHL	Ohlone Parkway Southbound	SB	1	1260.4	0.78	9.7	32	1.3	35	5,500	12,172	131,023	1.09E-07	8.07E-08	2.6	1.21
									Total	11,000						

Emission Factors - TOG Exhaust

	1	2	3	4
Speed Category				
Travel Speed (mph)	35			
Emissions per Vehicle (g/VMT)	0.02672			

Watsonville General Plan, Watsonville, CA - Onsite Residential
 Plan Area Trips - Ohlone Parkway
 TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
 Year = 2030

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_OHL	Ohlone Parkway Northbound	NB	1	1252.4	0.78	9.7	32	1.3	35	5,500	12,095	130,191	1.50E-07	1.11E-07	2.6	1.21
TEVAP_SB_OHL	Ohlone Parkway Southbound	SB	1	1260.4	0.78	9.7	32	1.3	35	5,500	12,172	131,023	1.50E-07	1.11E-07	2.6	1.21
Total										11,000						

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	Travel Speed (mph)			
	1	2	3	4
	35			
Emissions per Vehicle per Hour (g/hour)	1.28388			
Emissions per Vehicle per Mile (g/VMT)	0.03668			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_NB_OHL

Hour	% Per Hour		VPH	g/s		% Per Hour		VPH	g/s		% Per Hour		VPH	g/s	
	Hour			Hour		Hour			Hour		Hour			Hour	
1	0.60%	33	2.62E-04	9	5.90%	324	2.57E-03	17	7.37%	405	3.21E-03	17	7.37%	405	3.21E-03
2	0.37%	20	1.62E-04	10	5.74%	316	2.51E-03	18	6.95%	382	3.03E-03	18	6.95%	382	3.03E-03
3	0.31%	17	1.34E-04	11	6.01%	331	2.62E-03	19	5.76%	317	2.51E-03	19	5.76%	317	2.51E-03
4	0.41%	22	1.78E-04	12	6.28%	346	2.74E-03	20	4.09%	225	1.79E-03	20	4.09%	225	1.79E-03
5	0.91%	50	3.98E-04	13	6.46%	355	2.82E-03	21	3.12%	171	1.36E-03	21	3.12%	171	1.36E-03
6	2.59%	143	1.13E-03	14	6.56%	361	2.86E-03	22	2.42%	133	1.06E-03	22	2.42%	133	1.06E-03
7	5.20%	286	2.27E-03	15	6.98%	384	3.05E-03	23	1.73%	95	7.56E-04	23	1.73%	95	7.56E-04
8	5.76%	317	2.51E-03	16	7.38%	406	3.22E-03	24	1.10%	60	4.78E-04	24	1.10%	60	4.78E-04
Total										5,500					

2030 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP_SB_OHL

Hour	% Per Hour		VPH	g/mile		% Per Hour		VPH	g/mile		% Per Hour		VPH	g/mile	
	Hour			Hour		Hour			Hour		Hour			Hour	
1	0.60%	33	2.64E-04	9	5.90%	324	2.59E-03	17	7.37%	405	3.23E-03	17	7.37%	405	3.23E-03
2	0.37%	20	1.63E-04	10	5.74%	316	2.52E-03	18	6.95%	382	3.05E-03	18	6.95%	382	3.05E-03
3	0.31%	17	1.35E-04	11	6.01%	331	2.64E-03	19	5.76%	317	2.53E-03	19	5.76%	317	2.53E-03
4	0.41%	22	1.80E-04	12	6.28%	346	2.76E-03	20	4.09%	225	1.80E-03	20	4.09%	225	1.80E-03
5	0.91%	50	4.00E-04	13	6.46%	355	2.83E-03	21	3.12%	171	1.37E-03	21	3.12%	171	1.37E-03
6	2.59%	143	1.14E-03	14	6.56%	361	2.88E-03	22	2.42%	133	1.06E-03	22	2.42%	133	1.06E-03
7	5.20%	286	2.28E-03	15	6.98%	384	3.06E-03	23	1.73%	95	7.61E-04	23	1.73%	95	7.61E-04
8	5.76%	317	2.53E-03	16	7.38%	406	3.24E-03	24	1.10%	60	4.81E-04	24	1.10%	60	4.81E-04
Total										5,500					

Watsonville General Plan, Watsonville, CA - Onsite Residential
Plan Area Trips - Ohlone Parkway
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2030

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_OHL	Ohlone Parkway Northbound	NB	1	1252.4	0.78	9.7	32	1.3	35	5,500	12,095	130,191	1.02E-07	7.53E-08	2.6	1.21
FUG_SB_OHL	Ohlone Parkway Southbound	SB	1	1260.4	0.78	9.7	32	1.3	35	5,500	12,172	131,023	1.02E-07	7.53E-08	2.6	1.21
Total										11,000						

Emission Factors - Fugitive PM2.5

	Speed Category			
	1	2	3	4
Tire Wear - Emissions per Vehicle (g/VMT)	35			
Brake Wear - Emissions per Vehicle (g/VMT)	0.00211			
Road Dust - Emissions per Vehicle (g/VMT)	0.00617			
al Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.01665			
	0.02493			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_NB_OHL

	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
	1	0.60%	33	1.78E-04	9	5.90%	324	1.75E-03	17	7.37%	405	2.18E-03
	2	0.37%	20	1.10E-04	10	5.74%	316	1.70E-03	18	6.95%	382	2.06E-03
	3	0.31%	17	9.10E-05	11	6.01%	331	1.78E-03	19	5.76%	317	1.71E-03
	4	0.41%	22	1.21E-04	12	6.28%	346	1.86E-03	20	4.09%	225	1.21E-03
	5	0.91%	50	2.70E-04	13	6.46%	355	1.91E-03	21	3.12%	171	9.24E-04
	6	2.59%	143	7.69E-04	14	6.56%	361	1.94E-03	22	2.42%	133	7.18E-04
	7	5.20%	286	1.54E-03	15	6.98%	384	2.07E-03	23	1.73%	95	5.14E-04
	8	5.76%	317	1.71E-03	16	7.38%	406	2.19E-03	24	1.10%	60	3.25E-04
Total										5,500		

2030 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG_SB_OHL

	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
	1	0.60%	33	1.79E-04	9	5.90%	324	1.76E-03	17	7.37%	405	2.20E-03
	2	0.37%	20	1.11E-04	10	5.74%	316	1.71E-03	18	6.95%	382	2.07E-03
	3	0.31%	17	9.16E-05	11	6.01%	331	1.79E-03	19	5.76%	317	1.72E-03
	4	0.41%	22	1.22E-04	12	6.28%	346	1.87E-03	20	4.09%	225	1.22E-03
	5	0.91%	50	2.72E-04	13	6.46%	355	1.93E-03	21	3.12%	171	9.30E-04
	6	2.59%	143	7.73E-04	14	6.56%	361	1.96E-03	22	2.42%	133	7.23E-04
	7	5.20%	286	1.55E-03	15	6.98%	384	2.08E-03	23	1.73%	95	5.17E-04
	8	5.76%	317	1.72E-03	16	7.38%	406	2.20E-03	24	1.10%	60	3.27E-04
Total										5,500		

Watsonville General Plan, Watsonville, CA - Onsite Residential
Plan Area Trips - Riverside Dr
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2030

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	RLINE					
											Area (sq m)	Area (sq ft)	Emission (g/s/m2)	Emission (lb/hr/ft2)	Initial Vertical height (m)	(Sigma z) Initial Vertical Dimension
DPM_EB_RIV	Riverside Dr Eastbound	EB	2	4970.8	3.09	13.3	43.7	3.4	25	11,500	66,187	712,433	6.224E-09	4.589E-09	6.8	3.16
DPM_WB_RIV	Riverside Dr Westbound	WB	2	4972.6	3.09	13.3	43.7	3.4	25	11,500	66,211	712,691	6.224E-09	4.589E-09	6.8	3.16
									Total	23,000						

Emission Factors

Speed Category Travel Speed (mph)	Emissions per Vehicle (g/VMT)			
	1	2	3	4
25 0.00100				

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and DPM Emissions - DPM_EB_RIV

Hour	% Per Hour	Hour	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.60%	69	5.95E-05	9	5.90%	678	5.83E-04	17	7.37%	848	7.29E-04
2	0.37%	43	3.68E-05	10	5.74%	661	5.68E-04	18	6.95%	799	6.87E-04
3	0.31%	35	3.04E-05	11	6.01%	691	5.94E-04	19	5.76%	662	5.69E-04
4	0.41%	47	4.04E-05	12	6.28%	723	6.21E-04	20	4.09%	471	4.05E-04
5	0.91%	105	9.01E-05	13	6.46%	742	6.38E-04	21	3.12%	359	3.08E-04
6	2.59%	298	2.56E-04	14	6.56%	754	6.48E-04	22	2.42%	279	2.40E-04
7	5.20%	598	5.14E-04	15	6.98%	803	6.90E-04	23	1.73%	199	1.71E-04
8	5.76%	662	5.69E-04	16	7.38%	848	7.29E-04	24	1.10%	126	1.08E-04
Total										11,500	

2030 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_WB_RIV

Hour	% Per Hour	Hour	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	0.60%	69	5.95E-05	9	5.90%	678	5.83E-04	17	7.37%	848	7.29E-04
2	0.37%	43	3.68E-05	10	5.74%	661	5.68E-04	18	6.95%	799	6.87E-04
3	0.31%	35	3.04E-05	11	6.01%	691	5.94E-04	19	5.76%	662	5.70E-04
4	0.41%	47	4.05E-05	12	6.28%	723	6.21E-04	20	4.09%	471	4.05E-04
5	0.91%	105	9.02E-05	13	6.46%	742	6.39E-04	21	3.12%	359	3.08E-04
6	2.59%	298	2.56E-04	14	6.56%	754	6.49E-04	22	2.42%	279	2.40E-04
7	5.20%	598	5.14E-04	15	6.98%	803	6.91E-04	23	1.73%	199	1.71E-04
8	5.76%	662	5.69E-04	16	7.38%	848	7.29E-04	24	1.10%	126	1.08E-04
Total										11,500	

Watsonville General Plan, Watsonville, CA - Onsite Residential
Plan Area Trips - Riverside Dr
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2030

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 RIV	Riverside Dr Eastbound	EB	2	4970.8	3.09	13.3	44	1.3	25	11,500	66,187	712,433	1.46E-08	1.08E-08	2.6	1.21
PM2.5 WB RIV	Riverside Dr Westbound	WB	2	4972.6	3.09	13.3	44	1.3	25	11,500	66,211	712,691	1.46E-08	1.08E-08	2.6	1.21
Total										23,000						

Emission Factors - PM2.5

Speed Category Travel Speed (mph)	Emissions per Vehicle (g/VMT)			
	1	2	3	4
25	0.00236			

Emission Factors from CT-EMF/AC2021

2030 Hourly Traffic Volumes and PM2.5 Emissions - PM2.5 EB_RIV

	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
	1	0.60%	69	1.40E-04	9	5.90%	678	1.37E-03	17	7.37%	848	1.71E-03
	2	0.37%	43	8.65E-05	10	5.74%	661	1.33E-03	18	6.95%	799	1.61E-03
	3	0.31%	35	7.14E-05	11	6.01%	691	1.40E-03	19	5.76%	662	1.34E-03
	4	0.41%	47	9.51E-05	12	6.28%	723	1.46E-03	20	4.09%	471	9.51E-04
	5	0.91%	105	2.12E-04	13	6.46%	742	1.50E-03	21	3.12%	359	7.24E-04
	6	2.59%	298	6.03E-04	14	6.56%	754	1.52E-03	22	2.42%	279	5.63E-04
	7	5.20%	598	1.21E-03	15	6.98%	803	1.62E-03	23	1.73%	199	4.03E-04
	8	5.76%	662	1.34E-03	16	7.38%	848	1.71E-03	24	1.10%	126	2.55E-04
Total										11,500		

2030 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM2.5 WB_RIV

	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
	1	0.60%	69	1.40E-04	9	5.90%	678	1.37E-03	17	7.37%	848	1.71E-03
	2	0.37%	43	8.65E-05	10	5.74%	661	1.34E-03	18	6.95%	799	1.62E-03
	3	0.31%	35	7.14E-05	11	6.01%	691	1.40E-03	19	5.76%	662	1.34E-03
	4	0.41%	47	9.51E-05	12	6.28%	723	1.46E-03	20	4.09%	471	9.52E-04
	5	0.91%	105	2.12E-04	13	6.46%	742	1.50E-03	21	3.12%	359	7.25E-04
	6	2.59%	298	6.03E-04	14	6.56%	754	1.52E-03	22	2.42%	279	5.63E-04
	7	5.20%	598	1.21E-03	15	6.98%	803	1.62E-03	23	1.73%	199	4.03E-04
	8	5.76%	662	1.34E-03	16	7.38%	848	1.71E-03	24	1.10%	126	2.55E-04
Total										11,500		

Watsonville General Plan, Watsonville, CA - Onsite Residential
 Plan Area Trips - Riverside Dr
 TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
 Year = 2030

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_RIV	Riverside Dr Eastbound	EB	2	4970.8	3.09	13.3	44	1.3	25	11,500	66,187	712,433	2.38E-07	1.76E-07	2.6	1.21
TEXH_WB_RIV	Riverside Dr Westbound	WB	2	4972.6	3.09	13.3	44	1.3	25	11,500	66,211	712,691	2.38E-07	1.76E-07	2.6	1.21
Total										23,000						

Emission Factors - TOG Exhaust

Speed Category Travel Speed (mph)				
	1	2	3	4
Emissions per Vehicle (g/VMT)	0.03839			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_EB_RIV

Hour	% Per Hour		VPH	g/s	% Per Hour		VPH	g/s	Hour	% Per Hour		VPH	g/s
	Hour	Hour			Hour	Hour				Hour	Hour		
1	0.60%	69	2.28E-03	9	5.90%	678	2.23E-02	17	7.37%	848	2.79E-02	848	2.79E-02
2	0.37%	43	1.41E-03	10	5.74%	661	2.18E-02	18	6.95%	799	2.63E-02	799	2.63E-02
3	0.31%	35	1.16E-03	11	6.01%	691	2.28E-02	19	5.76%	662	2.18E-02	662	2.18E-02
4	0.41%	47	1.55E-03	12	6.28%	723	2.38E-02	20	4.09%	471	1.55E-02	471	1.55E-02
5	0.91%	105	3.45E-03	13	6.46%	742	2.45E-02	21	3.12%	359	1.18E-02	359	1.18E-02
6	2.59%	298	9.82E-03	14	6.56%	754	2.48E-02	22	2.42%	279	9.18E-03	279	9.18E-03
7	5.20%	598	1.97E-02	15	6.98%	803	2.64E-02	23	1.73%	199	6.57E-03	199	6.57E-03
8	5.76%	662	2.18E-02	16	7.38%	848	2.79E-02	24	1.10%	126	4.15E-03	126	4.15E-03
Total										11,500			

2030 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH_WB_RIV

Hour	% Per Hour		VPH	g/mile	% Per Hour		VPH	g/mile	Hour	% Per Hour		VPH	g/mile
	Hour	Hour			Hour	Hour				Hour	Hour		
1	0.60%	69	2.28E-03	9	5.90%	678	2.23E-02	17	7.37%	848	2.79E-02	848	2.79E-02
2	0.37%	43	1.41E-03	10	5.74%	661	2.18E-02	18	6.95%	799	2.63E-02	799	2.63E-02
3	0.31%	35	1.16E-03	11	6.01%	691	2.28E-02	19	5.76%	662	2.18E-02	662	2.18E-02
4	0.41%	47	1.55E-03	12	6.28%	723	2.38E-02	20	4.09%	471	1.55E-02	471	1.55E-02
5	0.91%	105	3.45E-03	13	6.46%	742	2.45E-02	21	3.12%	359	1.18E-02	359	1.18E-02
6	2.59%	298	9.83E-03	14	6.56%	754	2.48E-02	22	2.42%	279	9.18E-03	279	9.18E-03
7	5.20%	598	1.97E-02	15	6.98%	803	2.65E-02	23	1.73%	199	6.57E-03	199	6.57E-03
8	5.76%	662	2.18E-02	16	7.38%	848	2.79E-02	24	1.10%	126	4.15E-03	126	4.15E-03
Total										11,500			

Watsonville General Plan, Watsonville, CA - Onsite Residential
Plan Area Trips - Riverside Dr
TOG Evaporative Emissions Modeling - Roadway Links, Traffic
Year = 2030

Road Link				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 RIV				2	4970.8	3.09	13.3	44	1.3	25	11,500	66,187	712,433	3.19E-07	2.35E-07	2.6	1.21
TEVAP WB RIV				2	4972.6	3.09	13.3	44	1.3	25	11,500	66,211	712,691	3.19E-07	2.35E-07	2.6	1.21
										Total	23,000						

Emission Factors - PM2.5 - Evaporative TOG

	Speed Category			
	1	2	3	4
Travel Speed (mph)	25			
Emissions per Vehicle per Hour (g/hour)	1.28388			
Emissions per Vehicle per Mile (g/VMT)	0.05136			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP EB RIV

	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
	1	0.60%	69	3.05E-03	9	5.90%	678	2.99E-02	17	7.37%	848	3.73E-02
	2	0.37%	43	1.89E-03	10	5.74%	661	2.91E-02	18	6.95%	799	3.52E-02
	3	0.31%	35	1.56E-03	11	6.01%	691	3.05E-02	19	5.76%	662	2.92E-02
	4	0.41%	47	2.07E-03	12	6.28%	723	3.18E-02	20	4.09%	471	2.07E-02
	5	0.91%	105	4.62E-03	13	6.46%	742	3.27E-02	21	3.12%	359	1.58E-02
	6	2.59%	298	1.31E-02	14	6.56%	754	3.32E-02	22	2.42%	279	1.23E-02
	7	5.20%	598	2.63E-02	15	6.98%	803	3.54E-02	23	1.73%	199	8.79E-03
	8	5.76%	662	2.92E-02	16	7.38%	848	3.74E-02	24	1.10%	126	5.55E-03
									Total		11,500	

2030 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP WB RIV

	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
	1	0.60%	69	3.05E-03	9	5.90%	678	2.99E-02	17	7.37%	848	3.74E-02
	2	0.37%	43	1.89E-03	10	5.74%	661	2.91E-02	18	6.95%	799	3.52E-02
	3	0.31%	35	1.56E-03	11	6.01%	691	3.05E-02	19	5.76%	662	2.92E-02
	4	0.41%	47	2.07E-03	12	6.28%	723	3.18E-02	20	4.09%	471	2.08E-02
	5	0.91%	105	4.62E-03	13	6.46%	742	3.27E-02	21	3.12%	359	1.58E-02
	6	2.59%	298	1.31E-02	14	6.56%	754	3.32E-02	22	2.42%	279	1.23E-02
	7	5.20%	598	2.64E-02	15	6.98%	803	3.54E-02	23	1.73%	199	8.79E-03
	8	5.76%	662	2.92E-02	16	7.38%	848	3.74E-02	24	1.10%	126	5.55E-03
					Total						11,500	

Watsonville General Plan, Watsonville, CA - Onsite Residential
Plan Area Trips - Riverside Dr
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2030

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_RIV	Riverside Dr Eastbound	EB	2	4970.8	3.09	13.3	44	1.3	25	11,500	66,187	712,433	1.55E-07	1.14E-07	2.6	1.21
FUG_WB_RIV	Riverside Dr Westbound	WB	2	4972.6	3.09	13.3	44	1.3	25	11,500	66,211	712,691	1.55E-07	1.14E-07	2.6	1.21
Total										23,000						

Emission Factors - Fugitive PM2.5

	Speed Category	Travel Speed (mph)			
		1	2	3	4
Tire Wear - Emissions per Vehicle (g/VMT)		0.00211			
Brake Wear - Emissions per Vehicle (g/VMT)		0.00613			
Road Dust - Emissions per Vehicle (g/VMT)		0.01665			
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)		0.02489			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_EB_RIV

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.60%	69	1.48E-03	9	5.90%	678	1.45E-02	17	7.37%	848	1.81E-02
2	0.37%	43	9.14E-04	10	5.74%	661	1.41E-02	18	6.95%	799	1.71E-02
3	0.31%	35	7.54E-04	11	6.01%	691	1.48E-02	19	5.76%	662	1.41E-02
4	0.41%	47	1.00E-03	12	6.28%	723	1.54E-02	20	4.09%	471	1.01E-02
5	0.91%	105	2.24E-03	13	6.46%	742	1.59E-02	21	3.12%	359	7.66E-03
6	2.59%	298	6.37E-03	14	6.56%	754	1.61E-02	22	2.42%	279	5.95E-03
7	5.20%	598	1.28E-02	15	6.98%	803	1.71E-02	23	1.73%	199	4.26E-03
8	5.76%	662	1.41E-02	16	7.38%	848	1.81E-02	24	1.10%	126	2.69E-03
Total								11,500			

2030 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG_WB_RIV

	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
	1	0.60%	69	1.48E-03	9	5.90%	678	1.45E-02	17	7.37%	848	1.81E-02
	2	0.37%	43	9.14E-04	10	5.74%	661	1.41E-02	18	6.95%	799	1.71E-02
	3	0.31%	35	7.55E-04	11	6.01%	691	1.48E-02	19	5.76%	662	1.41E-02
	4	0.41%	47	1.01E-03	12	6.28%	723	1.54E-02	20	4.09%	471	1.01E-02
	5	0.91%	105	2.24E-03	13	6.46%	742	1.59E-02	21	3.12%	359	7.66E-03
	6	2.59%	298	6.37E-03	14	6.56%	754	1.61E-02	22	2.42%	279	5.95E-03
	7	5.20%	598	1.28E-02	15	6.98%	803	1.72E-02	23	1.73%	199	4.26E-03
	8	5.76%	662	1.41E-02	16	7.38%	848	1.81E-02	24	1.10%	126	2.69E-03
Total										11,500		

Watsonville General Plan, Watsonville, CA - Onsite Residential
Plan Area Trips - Walker St
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2030

RLINE

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
DPM_NB_WAL	Walker St Northbound	NB	1	3155.6	1.96	9.7	31.7	3.4	30	6,050	30,476	328,036	3.843E-09	2.834E-09	6.8	3.16
DPM_SB_WAL	Walker St Southbound	SB	1	3159.6	1.96	9.7	31.7	3.4	30	6,050	30,514	328,452	3.843E-09	2.834E-09	6.8	3.16
Total										12,100						

Emission Factors

Speed Category Travel Speed (mph)	Emissions per Vehicle (g/VMT)			
	1	2	3	4
30 0.00085				

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and DPM Emissions - DPM_NB_WAL

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.60%	36	1.69E-05	9	5.90%	357	1.66E-04	17	7.37%	446	2.07E-04
2	0.37%	23	1.05E-05	10	5.74%	348	1.61E-04	18	6.95%	420	1.95E-04
3	0.31%	19	8.63E-06	11	6.01%	364	1.69E-04	19	5.76%	348	1.62E-04
4	0.41%	25	1.15E-05	12	6.28%	380	1.77E-04	20	4.09%	248	1.15E-04
5	0.91%	55	2.56E-05	13	6.46%	391	1.81E-04	21	3.12%	189	8.76E-05
6	2.59%	157	7.29E-05	14	6.56%	397	1.84E-04	22	2.42%	147	6.81E-05
7	5.20%	315	1.46E-04	15	6.98%	422	1.96E-04	23	1.73%	105	4.87E-05
8	5.76%	348	1.62E-04	16	7.38%	446	2.07E-04	24	1.10%	66	3.08E-05
Total								6,050			

2030 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_SB_WAL

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	0.60%	36	1.69E-05	9	5.90%	357	1.66E-04	17	7.37%	446	2.07E-04
2	0.37%	23	1.05E-05	10	5.74%	348	1.62E-04	18	6.95%	420	1.96E-04
3	0.31%	19	8.64E-06	11	6.01%	364	1.69E-04	19	5.76%	348	1.62E-04
4	0.41%	25	1.15E-05	12	6.28%	380	1.77E-04	20	4.09%	248	1.15E-04
5	0.91%	55	2.57E-05	13	6.46%	391	1.82E-04	21	3.12%	189	8.78E-05
6	2.59%	157	7.30E-05	14	6.56%	397	1.85E-04	22	2.42%	147	6.82E-05
7	5.20%	315	1.46E-04	15	6.98%	422	1.97E-04	23	1.73%	105	4.88E-05
8	5.76%	348	1.62E-04	16	7.38%	446	2.08E-04	24	1.10%	66	3.08E-05
Total								6,050			

Watsonville General Plan, Watsonville, CA - Onsite Residential
Plan Area Trips - Walker St
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2030

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	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_WAL	Walker St Northbound	NB	1	3155.6	1.96	9.7	1.3	30	6,050	30,476	328,036	1.41E-07	1.04E-07	2.6	1.21
TEXH_SB_WAL	Walker St Southbound	SB	1	3159.6	1.96	9.7	1.3	30	6,050	30,514	328,452	1.41E-07	1.04E-07	2.6	1.21
Total									12,100						

Emission Factors - TOG Exhaust

Speed Category Travel Speed (mph)	Emissions per Vehicle (g/VMT)			
	1	2	3	4
	30			
	0.03135			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH NB WAL

Hour	% Per		VPH	g/s	% Per		VPH	g/s	Hour	% Per		VPH	g/s
	Hour	Hour			Hour	Hour				Hour	Hour		
1	0.60%	36	6.21E-04	9	5.90%	357	6.09E-03	17	7.37%	446	7.61E-03	446	7.61E-03
2	0.37%	23	3.84E-04	10	5.74%	348	5.93E-03	18	6.95%	420	7.18E-03	420	7.18E-03
3	0.31%	19	3.17E-04	11	6.01%	364	6.21E-03	19	5.76%	348	5.95E-03	348	5.95E-03
4	0.41%	25	4.23E-04	12	6.28%	380	6.49E-03	20	4.09%	248	4.23E-03	248	4.23E-03
5	0.91%	55	9.42E-04	13	6.46%	391	6.67E-03	21	3.12%	189	3.22E-03	189	3.22E-03
6	2.59%	157	2.68E-03	14	6.56%	397	6.77E-03	22	2.42%	147	2.50E-03	147	2.50E-03
7	5.20%	315	5.37E-03	15	6.98%	422	7.21E-03	23	1.73%	105	1.79E-03	105	1.79E-03
8	5.76%	348	5.94E-03	16	7.38%	446	7.62E-03	24	1.10%	66	1.13E-03	66	1.13E-03
Total									6,050				

2030 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH SB WAL

Hour	% Per		VPH	g/mile	% Per		VPH	g/mile	Hour	% Per		VPH	g/mile
	Hour	Hour			Hour	Hour				Hour	Hour		
1	0.60%	36	6.22E-04	9	5.90%	357	6.10E-03	17	7.37%	446	7.62E-03	446	7.62E-03
2	0.37%	23	3.85E-04	10	5.74%	348	5.94E-03	18	6.95%	420	7.19E-03	420	7.19E-03
3	0.31%	19	3.18E-04	11	6.01%	364	6.22E-03	19	5.76%	348	5.96E-03	348	5.96E-03
4	0.41%	25	4.23E-04	12	6.28%	380	6.50E-03	20	4.09%	248	4.23E-03	248	4.23E-03
5	0.91%	55	9.43E-04	13	6.46%	391	6.68E-03	21	3.12%	189	3.22E-03	189	3.22E-03
6	2.59%	157	2.68E-03	14	6.56%	397	6.78E-03	22	2.42%	147	2.51E-03	147	2.51E-03
7	5.20%	315	5.38E-03	15	6.98%	422	7.22E-03	23	1.73%	105	1.79E-03	105	1.79E-03
8	5.76%	348	5.95E-03	16	7.38%	446	7.63E-03	24	1.10%	66	1.13E-03	66	1.13E-03
Total									6,050				

Watsonville General Plan, Watsonville, CA - Onsite Residential
Plan Area Trips - Walker St
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2030

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_WAL	Walker St Northbound	NB	1	3155.6	1.96	9.7	32	1.3	30	6,050	30,476	328,036	1.93E-07	1.42E-07	2.6	1.21
TEVAP_SB_WAL	Walker St Southbound	SB	1	3159.6	1.96	9.7	32	1.3	30	6,050	30,514	328,452	1.93E-07	1.42E-07	2.6	1.21
Total										12,100						

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	Travel Speed (mph)			
	1	2	3	4
	30			
Emissions per Vehicle per Hour (g/hour)	1.28388			
Emissions per Vehicle per Mile (g/VMT)	0.04280			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_NB_WAL

Hour	% Per Hour		VPH	g/s	% Per Hour		VPH	g/s	% Per Hour		VPH	g/s
	Hour	Hour			Hour	Hour			Hour	Hour		
1	0.60%	36	8.48E-04	9	5.90%	357	8.32E-03	17	7.37%	446	1.04E-02	
2	0.37%	23	5.25E-04	10	5.74%	348	8.10E-03	18	6.95%	420	9.80E-03	
3	0.31%	19	4.33E-04	11	6.01%	364	8.48E-03	19	5.76%	348	8.12E-03	
4	0.41%	25	5.77E-04	12	6.28%	380	8.86E-03	20	4.09%	248	5.77E-03	
5	0.91%	55	1.29E-03	13	6.46%	391	9.10E-03	21	3.12%	189	4.40E-03	
6	2.59%	157	3.66E-03	14	6.56%	397	9.25E-03	22	2.42%	147	3.42E-03	
7	5.20%	315	7.33E-03	15	6.98%	422	9.85E-03	23	1.73%	105	2.45E-03	
8	5.76%	348	8.12E-03	16	7.38%	446	1.04E-02	24	1.10%	66	1.55E-03	
Total										6,050		

2030 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP_SB_WAL

Hour	% Per Hour		VPH	g/mile	% Per Hour		VPH	g/mile	% Per Hour		VPH	g/mile
	Hour	Hour			Hour	Hour			Hour	Hour		
1	0.60%	36	8.50E-04	9	5.90%	357	8.33E-03	17	7.37%	446	1.04E-02	
2	0.37%	23	5.25E-04	10	5.74%	348	8.11E-03	18	6.95%	420	9.81E-03	
3	0.31%	19	4.34E-04	11	6.01%	364	8.49E-03	19	5.76%	348	8.13E-03	
4	0.41%	25	5.78E-04	12	6.28%	380	8.87E-03	20	4.09%	248	5.78E-03	
5	0.91%	55	1.29E-03	13	6.46%	391	9.12E-03	21	3.12%	189	4.40E-03	
6	2.59%	157	3.66E-03	14	6.56%	397	9.26E-03	22	2.42%	147	3.42E-03	
7	5.20%	315	7.34E-03	15	6.98%	422	9.86E-03	23	1.73%	105	2.45E-03	
8	5.76%	348	8.13E-03	16	7.38%	446	1.04E-02	24	1.10%	66	1.55E-03	
Total										6,050		

Watsonville General Plan, Watsonville, CA - Onsite Residential
Plan Area Trips - Walker St
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2030

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_WAL	Walker St Northbound	NB	1	3155.6	1.96	9.7	32	1.3	30	6,050	30,476	328,036	1.12E-07	8.28E-08	2.6	1.21
FUG_SB_WAL	Walker St Southbound	SB	1	3159.6	1.96	9.7	32	1.3	30	6,050	30,514	328,452	1.12E-07	8.28E-08	2.6	1.21
Total										12,100						

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
	Travel Speed (mph)			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00211			
Brake Wear - Emissions per Vehicle (g/VMT)	0.00617			
Road Dust - Emissions per Vehicle (g/VMT)	0.01665			
al Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.02493			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_NB_WAL

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.60%	36	4.94E-04	9	5.90%	357	4.85E-03	17	7.37%	446	6.05E-03
2	0.37%	23	3.06E-04	10	5.74%	348	4.72E-03	18	6.95%	420	5.71E-03
3	0.31%	19	2.52E-04	11	6.01%	364	4.94E-03	19	5.76%	348	4.73E-03
4	0.41%	25	3.36E-04	12	6.28%	380	5.16E-03	20	4.09%	248	3.36E-03
5	0.91%	55	7.49E-04	13	6.46%	391	5.30E-03	21	3.12%	189	2.56E-03
6	2.59%	157	2.13E-03	14	6.56%	397	5.39E-03	22	2.42%	147	1.99E-03
7	5.20%	315	4.27E-03	15	6.98%	422	5.74E-03	23	1.73%	105	1.42E-03
8	5.76%	348	4.73E-03	16	7.38%	446	6.06E-03	24	1.10%	66	9.00E-04
Total								6,050			

2030 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG_SB_WAL

	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
	1	0.60%	36	4.95E-04	9	5.90%	357	4.85E-03	17	7.37%	446	6.06E-03
	2	0.37%	23	3.06E-04	10	5.74%	348	4.73E-03	18	6.95%	420	5.72E-03
	3	0.31%	19	2.53E-04	11	6.01%	364	4.94E-03	19	5.76%	348	4.74E-03
	4	0.41%	25	3.36E-04	12	6.28%	380	5.17E-03	20	4.09%	248	3.37E-03
	5	0.91%	55	7.50E-04	13	6.46%	391	5.31E-03	21	3.12%	189	2.56E-03
	6	2.59%	157	2.13E-03	14	6.56%	397	5.39E-03	22	2.42%	147	1.99E-03
	7	5.20%	315	4.28E-03	15	6.98%	422	5.74E-03	23	1.73%	105	1.43E-03
	8	5.76%	348	4.73E-03	16	7.38%	446	6.07E-03	24	1.10%	66	9.01E-04
Total										6,050		

Watsonville General Plan, Watsonville, CA - Onsite Residential
Plan Area Trips - Highway 1
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2030

RLINE

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
DPM_NB_1	Highway 1 Northbound	NB	2	3369.3	2.09	13.3	43.7	3.4	65	24,878	44,863	482,900	1.272E-08	9.382E-09	6.8	3.16
DPM_SB_1	Highway 1 Southbound	SB	2	3337.1	2.07	13.3	43.7	3.4	65	24,878	44,434	478,285	1.272E-08	9.382E-09	6.8	3.16
Total										49,755						

Emission Factors

Speed Category Travel Speed (mph)	Emissions per Vehicle (g/VMT)			
	1	2	3	4
65				
0.00095				

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and DPM Emissions - DPM_NB_1

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.51%	128	7.03E-05	9	6.08%	1513	8.33E-04	17	7.21%	1793	9.87E-04
2	0.35%	87	4.80E-05	10	5.66%	1407	7.75E-04	18	6.93%	1724	9.49E-04
3	0.30%	75	4.14E-05	11	5.75%	1430	7.88E-04	19	5.52%	1373	7.56E-04
4	0.48%	121	6.64E-05	12	5.89%	1464	8.06E-04	20	3.84%	956	5.27E-04
5	1.23%	305	1.68E-04	13	6.13%	1525	8.40E-04	21	2.93%	730	4.02E-04
6	3.69%	918	5.06E-04	14	6.30%	1567	8.63E-04	22	2.25%	559	3.08E-04
7	6.36%	1583	8.72E-04	15	6.67%	1660	9.14E-04	23	1.58%	393	2.16E-04
8	6.28%	1563	8.61E-04	16	7.16%	1782	9.81E-04	24	0.89%	222	1.22E-04
Total										24,878	

2030 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_SB_1

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	0.69%	172	9.37E-05	9	5.71%	1422	7.75E-04	17	7.53%	1874	1.02E-03
2	0.39%	98	5.35E-05	10	5.83%	1451	7.92E-04	18	6.97%	1734	9.46E-04
3	0.31%	78	4.24E-05	11	6.27%	1561	8.51E-04	19	6.00%	1492	8.14E-04
4	0.33%	83	4.52E-05	12	6.68%	1662	9.07E-04	20	4.34%	1080	5.89E-04
5	0.60%	149	8.10E-05	13	6.78%	1687	9.20E-04	21	3.30%	822	4.48E-04
6	1.50%	372	2.03E-04	14	6.82%	1696	9.25E-04	22	2.60%	647	3.53E-04
7	4.03%	1004	5.47E-04	15	7.29%	1815	9.90E-04	23	1.89%	470	2.56E-04
8	5.23%	1301	7.09E-04	16	7.59%	1888	1.03E-03	24	1.30%	323	1.76E-04
Total								24,878			

Watsonville General Plan, Watsonville, CA - Onsite Residential
 Plan Area Trips - Highway 1
 PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
 Year = 2030

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 1	Highway 1 Northbound	NB	2	3369.3	2.09	13.3	44	1.3	65	24,878	44,863	482,900	2.41E-08	1.78E-08	2.6	1.21
PM2.5 SB 1	Highway 1 Southbound	SB	2	3337.1	2.07	13.3	44	1.3	65	24,878	44,434	478,285	2.41E-08	1.78E-08	2.6	1.21
Total										49,755						

Emission Factors - PM2.5

Speed Category Travel Speed (mph)	Emissions per Vehicle (g/VMT)			
	1	2	3	4
65	0.00180			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and PM2.5 Emissions - PM2.5 NB_1

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.51%	128	1.33E-04	9	6.08%	1513	1.58E-03	17	7.21%	1793	1.87E-03
2	0.35%	87	9.10E-05	10	5.66%	1407	1.47E-03	18	6.93%	1724	1.80E-03
3	0.30%	75	7.85E-05	11	5.75%	1430	1.49E-03	19	5.52%	1373	1.44E-03
4	0.48%	121	1.26E-04	12	5.89%	1464	1.53E-03	20	3.84%	956	1.00E-03
5	1.23%	305	3.19E-04	13	6.13%	1525	1.59E-03	21	2.93%	730	7.63E-04
6	3.69%	918	9.59E-04	14	6.30%	1567	1.64E-03	22	2.25%	559	5.84E-04
7	6.36%	1583	1.65E-03	15	6.67%	1660	1.73E-03	23	1.58%	393	4.10E-04
8	6.28%	1563	1.63E-03	16	7.16%	1782	1.86E-03	24	0.89%	222	2.32E-04
Total								24,878			

2030 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM2.5 SB_1

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	0.69%	172	1.78E-04	9	5.71%	1422	1.47E-03	17	7.53%	1874	1.94E-03
2	0.39%	98	1.01E-04	10	5.83%	1451	1.50E-03	18	6.97%	1734	1.79E-03
3	0.31%	78	8.05E-05	11	6.27%	1561	1.62E-03	19	6.00%	1492	1.54E-03
4	0.33%	83	8.58E-05	12	6.68%	1662	1.72E-03	20	4.34%	1080	1.12E-03
5	0.60%	149	1.54E-04	13	6.78%	1687	1.75E-03	21	3.30%	822	8.50E-04
6	1.50%	372	3.85E-04	14	6.82%	1696	1.76E-03	22	2.60%	647	6.69E-04
7	4.03%	1004	1.04E-03	15	7.29%	1815	1.88E-03	23	1.89%	470	4.87E-04
8	5.23%	1301	1.35E-03	16	7.59%	1888	1.95E-03	24	1.30%	323	3.34E-04
Total										24,878	

Watsonville General Plan, Watsonville, CA - Onsite Residential
Plan Area Trips - Highway 1
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2030

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_1	Highway 1 Northbound	NB	2	3369.3	2.09	13.3	44	1.3	65	24,878	44,863	482,900	3.27E-07	2.41E-07	2.6	1.21
TEXH_SB_1	Highway 1 Southbound	SB	2	3337.1	2.07	13.3	44	1.3	65	24,878	44,434	478,285	3.27E-07	2.41E-07	2.6	1.21
Total										49,755						

Emission Factors - TOG Exhaust

Speed Category Travel Speed (mph)				
	1	2	3	4
	65			
Emissions per Vehicle (g/VMT)				
	0.02430			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_NB_1

Hour	% Per Hour		VPH	g/s	% Per Hour		VPH	g/s	% Per Hour		VPH	g/s
	Hour	Hour			Hour	Hour			Hour	Hour		
1	0.51%	128	1.80E-03	9	6.08%	1513	2.14E-02	17	7.21%	1793	2.53E-02	
2	0.35%	87	1.23E-03	10	5.66%	1407	1.99E-02	18	6.93%	1724	2.44E-02	
3	0.30%	75	1.06E-03	11	5.75%	1430	2.02E-02	19	5.52%	1373	1.94E-02	
4	0.48%	121	1.70E-03	12	5.89%	1464	2.07E-02	20	3.84%	956	1.35E-02	
5	1.23%	305	4.31E-03	13	6.13%	1525	2.15E-02	21	2.93%	730	1.03E-02	
6	3.69%	918	1.30E-02	14	6.30%	1567	2.22E-02	22	2.25%	559	7.90E-03	
7	6.36%	1583	2.24E-02	15	6.67%	1660	2.35E-02	23	1.58%	393	5.55E-03	
8	6.28%	1563	2.21E-02	16	7.16%	1782	2.52E-02	24	0.89%	222	3.14E-03	
Total										24,878		

2030 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH_SB_1

Hour	% Per Hour		VPH	g/mile	% Per Hour		VPH	g/mile	% Per Hour		VPH	g/mile
	Hour	Hour			Hour	Hour			Hour	Hour		
1	0.69%	172	2.40E-03	9	5.71%	1422	1.99E-02	17	7.53%	1874	2.62E-02	
2	0.39%	98	1.37E-03	10	5.83%	1451	2.03E-02	18	6.97%	1734	2.43E-02	
3	0.31%	78	1.09E-03	11	6.27%	1561	2.18E-02	19	6.00%	1492	2.09E-02	
4	0.33%	83	1.16E-03	12	6.68%	1662	2.33E-02	20	4.34%	1080	1.51E-02	
5	0.60%	149	2.08E-03	13	6.78%	1687	2.36E-02	21	3.30%	822	1.15E-02	
6	1.50%	372	5.21E-03	14	6.82%	1696	2.37E-02	22	2.60%	647	9.05E-03	
7	4.03%	1004	1.40E-02	15	7.29%	1815	2.54E-02	23	1.89%	470	6.58E-03	
8	5.23%	1301	1.82E-02	16	7.59%	1888	2.64E-02	24	1.30%	323	4.52E-03	
Total										24,878		

Year = 2030

Road Link	Description			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_1	Highway 1 Northbound			NB	2	3369.3	2.09	13.3	44	1.3	65	24,878	44,863	482,900	2.65E-07	1.96E-07	2.6	1.21
TEVAP_SB_1	Highway 1 Southbound			SB	2	3337.1	2.07	13.3	44	1.3	65	24,878	44,434	478,285	2.65E-07	1.96E-07	2.6	1.21
											Total	49,755						

Emission Factors - PM2.5 - Evaporative TOG

	1	2	3	4
Speed Category				
Travel Speed (mph)	65			
Emissions per Vehicle per Hour (g/hour)	1.28388			
Emissions per Vehicle per Mile (g/V/Mt)	0.01975			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP NB 1

Performance of the proposed algorithm on the 12-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-40-41-42-43-44-45-46-47-48-49-50-51-52-53-54-55-56-57-58-59-60-61-62-63-64-65-66-67-68-69-70-71-72-73-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99-100-101-102-103-104-105-106-107-108-109-110-111-112-113-114-115-116-117-118-119-120-121-122-123-124-125-126-127-128-129-130-131-132-133-134-135-136-137-138-139-140-141-142-143-144-145-146-147-148-149-150-151-152-153-154-155-156-157-158-159-160-161-162-163-164-165-166-167-168-169-170-171-172-173-174-175-176-177-178-179-180-181-182-183-184-185-186-187-188-189-190-191-192-193-194-195-196-197-198-199-200-201-202-203-204-205-206-207-208-209-210-211-212-213-214-215-216-217-218-219-220-221-222-223-224-225-226-227-228-229-230-231-232-233-234-235-236-237-238-239-240-241-242-243-244-245-246-247-248-249-250-251-252-253-254-255-256-257-258-259-260-261-262-263-264-265-266-267-268-269-270-271-272-273-274-275-276-277-278-279-280-281-282-283-284-285-286-287-288-289-290-291-292-293-294-295-296-297-298-299-300-301-302-303-304-305-306-307-308-309-310-311-312-313-314-315-316-317-318-319-320-321-322-323-324-325-326-327-328-329-330-331-332-333-334-335-336-337-338-339-340-341-342-343-344-345-346-347-348-349-350-351-352-353-354-355-356-357-358-359-360-361-362-363-364-365-366-367-368-369-370-371-372-373-374-375-376-377-378-379-380-381-382-383-384-385-386-387-388-389-390-391-392-393-394-395-396-397-398-399-400-401-402-403-404-405-406-407-408-409-410-411-412-413-414-415-416-417-418-419-420-421-422-423-424-425-426-427-428-429-430-431-432-433-434-435-436-437-438-439-440-441-442-443-444-445-446-447-448-449-450-451-452-453-454-455-456-457-458-459-460-461-462-463-464-465-466-467-468-469-470-471-472-473-474-475-476-477-478-479-480-481-482-483-484-485-486-487-488-489-490-491-492-493-494-495-496-497-498-499-500-501-502-503-504-505-506-507-508-509-510-511-512-513-514-515-516-517-518-519-520-521-522-523-524-525-526-527-528-529-530-531-532-533-534-535-536-537-538-539-540-541-542-543-544-545-546-547-548-549-550-551-552-553-554-555-556-557-558-559-560-561-562-563-564-565-566-567-568-569-570-571-572-573-574-575-576-577-578-579-580-581-582-583-584-585-586-587-588-589-590-591-592-593-594-595-596-597-598-599-600-601-602-603-604-605-606-607-608-609-610-611-612-613-614-615-616-617-618-619-620-621-622-623-624-625-626-627-628-629-630-631-632-633-634-635-636-637-638-639-640-641-642-643-644-645-646-647-648-649-650-651-652-653-654-655-656-657-658-659-660-661-662-663-664-665-666-667-668-669-670-671-672-673-674-675-676-677-678-679-680-681-682-683-684-685-686-687-688-689-690-691-692-693-694-695-696-697-698-699-700-701-702-703-704-705-706-707-708-709-710-711-712-713-714-715-716-717-718-719-720-721-722-723-724-725-726-727-728-729-730-731-732-733-734-735-736-737-738-739-740-741-742-743-744-745-746-747-748-749-750-751-752-753-754-755-756-757-758-759-760-761-762-763-764-765-766-767-768-769-770-771-772-773-774-775-776-777-778-779-780-781-782-783-784-785-786-787-788-789-790-791-792-793-794-795-796-797-798-799-800-801-802-803-804-805-806-807-808-809-810-811-812-813-814-815-816-817-818-819-820-821-822-823-824-825-826-827-828-829-830-831-832-833-834-835-836-837-838-839-840-841-842-843-844-845-846-847-848-849-850-851-852-853-854-855-856-857-858-859-860-861-862-863-864-865-866-867-868-869-870-871-872-873-874-875-876-877-878-879-880-881-882-883-884-885-886-887-888-889-890-891-892-893-894-895-896-897-898-899-900-901-902-903-904-905-906-907-908-909-910-911-912-913-914-915-916-917-918-919-920-921-922-923-924-925-926-927-928-929-930-931-932-933-934-935-936-937-938-939-940-941-942-943-944-945-946-947-948-949-950-951-952-953-954-955-956-957-958-959-960-961-962-963-964-965-966-967-968-969-970-971-972-973-974-975-976-977-978-979-980-981-982-983-984-985-986-987-988-989-990-991-992-993-994-995-996-997-998-999-1000-1001-1002-1003-1004-1005-1006-1007-1008-1009-1010-1011-1012-1013-1014-1015-1016-1017-1018-1019-1020-1021-1022-1023-1024-1025-1026-1027-1028-1029-1030-1031-1032-1033-1034-1035-1036-1037-1038-1039-1040-1041											
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2030 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP SB 1

Access point	Access point location and orientation			Access point orientation and location			Access point orientation and location			Access point orientation and location			Access point orientation and location			Access point orientation and location		
	Hour	% Per	g/mile	VPH	Hour	% Per	g/mile	VPH	Hour	% Per	g/mile	VPH	Hour	% Per	g/mile	VPH	Hour	% Per
1	0.69%	172	1.95E-03	9	5.71%	1422	1.62E-02	17	7.53%	1874	2.13E-02	1874	7.53%	1874	2.13E-02	1874	7.53%	1874
2	0.39%	98	1.12E-03	10	5.83%	1451	1.65E-02	18	6.97%	1734	1.97E-02	1734	6.97%	1734	1.97E-02	1734	6.97%	1734
3	0.31%	78	8.84E-04	11	6.27%	1561	1.78E-02	19	6.00%	1492	1.70E-02	1492	6.00%	1492	1.70E-02	1492	6.00%	1492
4	0.33%	83	9.43E-04	12	6.68%	1662	1.89E-02	20	4.34%	1080	1.23E-02	1080	4.34%	1080	1.23E-02	1080	4.34%	1080
5	0.60%	149	1.69E-03	13	6.78%	1687	1.92E-02	21	3.30%	822	9.35E-03	822	3.30%	822	9.35E-03	822	3.30%	822
6	1.50%	372	4.23E-03	14	6.82%	1696	1.93E-02	22	2.60%	647	7.36E-03	647	2.60%	647	7.36E-03	647	2.60%	647
7	4.03%	1004	1.14E-02	15	7.29%	1815	2.06E-02	23	1.89%	470	5.35E-03	470	1.89%	470	5.35E-03	470	1.89%	470
8	5.23%	1301	1.48E-02	16	7.59%	1888	2.15E-02	24	1.30%	323	3.68E-03	323	1.30%	323	3.68E-03	323	1.30%	323
Total																		

**Watsonville General Plan, Watsonville, CA - Onsite Residential
Plan Area Trips - Highway 1
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2030**

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_1	Highway 1 Northbound	NB	2	3369.3	2.09	13.3	44	1.3	65	24,878	44,863	482,900	1.73E-07	1.28E-07	2.6	1.21
FUG_SB_1	Highway 1 Southbound	SB	2	3337.1	2.07	13.3	44	1.3	65	24,878	44,434	478,285	1.73E-07	1.28E-07	2.6	1.21
Total										49,755						

Emission Factors - Fugitive PM2.5

	Speed Category			
	Travel Speed (mph)			
	1	2	3	4
	65			
	0.00211			
Tire Wear - Emissions per Vehicle (g/VMT)				
Brake Wear - Emissions per Vehicle (g/VMT)	0.00244			
Road Dust - Emissions per Vehicle (g/VMT)	0.00835			
al Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.01291			

Emission Factors from CT-EMFAC2021

2030 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_NB_1

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	0.51%	128	9.58E-04	9	6.08%	1513	1.14E-02	17	7.21%	1793	1.35E-02
2	0.35%	87	6.54E-04	10	5.66%	1407	1.06E-02	18	6.93%	1724	1.29E-02
3	0.30%	75	5.64E-04	11	5.75%	1430	1.07E-02	19	5.52%	1373	1.03E-02
4	0.48%	121	9.05E-04	12	5.89%	1464	1.10E-02	20	3.84%	956	7.18E-03
5	1.23%	305	2.29E-03	13	6.13%	1525	1.14E-02	21	2.93%	730	5.48E-03
6	3.69%	918	6.89E-03	14	6.30%	1567	1.18E-02	22	2.25%	559	4.19E-03
7	6.36%	1583	1.19E-02	15	6.67%	1660	1.25E-02	23	1.58%	393	2.95E-03
8	6.28%	1563	1.17E-02	16	7.16%	1782	1.34E-02	24	0.89%	222	1.67E-03
Total								24,878			

2030 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG_SB_1

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	0.69%	172	1.28E-03	9	5.71%	1422	1.06E-02	17	7.53%	1874	1.39E-02
2	0.39%	98	7.29E-04	10	5.83%	1451	1.08E-02	18	6.97%	1734	1.29E-02
3	0.31%	78	5.78E-04	11	6.27%	1561	1.16E-02	19	6.00%	1492	1.11E-02
4	0.33%	83	6.16E-04	12	6.68%	1662	1.24E-02	20	4.34%	1080	8.03E-03
5	0.60%	149	1.10E-03	13	6.78%	1687	1.25E-02	21	3.30%	822	6.11E-03
6	1.50%	372	2.77E-03	14	6.82%	1696	1.26E-02	22	2.60%	647	4.81E-03
7	4.03%	1004	7.46E-03	15	7.29%	1815	1.35E-02	23	1.89%	470	3.50E-03
8	5.23%	1301	9.67E-03	16	7.59%	1888	1.40E-02	24	1.30%	323	2.40E-03
Total										24,878	