

SAN BRUNO 2023-2031 HOUSING ELEMENT UPDATE

AIR QUALITY & GREENHOUSE GAS ASSESSMENT

San Bruno, California

**August 29, 2022
Revised December 1, 2022**

Prepared for:

**Matthew Moore, MUP
Associate Project Manager
David J. Powers & Associates, Inc.
1736 Franklin Street, Suite 400
Oakland, CA 94612**

Prepared by:

James A. Reyff

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

I&R Project: #22-117

Introduction

The purpose of this report is to address air quality, community health risk, and greenhouse gas (GHG) impacts associated with the City of San Bruno 2023-2031 Housing Element Update. This update would allow for increased residential development, including new residences in areas currently zoned for non-residential development. Potential air quality and GHG impacts from the Housing Element Update would be associated with changes in land uses that result in changes in emissions and changes in exposure of sensitive receptors to air pollution. This report includes a summary of applicable air quality and GHG regulations and analyzes potential air quality impacts and GHG emissions associated with the proposed General Plan Update. The analysis was conducted following guidance provided by the Bay Area Air Quality Management District (BAAQMD).¹

Project Description

The proposed project would update the City's Housing Element to address the Regional Housing Needs Assessment (RHNA). For the upcoming planning period, the State determined that the Bay Area must plan for additional new housing units. In response, the Bay Area Association of Government's (ABAG) released their Final RHNA allocation to all the cities and counties in the Bay Area, including the City of San Bruno, for the 2023-2031 Housing Element planning period. The State Department of Housing and Community Development (HCD) requires local jurisdictions identify enough housing sites inventory to not only cover the RHNA, but also provide an additional buffer capacity above the RHNA. The buffer capacity is required to accommodate realistic production rates of affordable housing units; plus having the buffer can allow for instances when a smaller residential project may have to be considered for a given property. The recommendation from HCD is to adopt a housing site inventory with a buffer of 15 to 30 percent over the allocated RHNA.

The City's RHNA allocation for the 2023-2031 planning period is 3,165 housing units with a 15-percent buffer of an additional 475 units. The City prepared an inventory of land suitable for residential development, including vacant sites and sites having the potential for redevelopment. The Housing Element Update project is comprised of twenty-three key sites of candidate housing sites for future housing development to meet the City's 2023-2031 RHNA allocation and the required 15 percent buffer. Future housing development could occur on these candidate housing sites/parcels, if ultimately included within the Housing Element, as local conditions dictate with timing at the discretion of each individual property owner.

The candidate housing sites could yield up to 3,722 housing units. Recognizing that 1,014 units have already undergone separate CEQA review at a project level or are already allowed as an attached dwelling unit (ADU), this assessment for the Housing Element Update, evaluates the air quality impacts for development 2,708 housing units.

¹ Bay Area Air Quality Management District, 2017. *CEQA Air Quality Guidelines*, May. Web: https://www.baaqmd.gov/~media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en

Air pollutant and GHG emissions modeling were based on the initial information and that has changed slightly to include more single-family homes and less apartments. The overall changes are minor and would possibly increase Project emissions by 2 to 3 percent. These changes would not affect the report findings.

Environmental Setting

The project is located in San Mateo County, which is part of the San Francisco Bay Area Air Basin. The Air Basin includes the counties of San Francisco, Santa Clara, San Mateo, Marin, Napa, Contra Costa, and Alameda, along with the southeast portion of Sonoma County and the southwest portion of Solano County.

This Project is within the jurisdiction of the BAAQMD. Air quality conditions in the San Francisco Bay Area have improved significantly since the BAAQMD was created in 1955. Ambient concentrations of air pollutants, and the number of days during which the region exceeds air quality standards, have fallen dramatically. Exceedances of air quality standards occur primarily during meteorological conditions conducive to high pollution levels, such as cold, windless winter nights or hot, sunny summer afternoons.

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 1. Note that California includes pollutants or contaminants that are specific to certain industries and not associated with this project. 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 ozone 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 ozone precursors. Ozone is referred to as a regional air pollutant because its precursors are transported and diffused by wind concurrently with ozone production through the photochemical reaction process. Ozone 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 ozone 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 ozone 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.

Toxic Air Contaminants (TACs)

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) were identified as posing the highest risk to adjacent receptors. Other facilities associated with increased risk include warehouse distribution centers, large retail or industrial facilities, high volume transit centers, or schools with a high volume of bus traffic. Health risks from TACs are a function of both concentration and duration of exposure.

Table 1. 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, Common Air Pollutants, accessed May 16, 2022. Web:

<https://ww2.arb.ca.gov/resources/common-air-pollutants>

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

During the summer, mostly clear skies result in mild to warm daytime temperatures and cool nights in the San Francisco Peninsula. Winter temperatures are mild, except for very cool but generally frost-less mornings. Further inland where the moderating effect of the bay is not as strong, temperature extremes are greater. Rainfall amounts are modest, ranging from 13 inches in the lowlands to over 20 inches in the hills. Wind patterns are influenced by local terrain, with a northwesterly breeze in response to the sea breeze infiltrating San Francisco Bay typically developing during the daytime. Winds are usually stronger in the spring and summer. The southerly winds experienced are more common in late fall and winter. The wind rose shown in Figure 2 describes the patterns and frequency of winds at the project site. Wind data were collected from Fort Funston for the years 2010, 2012, and 2013.

Air Pollution Potential

Ozone and fine particle pollution, or PM_{2.5}, are the major regional air pollutants of concern in the San Francisco Bay Area. Ozone is primarily a problem in the summer, and fine particle pollution in the winter. Most of Santa Clara County is well south of the cooler waters of the San Francisco Bay and far from the cooler marine air which usually reaches across San Mateo County in summer. Ozone frequently forms on hot summer days when the prevailing seasonal northerly winds carry ozone precursors southward across the county, causing health standards to be exceeded. Santa Clara County 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 2 shows the state and federal standards for criteria pollutants and provides a summary of the attainment status for the San Francisco Bay Area with respect to national and state ambient air quality standards.

Table 2. NAAQS, CAAQS, and San Francisco Bay Area Attainment Status

Pollutant	Averaging Time	California Standards		National Standards	
		Concentration	Attainment Status	Concentration	Attainment Status
Carbon Monoxide (CO)	8-Hour	9 ppm (10 mg/m ³)	Attainment	9 ppm (10 mg/m ³)	Attainment
	1-Hour	20 ppm (23 mg/m ³)	Attainment	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 (338 µg/m ³)	Attainment	0.100 ppm	Unclassified
Ozone (O ₃)	8-Hour	0.07 ppm (137 µg/m ³)	Nonattainment	0.070 ppm	Nonattainment
	1-Hour	0.09 ppm (180 µg/m ³)	Nonattainment	Not Applicable	Not Applicable
Suspended Particulate Matter (PM ₁₀)	Annual Mean	20 µg/m ³	Nonattainment	Not Applicable	Not Applicable
	24-Hour	50 µg/m ³	Nonattainment	150 µg/m ³	Unclassified
Suspended Particulate Matter (PM _{2.5})	Annual Mean	12 µg/m ³	Nonattainment	12 µg/m ³	Attainment
	24-Hour	Not Applicable	Not Applicable	35 µg/m ³	Nonattainment
Sulfur Dioxide (SO ₂)	Annual Mean	Not Applicable	Not Applicable	80 µg/m ³ (0.03 ppm)	Attainment
	24-Hour	0.04 ppm (105 µg/m ³)	Attainment	365 µg/m ³ (0.14 ppm)	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: Bay Area Air Quality Management District, 2017. *Air Quality Standards and Attainment Status*. January 5.

Existing Air Pollutant Levels

BAAQMD monitors air pollution at various sites within the Bay Area. The closest air monitoring station (10 Arkansas Street) that monitored O₃, CO, NO, NO₂, PM₁₀, and PM_{2.5} over the past 5 years (2015 through 2019) is in the City of San Francisco, approximately 8 miles northeast of the project site. The data shows that during the past few years, the project area has exceeded the state and/or federal PM₁₀ and PM_{2.5} ambient air quality standards. Table 3 lists air quality trends in data collected for the past 5 years and published by the BAAQMD and CARB, which is the most recent time-period available. Ozone standards (includes 1-hr concentration and 8-hr concentration) were exceeded on 0 to 1 days annually in San Francisco. Measured 24-hour PM₁₀ and PM_{2.5} concentrations are exceeded on 0 to 2 monitoring days in San Francisco (note these levels were influenced by smoke from wildfires).

Table 3. Ambient Air Quality Concentrations from 2015 through 2019

Pollutant		Standard	2015	2016	2017	2018	2019
Ozone							
Max 1-hr concentration			85 ppb	70 ppb	87 ppb	65 ppb	91 ppb
No. days exceeded: CAAQS	90 ppb		0	0	0	0	0
Max 8-hr concentration			67 ppb	57 ppb	54 ppb	49 ppb	73 ppb
No. days exceeded: CAAQS	70 ppb		0	0	0	0	1
NAAQS	70 ppb		0	0	0	0	1
Carbon Monoxide							
Max 1-hr concentration			1.8 ppm	1.7 ppm	2.5 ppm	1.9 ppm	1.2 ppm
No. days exceeded: CAAQS	20 ppm		0	0	0	0	0
NAAQS	35 ppm		0	0	0	0	0
Max 8-hr concentration			1.3 ppm	1.1 ppm	1.4 ppm	1.6 ppm	1.0 ppm
No. days exceeded: CAAQS	9.0 ppm		0	0	0	0	0
NAAQS	9 ppm		0	0	0	0	0
PM₁₀							
Max 24-hr concentration			47 µg/m ³	29 µg/m ³	77 µg/m ³	43 µg/m ³	42 µg/m ³
No. days exceeded: CAAQS	50 µg/m ³		0	0	2	0	0
NAAQS	150 µg/m ³		0	0	0	0	0
Max annual concentration			19.2 µg/m ³	17.0 µg/m ³	22.0 µg/m ³	20.1 µg/m ³	14.7 µg/m ³
No. days exceeded: CAAQS	-		-	-	-	-	-
PM_{2.5}							
Max 24-hr concentration			35.4 µg/m ³	19.6 µg/m ³	49.9 µg/m ³	177.4 µg/m ³	25.4 µg/m ³
No. days exceeded: NAAQS	35 µg/m ³		0	0	7	14	0
Annual Concentration			7.6 µg/m ³	7.5 µg/m ³	9.7 µg/m ³	11.7 µg/m ³	7.7 µg/m ³
No. days exceeded: CAAQS	12 µg/m ³		-	-	-	-	-
NAAQS	12 µg/m ³		-	-	-	-	-
Nitrogen Dioxide							
Max 1-hr concentration			71 ppb	58 ppb	73 ppb	69 ppb	61 ppb
No. days exceeded: CAAQS	0.18 ppm		0	0	0	0	0
NAAQS	0.100 ppm		0	0	0	0	0
Annual Concentration			12 ppb	11 ppb	11 ppb	11 ppb	10 ppb
No. days exceeded: CAAQS	0.030 ppm		-	-	-	-	-
NAAQS	0.053 ppm		-	-	-	-	-

Source: Bay Area Air Quality Management District, 2020, Web: <https://www.baaqmd.gov/about-air-quality/air-quality-summaries>. California Air Resource Board, 2020, Web: <https://arb.ca.gov/adam/select8/sc8start.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, 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.

Regulatory Framework

Pursuant to the Federal Clean Air Act 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 Implement 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.² 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 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

² See: U.S. Environmental Protection Agency, Web: <https://www.epa.gov/criteria-air-pollutants/naaqs-table>, Accessed May 16, 2022.

quality attainment Plan for the region. Conformity with the SIP requirements would satisfy the FCAA requirements.

State Air Quality Regulations

The CARB is the agency responsible for the coordination and oversight of state and local air pollution control programs in California and for implementing the CCAA, adopted in 1988. 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.

California Clean Air Act

In 1988, the CCAA required that all air districts in the state endeavor to achieve and maintain CAAQS for CO, O₃, SO₂, and NO₂ by the earliest practical date. The CCAA provides districts 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 district is required to adopt a plan to achieve a 5 percent annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each nonattainment pollutant or its precursors. A Clean Air Plan shows how a district would reduce emissions to achieve air quality standards. Generally, the state standards for these pollutants are more stringent than the national standards.

California Air Resources Board Handbook

In 1998, CARB identified particulate matter from diesel-fueled engines 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.³ CARB subsequently developed an Air Quality and Land Use Handbook⁴ (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

³ California Air Resources Board, 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. October.

⁴ California Air Resources Board, 2005. *Air Quality and Land Use Handbook: A Community Health Perspective*. April.

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 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 will be prohibited in 2023).

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.

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.). 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 requiring owners to turn over their fleet (replace older equipment with newer equipment) or retrofit existing equipment in order to achieve specified fleet-averaged emission rates. Implementation of this regulation, in conjunction with

stringent Federal off-road equipment engine emission limits for new vehicles, is expected to substantially reduce emissions of diesel particulate matter (DPM) and NO_x.

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

Bay Area Air Quality Management District

The BAAQMD seeks to attain and maintain air quality conditions in the San Francisco Bay Area Air Basin (SFBAAB) through a comprehensive program of planning, regulation, enforcement, technical innovation, and education. The clean air strategy includes the preparation of plans for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations, and issuance of permits for stationary sources. The BAAQMD also inspects stationary sources and responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by law.

Clean Air Plan

The BAAQMD is responsible for developing a Clean Air Plan which guides the region's air quality planning efforts to attain the CAAQS. The BAAQMD's 2017 Clean Air Plan is the latest Clean Air Plan which contains district-wide control measures to reduce ozone precursor emissions (i.e., ROG and NO_x), particulate matter and greenhouse gas emissions. The Bay Area 2017 Clean Air Plan, which was adopted on April 19, 2017 by the BAAQMD's board of directors:

- Updates the Bay Area 2010 Clean Air Plan in accordance with the requirements of the California Clean Air Act to implement "all feasible measures" to reduce ozone;
- Provides a control strategy to reduce ozone, particulate matter (PM), air toxics, and greenhouse gases in a single, integrated plan;
- Reviews progress in improving air quality in recent years; and
- Continues and updates emission control measures.

BAAQMD CARE Program

The Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposures to outdoor TACs in the Bay Area.⁵ The program examines TAC emissions from point sources, area sources, and on-road and off-road mobile sources with an emphasis on diesel exhaust, which is a major contributor to airborne health risk in California. The CARE program is an on-going program that encourages community involvement and input. The technical analysis portion of the CARE program is being implemented in three phases that includes an assessment of the sources of TAC emissions, modeling and measurement programs to estimate concentrations of TAC, and an assessment of exposures and health risks. Throughout the program, information derived from the technical analyses will be used to focus emission reduction measures in areas with high TAC exposures and high density of sensitive populations. Risk reduction activities associated with the CARE program are focused on the most at-risk communities in the Bay Area. The BAAQMD has identified six communities as impacted: Concord, Richmond/San Pablo, Western Alameda County, San José, Redwood City/East Palo Alto, and Eastern San Francisco. Recently, BAAQMD identifies an *overburdened* community as an area located (i) within a census tract identified by the California Communities Environmental Health Screening Tool (CalEnviroScreen), Version 4.0,⁶ as having an overall CalEnviroScreen score at or above the 70th percentile, or (ii) within 1,000 feet of any such census tract. Twelve of the Key Sites in San Bruno are located within an identified overburdened community area. According to CalEnviroScreen, the census tracts representative of the project Key Sites and environs within 1,000 feet of the project have an overall score of 77, 52, 29 or less (see Figures 1A, 1B, 1C).

- CalEnviroScreen Percentile 77: Key Sites 2, 5, 7, 9, 10, 11, 12, 15, 16, 21, 22, 23
- CalEnviroScreen Percentile 53: Key Sites 1, 3, 4, 8, 13, 14, 17, 18, 19, 20
- CalEnviroScreen Percentile 29: Key Site 6

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

⁶ See California OEHHA: <https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40>, accessed May 16, 2022.

Figure 1A CalEnviroScreen 4.0 Results for San Bruno Percentile 77 Key Sites

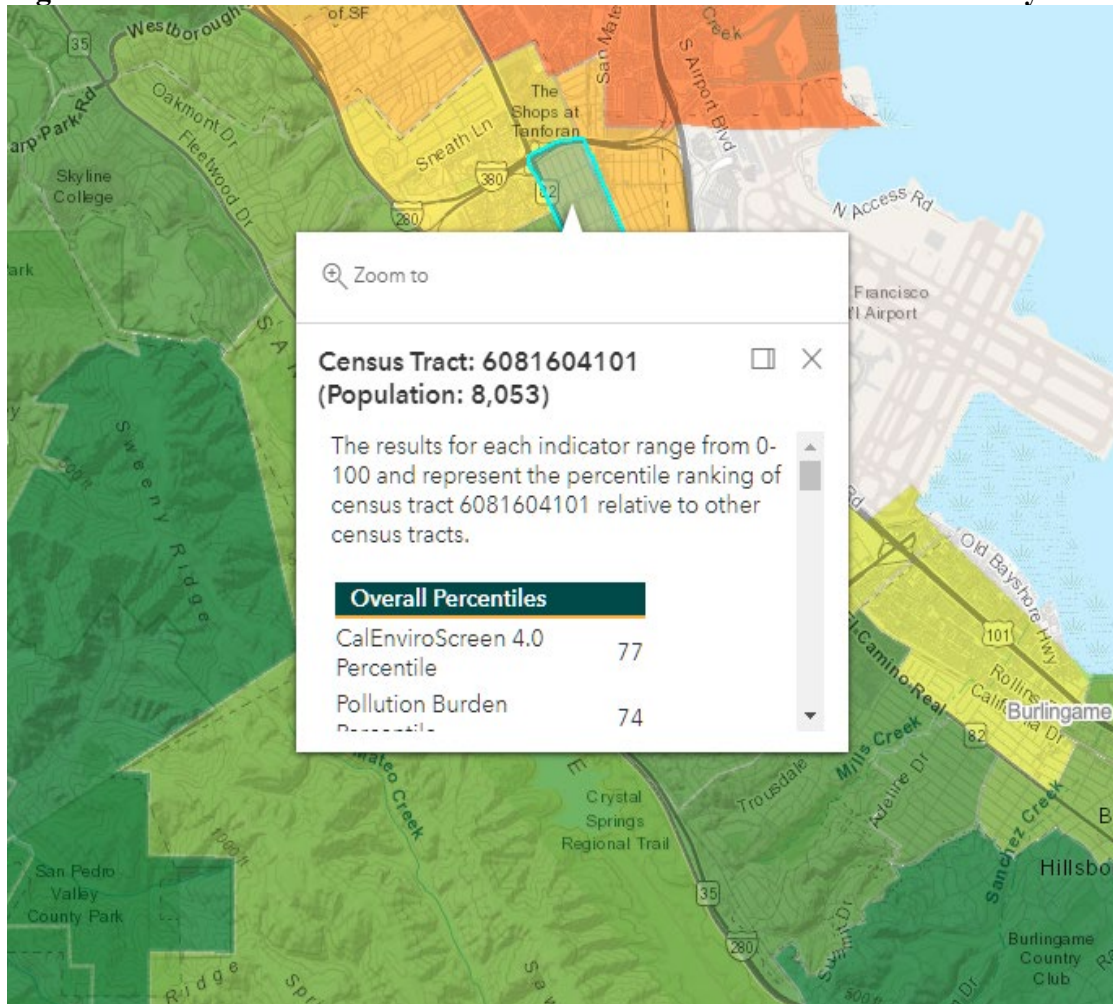


Figure 1B CalEnviroScreen 4.0 Results for San Bruno Percentile 53 Key Sites

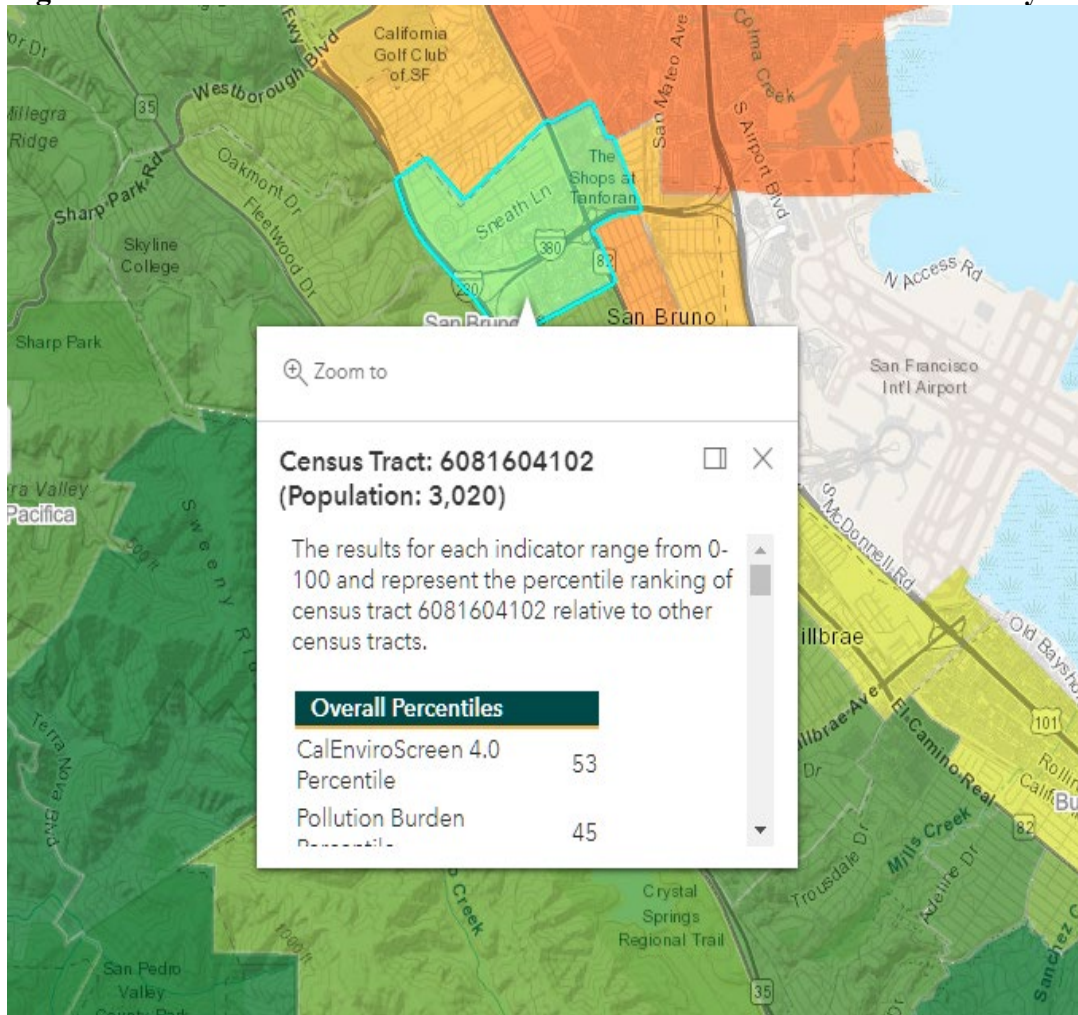
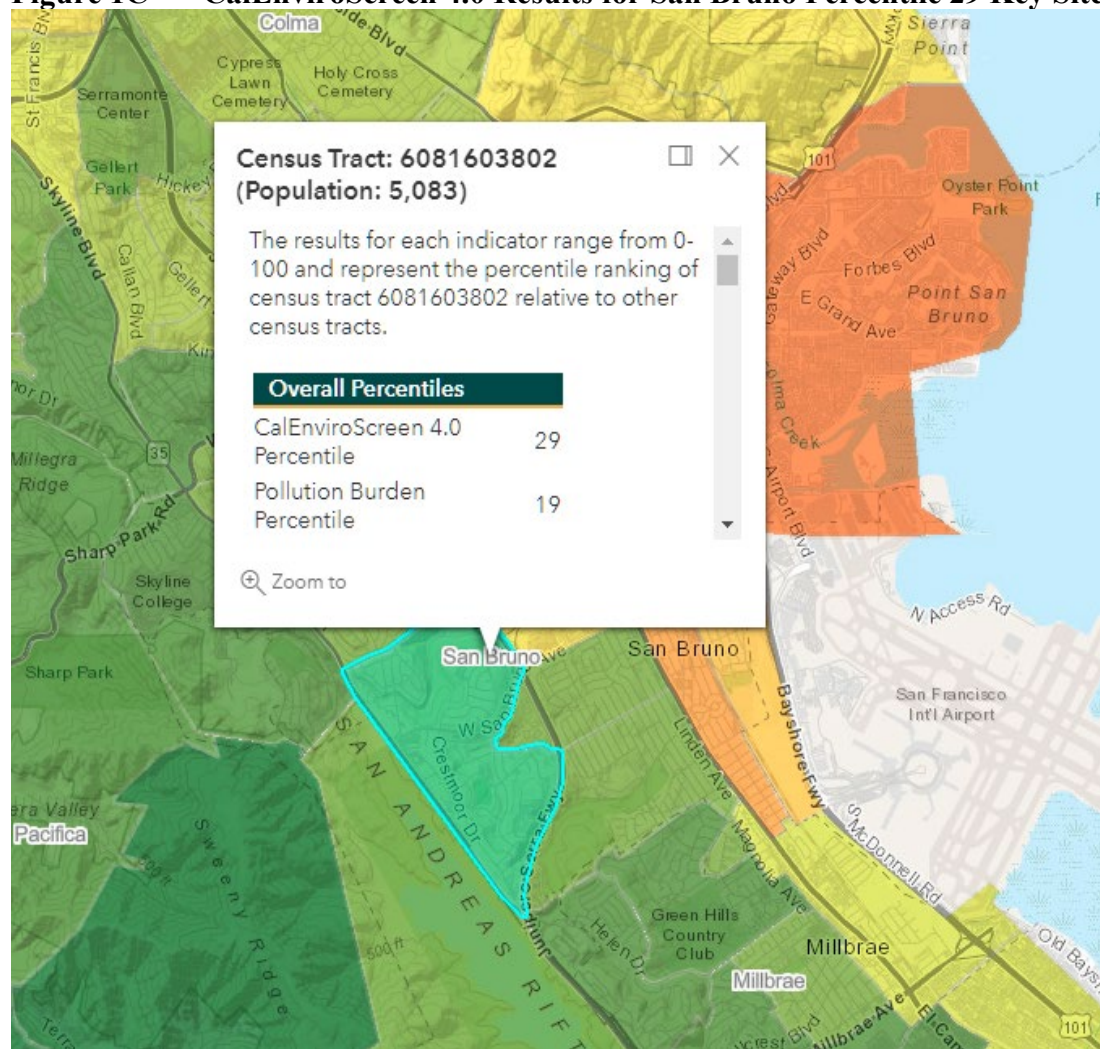


Figure 1C CalEnviroScreen 4.0 Results for San Bruno Percentile 29 Key Sites



Planning Healthy Places

BAAQMD developed a guidebook that provides air quality and public health information intended to assist local governments in addressing potential air quality issues related to exposure of sensitive receptors to exposure of emissions from local sources of air pollutants. The guidance provides tools and recommends best practices that can be implemented to reduce exposures. The information is provided as recommendations to develop policies and implementing measures in city or county General Plans, neighborhood or specific plans, land use development ordinances, or into projects.

BAAQMD California Environmental Quality Act Air Quality Guidelines

The BAAQMD California Environmental Quality Act (CEQA) Air Quality Guidelines⁷ were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process consistent with CEQA requirements including thresholds of significance, mitigation measures, and background air quality information. They also include assessment methodologies for air toxics, odors, and greenhouse gas emissions. In June 2010, the BAAQMD's Board of Directors adopted CEQA thresholds of significance and an update of their CEQA Guidelines. In May 2011, the updated BAAQMD CEQA Air Quality Guidelines were amended to include a risk and hazards threshold for new receptors and modify procedures for assessing impacts related to risk and hazard impacts. A recent update to the Guidelines was published in May 2017.

The CEQA Guidelines define air pollution sources that would exist in San Bruno as highways, roadways with greater than 10,000 average daily trips, and stationary sources of air pollutants that are permitted by BAAQMD. Projects that have TAC emissions that could adversely affect sensitive receptors are recommended to prepare health risk assessments to quantify the potential and, if appropriate, identify mitigation measures to reduce impacts.

BAAQMD Rules and Regulations

Combustion equipment associated with the proposed project that includes new diesel engines to power generators and possibly cooling towers would establish new sources of particulate matter and gaseous emissions. Emissions would primarily result from the testing of the emergency backup generators and some minor emissions from cooling towers. Certain emission sources would be subject to BAAQMD Regulations and Rules. The District's rules and regulations that may apply to project operation include:

- Regulation 2 – Permits
 - Rule 2-1: General Requirements
 - Rule 2-2: New Source Review
 - Rule 2-5: New Source Review of Toxic Air Contaminants
- Regulation 6 – Particulate Matter and Visible Emissions
 - Rule 6-2: Commercial Cooking Equipment
 - Rule 6-3: Wood-Burning Devices
 - Rule 6-7: Odorous Substances
- Regulation 9 – Inorganic Gaseous Pollutants
 - Rule 9-1: Sulfur Dioxide
 - Rule 9-7: Nitrogen Oxides and Carbon Monoxide from Industrial, Institutional, and Commercial Boilers, Steam Generators, And Process Heaters
 - Rule 9-8: Nitrogen Oxides and Carbon Monoxide from Stationary Internal Combustion Engines

⁷ Bay Area Air Quality Management District, 2017. *CEQA Air Quality Guidelines*. May.

Permits

Rule 2-1-301 requires that any person installing, modifying, or replacing any equipment, the use of which may reduce or control the emission of air contaminants, shall first obtain an Authority to Construct (ATC).

Rule 2-1-302 requires that written authorization from the BAAQMD in the form of a Permit to Operate (PTO) be secured before any such equipment is used or operated.

Rule 2-1 lists sources that are exempt from permitting.

New Source Review

Rule 2-2, New Source Review (NSR), applies to all new and modified sources or facilities that are subject to the requirements of Rule 2-1-301. The purpose of the rule is to provide for review of such sources and to provide mechanisms by which no net increase in emissions will result.

Rule 2-2-301 requires that an applicant for an ATC or PTO apply Best Available Control Technology (BACT) to any new or modified source that results in an increase in emissions and has emissions of precursor organic compounds, non-precursor organic compounds, NO_x, SO₂, PM₁₀, or CO of 10.0 pounds or more per highest day. Based on the estimated emissions from the proposed project, BACT will be required for NO_x emissions from the diesel-fueled generator engines.

Rule 2-5 applies to new and modified sources of TAC emissions. BAAQMD evaluates the TAC emissions in order to evaluate potential public exposure and health risk, to mitigate potentially significant health risks resulting from these exposures, and to provide net health risk benefits by improving the level of control when existing sources are modified or replaced. Toxics BACT (or TBACT) is applied to any new or modified source of TACs where the source risk is a cancer risk greater than 1.0 in one million and/or a chronic hazard index greater than 0.20. Permits are not issued for any new or modified source that has risks or net project risks that exceed a cancer risk of 10.0 in one million or a chronic or acute hazard index of 1.0.

Stationary Diesel Airborne Toxic Control Measure

The BAAQMD administers the CARB's Airborne Toxic Control Measure (ACTM) for Stationary Diesel engines (section 93115, title 17 CA Code of Regulations). The project's stationary sources will be new stationary emergency standby diesel engines larger than 50 hp. These limits vary based on maximum engine power. All engines are limited to PM emission rates of 0.15 g/hp-hour, regardless of size. This ACTM limits engine operation 50 hours per year for routine testing and maintenance.

Offsets

Rule 2-2-302 requires that offsets be provided for a new or modified source that emits more than 10 tons per year of NO_x or precursor organic compounds. It is not expected that emissions of any

pollutant will exceed the offset thresholds. Thus, is not expected that offsets for the proposed project would be required.

Prohibitory Rules

Regulation 6 pertains to particulate matter and visible emissions. Although the engines will be fueled with diesel, they will be modern, low emission engines. Thus, the engines are expected to comply with Regulation 6.

Rule 6-3 applies to emissions from wood-burning devices. Effective November 1, 2016, no person or builder shall install a wood-burning device in a new building construction.

Regulation 6-7 places general limitations on odorous substances and specific emission limitations on certain odorous compounds when the District receives odor complaints. The regulation prohibits discharge of odorous substance that causes the ambient air at or beyond the property line to be odorous and to remain odorous after dilution with four parts of odor-free air and places limits on certain odorous compounds or family of compounds.

Rule 9-1 applies to sulfur dioxide. The engines will use ultra-low sulfur diesel fuel (less than 15 ppm sulfur) and will not be a significant source of sulfur dioxide emissions and are expected to comply with the requirements of Rule 9-1.

Rule 9-7 limits the emissions of NO_x CO from industrial, institutional and commercial boilers, steam generators and process heaters. This regulation typically applies to boilers with a heat rating of 2 million British Thermal Units (BTU) per hour

Rule 9-8 prescribes NO_x and CO emission limits for stationary internal combustion engines. Since the proposed engines will be used with emergency standby generators, Regulation 9-8-110 exempts the engines from the requirements of this Rule, except for the recordkeeping requirements (9-8-530) and limitations on hours of operation for reliability-related operation (maintenance and testing). The engines will not operate more than 50 hours per year, which will satisfy the requirements of 9-8-111.

BACT for Diesel Generator Engines

Since the generators will be used exclusively for emergency use during involuntary loss of power, the BACT levels listed for IC compression engines in the BAAQMD BACT Guidelines would apply. These are provided for two separate size ranges of diesel engines:

I.C. Engine – Compression Ignition >50hp and <1,000hp: BAAQMD applies BACT 2 emission limits based on the ATCM for stationary emergency standby diesel engines larger than 50 brake-horsepower (BHP). NO_x emission factor limit is subject to the CARB ACTM that ranges from 3.0 to 3.5 grams per horsepower hour (g/hp-hr). The PM (PM₁₀ or PM_{2.5}) limit is 0.15 g/hp-hr per CARB's ACTM.

I.C. Engine – Compression Ignition <999hp: BAAQMD applies specific BACT emission limits for stationary emergency standby diesel engines equal or larger than 1,000 brake-horsepower (BHP). NOx emission factor limit is 0.5 g/hp-hr. The PM (PM10 or PM2.5) limit is 0.02 g/hp-hr. POC (i.e., ROG) limits are 0.14 g/hp-hr.

City of San Bruno

San Bruno 2025 General Plan

The San Bruno 2025 General Plan adopted concurrently with the San Bruno 2025 General Plan and an accompanying Environmental Impact Report (EIR), on March 24, 2009.⁸ The goals, policies, and programs relevant to air quality are contained in the *Transportation Element* and *Environmental Resources and Conservation Element* Chapters:

Transportation Element Implementing Policies.

Policy T-1: Develop incentives for San Bruno government and private employers to institute staggered working hours, compressed work week, homebased telecommuting, carpooling, use of transit, alternative fuel vehicles, and bicycling to employment centers to reduce vehicle miles traveled and the associated traffic congestion and air pollution.

Policy T-3: Encourage provision of bicycle facilities such as weather protected bicycle parking, direct and safe access for pedestrians and bicyclists to adjacent bicycle routes and transit stations, showers, and lockers for employees at the worksite, secure short-term parking for bicycle.

Policy T-4: Encourage major employers of the city to provide shuttle service for employees from worksite to food service establishments, commercial areas, and transit stations, to reduce the number of automobile trips.

Policy T-57: Work with SamTrans to schedule the routing of public transit in San Bruno so that a majority of residents are within walking distance of transit stops.

Environmental Resources and Conservation Implementing Policies.

Policy ERC-25: Maintain and improve air quality by requiring project mitigation, such as Transportation Demand Management (TDM) techniques, where air quality impacts are unavoidable.

Policy ERC-26: Require dust abatement actions for all new construction and redevelopment projects.

⁸ San Bruno, City of, 2009. *San Bruno 2025 General Plan*. See <https://sanbruno.ca.gov/629/General-Plan> accessed August 15, 2022

Policy ERC-28: Incorporate air quality beneficial programs and policies into local planning and development activities, with a particular focus on subdivision, zoning, and site design measures that reduce the number and length of single-occupant automobile trips

Policy ERC-29: Promote demonstration projects to develop new strategies to reduce motor vehicle emissions. Projects may include low emission vehicle fleets and LEV refueling infrastructure.

Policy ERC-30: Encourage new residential developments to incorporate measures such as shuttle services to major employment centers, commercial areas and transit areas, and provision of adequate transit facilities

Policy ERC-31: Prepare a Greenhouse Gas Emissions Reduction Plan, focusing on feasible actions the City can take to minimize the adverse impacts of Plan implementation on climate change and air quality.

Policy ERC-32: Coordinate air quality planning efforts with local, regional, and State agencies. Support the Bay Area Air Quality Management District's efforts to monitor and control air pollutants from stationary sources.

Policy ERC-33: Require all large construction projects to mitigate diesel exhaust emissions through use of alternate fuels and control devices.

The General Plan is also consistent with Applicable BAAQMD Control Strategies from the California Clean Air Plan, which can be seen in Table 6. The policies not mentioned above that are relevant to transportation, buildings, natural and working lands, waste management, and water control measures are contained in the *Transportation Element*, *Land Use and Urban Design Element*, *Public Facilities and Services Element*, and *Resources and Conservation Element* Chapters:

Transportation Element Implementing Policies.

Policy T-5: Provide assistance to regional and local ride sharing organizations; advocate legislation to maintain and expand incentives (e.g., tax deductions/credits).

Policy T-20: Study the potential benefit of implementing High Occupant Vehicle (HOV) and carpool lanes along major arterials.

Policy T-48: Incorporate a dedicated pedestrian crossing and flashing street markers at the new four-way signal installed on El Camino Real connecting The Crossing with The Shops at Tanforan and the San Bruno BART station.

Policy T-50: Consider developing a shuttle service to provide reliable, consistent, and convenient access between the BART and Caltrain stations and other destinations within the city, including Bayhill Office Park, Skyline College, Downtown, schools and neighborhoods in the western and southern portions of the city.

Policy T-53: Coordinate with the Peninsula Corrido Joint Powers Board to ensure design of the planned San Bruno Avenue Caltrain Station (and Grade Separation Project) that will accommodate such regional transit improvements.

Policy T-59: Encourage SamTrans to configure bus transit service to serve connections with other transit systems (BART, Caltrain, SFO, and other bus lines).

Policy T-62: Seek community input in establishing transit routes and schedules.

Policy T-64: Work with SamTrans to plan the local system with built-in flexibility for increases in service in accordance with increases in demand. Coordinate with local school districts on possible joint transit usage.

Policy T-66: Design arterial and collector streets to facilitate safe pedestrian crossings to transit stops. Provide crosswalks at all signalized arterial intersections.

Policy T-69: Continue to work toward dedication and/or installation of bicycle lanes throughout the city in accordance with Figure 4-4, to enhance recreational opportunities and make bicycling a more viable transportation alternative. Implement bicycle route improvements including signing, striping, paving, and provision of bicycle facilities at employment sites, shopping centers, schools, and public facilities.

Policy T-71: Provide bicycle parking facilities in Downtown Bayhill Office Park, BART and Caltrain Stations, The Shops at Tanforan and Towne Center, parks, schools, and other key destinations. Review bicycle standards as part of the Zoning Ordinance Update.

Policy T-72: Identify and mark safe bicycle routes providing connections between the BART and Caltrain stations, and the following regional trail networks:

- Bay Area Ridge Trail
- Sweeney Ridge Trail
- Bay Trail
- San Andreas Trail, and
- Sawyer Camp Trail

Policy T-73: Coordinate with the Bicycle and Pedestrian Committee to promote safe cycling programs, sponsored rides, and other community outreach programs geared toward cyclists.

Policy T-77: Create a pedestrian-oriented setting along the Pedestrian Emphasis Zone through potential construction of the following public improvements:

- Brick pavers to make sidewalks look more distinct
- Street trees to soften the environment and provide color and shade
- Human-scale streetlights for enhanced aesthetics and illumination
- Banners and flags to make the area look more festive and cheerful
- Benches to give people a place to sit, rest, and watch what goes on around them

Policy T-78: Allow new development to contribute to the Pedestrian Emphasis Zone through construction of off-site improvements.

Policy T-79: Prioritize improvements to sidewalks and other walking paths adjacent to public school facilities where children and youth are likely to use them on a daily basis.

Policy T-80: Install safety improvements for pedestrian crossings along El Camino Real. Such improvements may include bulb-outs at the corners, crossing medians, and signal synchronization.

Policy T-81: Provide for public safety and efficient operation in the planning, construction, and maintenance of transportation facilities.

Policy T-83: Undertake periodic reviews of highway projects and improvements, San Francisco Airport expansion planning, and County and regional transit planning to enable the City to coordinate effectively with regional circulation systems.

Land Use and Urban Design Implementing Policies.

Policy LUD-8: Develop and implement standards in the City's Zoning Ordinance and Subdivision Regulations that minimize the visual dominance of garages in multifamily complexes. Use the following design techniques:

- Locate garages and carports to the rear of parcels
- Provide access to tuck-under parking from the side or rear of parcels, particularly along major arterial roadways
- Screen tuck-under parking with landscaping or other buffering techniques; and
- Continue to allow shared driveway configurations, as appropriate.

Policy LUD-17: Encourage new development in Downtown to accommodate small retail shops, with larger anchor stores at the northern and southern gateways. Prohibit auto-oriented uses, including fast food with drive-through facilities.

Policy LUD-19: In accordance with ordinance 1284, assemble parcels to create a centrally located, structured parking facility that would sufficiently serve merchants and shoppers in Downtown. The parking structure should include ground floor commercial along street frontage, and main entrances and exits along side streets to minimize breaks in commercial frontage along San Mateo Avenue.

Policy LUD-23: Consider development of new professional and administrative offices within The Shops at Tanforan and Towne Center, so that commuters can travel to and from San Bruno via the BART system. Allow offices on second and third levels, above retail establishments.

Policy LUD-26: During the Zoning Ordinance Update, create a transit-oriented zoning district surrounding the BART and Caltrain stations, and along the El Camino Real and

San Bruno Avenue transit corridor. Within the district, reduce building setbacks, increase development intensities, require pedestrian connections, reduce parking requirements, and consider establishment of minimum development intensities.

Public Facilities and Services Implementing Policies.

Policy PFS-12: Work actively with the San Francisco Bay Area Water Supply and Conservation Agency, adjacent cities, and the water agencies of San Mateo County to increase water conservation measures and minimize the effects of aquifer depletion.

Policy PFS-13: Establish water conservation Best Management Practices (BMPs) and require them for new development and for municipal buildings and facilities.

Policy PFS-14: Actively market the importance of water conservation, water recycling and groundwater recharge through the following means:

- Develop a flyer to promote the necessity of and benefits from water conservation, and distribute the flyer to local residents, businesses, and schools
- Make water production and treatment facilities available for tours by schools or organized groups
- Encourage educators to include water conservation in their curricula
- Provide tips to business groups on water conservation and recycling
- The City may solicit assistance from environmental groups, the school district, and/or concerned citizens to provide educational materials or staff time for these public outreach programs.

Policy PFS-19: Investigate the feasibility of developing additional or enhanced sources of water supply, such as recycled water, reclaimed surface water, or enhanced groundwater recharge. Explore working cooperatively with the City of South San Francisco to initiate recycling of treated wastewater from the South San Francisco-San Bruno Water Quality Control Plant.

Policy PFS-22: Continue contracting for garbage and recycling collection services. Negotiate with the service provider to secure the most convenient recycling methods available within current technology.

Policy PFS-23: Expand recycling services to include all commercial and industrial businesses in San Bruno.

Policy PFS-25: Continue public education programs about waste reduction, including recycling, yard waste, wood waste, and household hazardous waste.

Policy PFS-62: Develop and implement a Green Building Design Ordinance and design guidelines for climate-oriented site planning, building design, and landscape design to promote energy efficiency. These standards may include, but are not limited to, the following:

- Require the use of Energy Star® appliances and equipment in new residential and commercial development, and new City facilities
- Require all new City facilities and new residential development to incorporate green building methods meeting the equivalent of LEED Certified “Silver” rating or better
- Require all new residential development to be pre-wired for optional photovoltaic roof energy systems and/or solar water heating.
- The Ordinance will allow variances to site or building requirements—building setbacks, lot coverage, and building height—that will enable use of alternative energy sources, such as passive heating and/or cooling.

Policy PFS-63: Require that all new development complies with California’s Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24, Part 6)

Policy PFS-64: Provide incentives for retrofitting existing homes and businesses for improved energy efficiency, such as passive solar and/or cooling devices.

Policy PFS-65: Require new development to incorporate passive heating and natural lighting strategies if feasible and practical. These strategies should include, but are not limited to, the following:

- Using building orientation, mass, and form, including façade, roof, and choice of building materials, color, type of glazing, and insulation to minimize heat loss during winter months and heat gain during the summer months
- Designing building openings to regulate internal climate and maximize natural lighting, while keeping glare to a minimum
- Reducing heat-island effect of large concrete roofs and parking surfaces.

Policy PFS-66: Enforce landscape requirements that facilitate efficient energy use or conservation, such as drought-resistant landscaping and/or deciduous trees along southern exposures.

Policy PFS-67: Require developers and builders to distribute information regarding energy efficiency (such as the Home Energy Guide available from the California Energy Commission) to all new homeowners.

Policy PFS-68: Initiate a marketing campaign where energy efficiency information is distributed to all City employees and residents. Provide information on how, what type, and where to plant trees to reduce energy demand. Make such information available at all public locations such as City Hall and the Public Library.

Policy PFS-69: Offer incentives (such as expedited permit processing, density bonuses, site variances) to support implementation of photovoltaic and other renewable energy technologies that provide a portion of the city’s energy needs, or for projects that result in energy savings of at least 20 percent when compared to the energy consumption that would occur under similar projects built to meet the minimum standards of the energy code.

Environmental Resources and Conservation Implementing Policies.

Policy ERC-23: Regulate new development to minimize stormwater runoff rates and volumes generated by impervious surfaces and maximize recharge of local groundwater aquifers when feasible. Utilize the recommendations provided in the Bay Area Stormwater Management Agency's *Start at the Source Design Guidance Manual for Stormwater Quality Protection*.

Policy ERC-24: Require that new development incorporate features into site drainage plans that reduce impermeable surface area and surface runoff volumes. Such features may include:

- Additional landscaped areas including canopy trees and shrubs
- Reducing building footprint
- Removing curbs and gutters from streets and parking areas where appropriate to allow stormwater sheet flow into vegetated areas
- Permeable paving and parking area design
- Stormwater detention basins to facilitate infiltration
- Building integrated or subsurface water retention facilities to capture rainwater for use in landscape irrigation and other non-potable uses.

Transit Corridors Plan

The Transit Corridors Specific Plan was adopted on February 12, 2013.⁹ The goals, policies, and programs relevant to air quality are contained in the *Transportation* Chapter:

Transportation Section Implementing Policies.

Trans-F: Develop and implement a Transportation Demand Management (TDM) Program that reduces the amount of peak period motor vehicle traffic and encourages the use of modes other than the single-occupant vehicle.

Trans-B.1: Provide a local circulator shuttle service between the Downtown, BART station, and Caltrain station, with potential stops at the San Francisco International Airport

Trans-C.2: Provide a network of bicycle priority streets that provide linkages throughout the Plan area. As appropriate, bicycle priority streets should provide traffic-calming measures to limit vehicle travel and speeds.

Trans-C.4: Implement a citywide bicycle parking ordinance that specifies bicycle parking, locker, and shower requirements.

Bayhill Specific Plan

⁹ San Bruno, City of, 2013. *Transit Corridors Plan*. See <https://www.sanbruno.ca.gov/634/Transit-Corridors-Plan> accessed September 7, 2022

The Bayhill Specific Plan was adopted concurrently with Phase 1 of Youtube's campus expansion on September 28, 2021 and October 12, 2021.¹⁰ The goals, policies, and programs relevant to air quality are contained in the *Air Quality* Section:

Air Quality Section Implementing Policies.

Policy 6-9: Reduce construction-related emissions. All applicants proposing development of projects within the Plan Area shall reduce construction related emissions by requiring contractors (as a contract condition) to implement the following requirements, unless an analysis conducted by a qualified consultant demonstrates that a particular measure is not required to meet air quality standards:

- a. Use Tier 4 final engines for all off-road equipment greater than 50 horsepower (hp) and operating for more than 20 total hours over the entire duration of construction activities.
- b. Use diesel trucks with 2010 or later compliant model year engines during construction.
- c. Use renewable diesel during construction.
- d. Use low-VOC coatings during construction.
- e. Implement fugitive dust best management practices.
- f. Use portable electrical equipment where commercially available and practicable to complete construction. Construction contractors shall utilize electrical grid power instead of diesel generators when (1) grid power is available at the construction site; (2) when construction of temporary power lines are not necessary in order to provide power to portions of the site distant from existing utility lines; (3) when use of portable extension lines is practicable given construction safety and operational limitations; and (4) when use of electrical grid power does not compromise construction schedules.

Policy 6-10: Estimate construction related air quality emissions for projects exceeding BAAQMD screening sizes. Applicants proposing development projects within the Plan Area shall compare their project size with the BAAQMD screening sizes appropriate to their project for construction criteria pollutants found in Table 3-1 in the Bay Area Air Quality Management CEQA Guidelines (May 2017). The screening limit for general office buildings, office park is 277,000 square feet, with different screening limits for other developments types. If the project is less than the screening limit for its project type, the Applicant shall also confirm conformance with other screening requirements in relation to demolition, extensive site preparation and simultaneous construction activity. If the project is not excluded based on BAAQMD screening criteria, the applicant shall estimate annual average emissions for each year of construction and compare the annual average emissions for each year of construction to the BAAQMD thresholds used in the Specific Plan EIR for criteria pollutants. The emissions estimate shall be provided as part of the project's initial

¹⁰ San Bruno, City of, 2021. *Bayhill Specific Plan*. See <https://www.sanbruno.ca.gov/618/Bayhill-Specific-Plan> accessed September 8, 2022

application to the City for the project. The City will review the estimate and confirm whether offsets are required for construction. If the proposed developments are estimated to result in exceedances of any threshold(s), the applicants shall coordinate with a third-party or governmental entity to pay for criteria pollutant offsets for every year in which construction emissions are estimated to exceed BAAQMD thresholds. Emission reduction projects and fee will be determined in consultation between the applicant and the third party or governmental entity. The agreement shall be provided to the City for approval and shall be secured prior to any year in which construction activity is estimated to result in an exceedance.

Policy 6-11: Ensure high air quality in the vicinity of sensitive receptors. (*) Should any new sensitive receptors, such as residential projects and daycare, be sited within the Plan Area, developers shall be required to install high-efficiency filters. Should any new sensitive receptors be sited within 1,000 feet of sources of toxic air contaminants (TAC), developers shall further be required to incorporate any other additional design features to minimize any potential health risk following the preparation of a site-specific construction and operational HRA.

Policy 6-13: Develop and maintain best practices for reducing air pollutant emissions associated with the operational phase of development.

Impacts and Mitigation

Significance Criteria

Per Appendix G of the CEQA Guidelines and BAAQMD recommendations, air quality and GHG impacts are considered significant if implementation of the General Plan 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.
- 5) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.
- 6) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

BAAQMD provided revised CEQA Guidelines in May 2017. The thresholds identified in Table 3 and Table 4 represent the most recent guidance provided by BAAQMD. Though not necessarily a CEQA issue, the effect of existing TAC sources on future sensitive receptors (e.g., residences) is analyzed to comply with BAAQMD's Clean Air Plan key goal of reducing population TAC exposure and protecting public health in the Bay Area.

Table 3. BAAQMD Recommended Plan-Level Air Quality Significance Thresholds

Pollutant/Contaminant	Construction	Operational
Criteria Air Pollutants and Precursors	None	1. Consistency with Current Air Quality Plan control measures 2. Projected VMT or vehicle trip increase is less than or equal to projected population increase
Risks and Hazards	None	1. Overlay zones around existing and planned sources of TACs (including adopted Risk Reduction Plan areas) 2. Overlay zones of at least 500 feet from all freeways and high-volume roadways For this analysis – overlay zones are based on potential for sources to result in the following impacts: - Excess cancer risk >10.0 chances per million - Annual PM_{2.5} Concentration > 0.3 µg/m³ - Hazard Index >1.0
Odors	None	Identify the location, and include policies to reduce the impacts, of existing or planned sources of odors

Table 4. BAAQMD Recommended Project-Level Air Quality Significance Thresholds

Criteria Air Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (lbs./day)	Average Daily Emissions (lbs./day)	Annual Average Emissions (tons/year)
ROG	54	54	10
NO _x	54	54	10
PM ₁₀	82 (Exhaust)	82	15
PM _{2.5}	54 (Exhaust)	54	10
CO	Not Applicable	9.0 ppm (8-hour average) or 20.0 ppm (1-hour average)	
Fugitive Dust	Construction Dust Ordinance or other Best Management Practices	Not Applicable	
Health Risks and Hazards	Single Sources Within 1,000-foot Zone of Influence	Combined Sources (Cumulative from all Sources within 1,000-foot zone of influence)	
Excess Cancer Risk	10 per one million	100 per one million	
Hazard Index	1.0	10.0	
Incremental annual PM _{2.5}	0.3 µg/m ³	0.8 µg/m ³	
Odors	Complaints		
Detection	5 confirmed complaints per year averaged over three years		
Note: ROG = reactive organic gases, NO _x = nitrogen oxides, PM ₁₀ = course particulate matter or particulates with an aerodynamic diameter of 10 micrometers (µm) or less, PM _{2.5} = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less.			
*BAAQMD does not have a recommended post-2020 GHG threshold.			

Source: Bay Area Air Quality Management District, 2017

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

BAAQMD is the regional agency responsible for overseeing compliance with State and federal laws, regulations, and programs within the SFBAAB. BAAQMD, with assistance from ABAG and Metropolitan Transportation Commission (MTC), has prepared and implements specific plans to meet the applicable laws, regulations, and programs. The most recent and comprehensive of which is the *Bay Area 2017 Clean Air Plan*.¹¹ The BAAQMD has also developed CEQA guidelines to assist lead agencies in evaluating the significance of air quality impacts. In formulating compliance strategies, BAAQMD relies on planned land uses established by local general plans. Land use planning affects vehicle travel, which in turn affects region-wide emissions of air pollutants and GHGs.

Consistency of the General Plan with Clean Air Plan control measures is demonstrated by assessing whether the proposed Plan implements the applicable Clean Air Plan control measures. The 2017 Clean Air Plan includes control measures that are intended to reduce air pollutant emissions in the Bay Area either directly or indirectly. The control measures are divided into five categories that include:

- 40 measures to reduce stationary and area sources;
- 8 mobile source measures;
- 23 transportation control measures (including land use strategies);
- 4 building sector measures;
- 2 energy sector measures;
- 4 agriculture sector measures;
- 3 natural and working lands measures;
- 4 waste sector measures;
- 2 water sector measures; and
- 3 super-GHG pollutants measures.

In developing the control strategy, BAAQMD identified the full range of tools and resources available, both regulatory and non-regulatory, to develop each measure. Implementation of each control measure will rely on some combination of the following:

- Adoption and enforcement of rules to reduce emissions from stationary sources, area sources, and indirect sources.
- Revisions to the BAAQMD's permitting requirements for stationary sources.
- Enforcement of CARB rules to reduce emissions from heavy-duty diesel engines.
- Allocation of grants and other funding by the Air District and/or partner agencies.
- Promotion of best policies and practices that can be implemented by local agencies through guidance documents, model ordinances, and other measures.
- Partnerships with local governments, other public agencies, the business community, non-profits, and other groups.
- Public outreach and education.

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

- Enhanced air quality monitoring.
- Development of land use guidance and CEQA guidelines, and Air District review and comment on Bay Area projects pursuant to CEQA.
- Leadership and advocacy.

This approach relies upon lead agencies to assist in implementing some of the control measures. A key tool for local agency implementation is the development of land use policies and implementing measures that address new development or redevelopment in local communities. To address this impact, the General Plan's effect on implementing the Clean Air Plan is evaluated based on consistency with Clean Air Planning projections (i.e., rate of increase in population versus vehicle travel).

Consistency with Clean Air Plan Projections

The BAAQMD, with assistance from ABAG and MTC, has prepared and implemented the Clean Air Plan to meet the applicable laws, regulations, and programs. The primary goals of the Clean Air Plan are to attain air quality standards, reduce population exposure and protect public health, and reduce GHG emissions and protect the climate. The BAAQMD has also developed CEQA guidelines to assist lead agencies in evaluating the significance of air quality impacts. In formulating compliance strategies, BAAQMD relies on planned land uses established by local general plans. Land use planning affects vehicle travel, which in turn affects region-wide emissions of air pollutants and GHG.

Table 5 provides population and traffic conditions for existing and future build out conditions with the Housing Element Update developed. The City's 2023-2031 RHNA allocation of 3,165 housing units and the required 15 percent buffer (475 housing units) results in a maximum build out target of 3,640 housing units. The Housing Element Update identified 23 housing opportunity sites that could be developed with up to 2,708 residences. This could increase population by 7,150 people or 16.8 percent over existing conditions. Daily vehicle miles traveled (VMT) for this build out in housing were provided by the project traffic consultant. Using "Existing" as a baseline condition (estimated at 516,991 miles), VMT attributable to the Project is anticipated to increase 16.1 percent at build-out with the Housing Element Update (600,421 miles). The VMT per population is anticipated to decrease from 12.12 miles to 12.05 miles with the Project, since there would be more housing. In summary, the Project increases population and traffic. The rate of increase in traffic, measured as the rate of trips or VMT, would be less than increase in population.

Table 5. San Bruno Traffic and Population Projections

Scenario	Population	Daily Trips	Daily VMT	VMT per Population
Existing Conditions (2022)	42,656	--	516,991	12.12
Year 2031 Existing + Housing Element Update – 2,708 units	49,806	--	600,421	12.05
<i>Change 2031 Project - Exist</i>	7,150 (16.8%)	+14,451	+83,430 (16.1%)	

Source: Project Description and Hexagon Transportation Consultants, July 18, 2022.

Note: Since this analysis, the HEU includes slightly adjusted housing inventory of 138 single family homes, 835 low-rise apartments, and 1,735 mid-rise apartments that result in slightly higher travel.

Consistency with Clean Air Plan Control Measures

The BAAQMD CEQA Air Quality Guidelines set forth criteria for determining consistency with the Clean Air Plan control measures. In general, a plan is considered consistent if a) the plan supports the primary goals of the Clean Air Plan; b) includes control measures; and c) does not interfere with implementation of the Clean Air Plan measures. Growth under the Project is a considered a sustainable development since it is an infill development that would be transit-oriented and located near a mix of uses that include employment and services. As a result, these types of communities reduce the rate of per capita VMT, as reflected in the projections presented in Table 5. As sustainable housing development occurs in San Bruno under the Project and the General Plan would generally be consistent with Clean Air Plan measures intended to reduce automobile and energy use, which are discussed below. Table 6 lists those Clean Air Plan policies relevant to the Project and indicates consistency with the policies.

Table 6. BAAQMD Control Strategy Measures from the Clean Air Plan

Applicable BAAQMD Control Strategy Measures	Consistency
Transportation Control Measures	
TR1: Clean Air Teleworking Initiative	Consistent Supported by General Plan Transportation Element policies T-1, T-3, T-4, and T-5
TR2: Trip Reduction Programs	Consistent Supported by General Plan Transportation Element policies T-1, T-3, T-4, T-5, T-20, T-57, and T-69
TR 5: Transit Efficiency and Use	Consistent While this is mostly a regionally implemented control measure, it is supported by General Plan Transportation Element policies T-1, T-4, T-50, T-53, T-57, T-59, T-62, T-64, and T-81
TR7: Safe Routes to Schools and Safe Routes to Transit	Consistent Supported by General Plan Transportation Element policies T-48, T-57, T-64, T-66, T-69, T-78, and T-79
TR8: Ridesharing, Last-Mile Connection	Consistent While this measure mostly applies to non-residential uses it is supported by General Plan Transportation Element policies T-1, T-4, T-5, T-20, T-50, T-57, T-62, and T-64
TR9: Bicycle and Pedestrian Access and Facilities	Consistent Supported by General Plan Transportation Element policies T-3, T-69, T-71, T-72, T-73, T-77, T-78, and T-80

Applicable BAAQMD Control Strategy Measures	Consistency
TR10: Land Use Strategies	Consistent Supported by General Plan Land Use & Urban Design Element policies LUD-17, LUD-23 and LUD-26 along with Transportation Element policy T-83
TR13: Parking Policies	Consistent Supported by General Plan Land Use & Urban Design Element policies LUD-8 and LUD-19, along with Transportation Element policies T-23, T-34, T-38, and T-40
Building Control Measures	
BL1: Green Buildings	Consistent New construction allowed under the Project would meet the latest CalGreen Title 24 standards as well as City requirements. Supported by Public Facilities and Services Element policies PFS-62, PFS-63, and PFS 64
BL2: Decarbonize Buildings	Consistent New construction allowed under the Project would meet the latest CalGreen Title 24 standards as well as City requirements. Supported by Public Facilities and Services Element policies PFS-67 PFS-68, and PFS-69
BL4: Urban Heat Island Mitigation	Consistent Supported by General Plan Public Facilities and Services Element policy PFS-65 and PFS-66
Natural and Working Lands Control Measures	
NW2: Urban Tree Planting	Consistent Supported by General Plan Public Facilities and Services Element policy PFS-66 and PFS-68
Waste Management Control Measures	
WA4: Recycling and Waste Reduction	Consistent Supported by General Plan Public Facilities and Services Element policies PFS-22, PFS-23, and PFS-25
Water Control Measures	
WR2: Support Water Conservation	Consistent Supported by General Plan Environmental Resources and Conservation Element policies ERC-23 and ERC-24 along with Public Facilities and Services Element policies PFS-12, PFS-13, PFS-14, and PFS-18

As indicated in Table 6, the City's General Plan includes implementing policies and measures that are generally consistent with the applicable Clean Air Plan control measures. As a result, this impact is less-than-significant.

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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?**

The Bay Area is considered a non-attainment area for ground-level ozone and PM_{2.5} under both the Federal Clean Air Act and the California Clean Air Act. The area is also considered non-attainment for PM₁₀ under the California Clean Air Act, but not the federal act. The area has attained both State and federal ambient air quality standards for carbon monoxide. As part of an effort to attain and maintain ambient air quality standards for ozone and particulate matter (i.e., PM_{2.5} and PM₁₀), the BAAQMD has established thresholds of significance for these air pollutants and their precursors. These thresholds are for ozone precursor pollutants (ROG and NO_x), PM₁₀, and PM_{2.5} and apply to both construction period and operational period impacts for projects. They do not apply to plans, such as the San Bruno 2025 General Plan.

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.

As previously described, the *Transportation Element* and *Environmental Resources and Conservation Element* Chapters of the San Bruno 2025 General Plan includes the following policies related to Air Quality that would serve to minimize impacts:

Policy T-3: Encourage provision of bicycle facilities such as weather protected bicycle parking, direct and safe access for pedestrians and bicyclists to adjacent bicycle routes and transit stations, showers, and lockers for employees at the worksite, secure short-term parking for bicycles, etc.

Policy ERC-25: Maintain and improve air quality by requiring project mitigation, such as Transportation Demand Management (TDM) techniques, where air quality impacts are unavoidable.

Policy ERC-26: Require dust abatement actions for all new construction and redevelopment project.

Policy ERC-28: Incorporate air quality beneficial programs and policies into local planning and development activities, with a particular focus on subdivision, zoning, and site design measures that reduce the number and length of single-occupant automobile trips.

Policy ERC-29: Promote demonstration projects to develop new strategies to reduce motor vehicle emissions. Projects may include low emission vehicle fleets and LEV refueling infrastructure.

Policy ERC-30: Encourage new residential developments to incorporate measures such as shuttle services to major employment centers, commercial areas and transit areas, and provision of adequate transit facilities.

Housing Element Construction Period Emission

Implementation of the Housing Element Update 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 addressed under Impact 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 would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after it dries. The BAAQMD CEQA Air Quality Guidelines consider these impacts to be less-than-significant if best management practices are implemented to reduce these emissions. These practices are applied through the following General Plan policies:

Policy ERC-25: Maintain and improve air quality by requiring project mitigation, such as Transportation Demand Management (TDM) techniques, where air quality impacts are unavoidable.

Policy ERC-26: Require dust abatement actions for all new construction and redevelopment projects.

Policy ERC-33: Require all large construction projects to mitigate diesel exhaust emissions through use of alternate fuels and control devices.

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. Architectural coatings and application of asphalt pavement are dominant sources of ROG emissions. The BAAQMD CEQA Air Quality Guidelines do not identify quantified plan level thresholds for construction emissions. There are project-level thresholds of 54 pounds per average day for NO_x, ROG and PM_{2.5} exhaust and 82 pounds per average day for PM₁₀ exhaust. 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. In addition, NO_x emissions during grading and soil import/export for large projects may

exceed the BAAQMD NO_x emission thresholds for projects. *General Plan Policies ERC-26 and ERC-33* would require applicants of Project's to reduce construction air quality impacts.

Housing Element Operational Period Emissions

Implementation of the Housing Element Update could result in long-term area and mobile source emissions from operation and use of subsequent development. As described above, implementation of the Housing Element Update would contribute to a decrease in the rate of VMT associated with new housing when compared with population growth (see discussion under Impact 1). There are no significance thresholds applicable to emissions associated with plan-level development; however, there are thresholds that apply to individual projects (see Table 4). Operational emissions from all projects built out under the Housing Element Update were computed for informational purposes, as the Project thresholds do not apply to plan level evaluations.

California Emissions Estimator Model (CalEEMod) Modeling Assumptions

Operational air emissions from the project would be generated primarily from autos driven by future residents. Evaporative emissions from architectural coatings and maintenance products (classified as consumer products) are typical emissions from these types of uses. CalEEMod Version 2020.4.0 was used to predict net emissions from operation of the proposed project assuming full buildout in 2031 or later. *Attachment 1* includes the CalEEMod output for project criteria air pollutants.

Land Uses

The Project would increase residential uses only, as non-residential uses are anticipated to decrease slightly. This analysis only evaluated emissions from residential growth due to the Housing Element Update. All future uses are anticipated to be generated by new residential uses, represented by single-family homes and apartments. The land uses and traffic information input to CalEEMod are shown in Table 7. A model run was developed for the full buildout scenario.

Table 7. Potential Build-Out of San Bruno Identified Proposed Land Uses

Proposed Land Uses	Added Households	Added Trips	Daily Trip Rate (per household)	Computed Avg Trip Length
Single Family Housing	6	57	9.43	5.7
Apartments Low-Rise	967	6,518	6.74	5.7
Apartments Mid-Rise	1,735	7,877	4.54	5.7

Source: Hexagon Transportation Consultants, *San Bruno Housing Element Update Trip Gen*, August 5, 2022.

Note: *Since this analysis, the HEU includes slightly adjusted housing inventory of 138 single family homes, 835 low-rise apartments, and 1,735 mid-rise apartments.*

Model Year

Emissions associated with vehicle travel depend on the year of analysis because emission control technology requirements are phased in over time. Therefore, the earlier the year analyzed in the model, the higher the emission rates utilized by CalEEMod. The operational year was assumed 2031.

Traffic Inputs

CalEEMod allows the user to enter specific vehicle trip generation rates, which were input to the model using the daily trip generation rate and travel distance reported in Table 7. Trip generation was calculated by dividing the total daily trips by the number of dwelling units. The trip distances were adjusted to reflect the VMT for each proposed land use. Daily VMT was divided by the daily number of trips to compute VMT/trip. Land use type and size, trip generation, and daily vehicle miles traveled were reported in Table 7. These are assumed to reflect weekday conditions and adjustments were made for Saturday and Sunday based on CalEEMod default rates.

Energy

Default energy usage assumptions included in CalEEMod were applied to this modeling.

Electricity Generation

Emissions rates associated with electricity consumption were applied to the project, using default usage rates assumed in CalEEMod for Peninsula Clean Energy (PCE). Currently, PCE delivers electricity with a CO₂ intensity rate of 0 lbs/MWhr and is reflected by the CalEEMod default CO₂ intensity factor of 0 pounds of CO₂ per megawatt.

Other Inputs

Default model assumptions for emissions associated with solid waste generation and water/wastewater use were applied to the project. No woodburning emissions from hearths was assumed for new housing constructed as wood fireplaces are prohibited in the Bay Area.¹²

Summary of Operational Period Emissions

Table 8 reports the predicted emissions complete build out of the proposed full buildout. Emissions are reported for annual conditions in tons and average daily operational emissions, assuming 365 days of operation per year. BAAQMD project-level thresholds, which do not apply to total emissions from build out of the complete the Housing Element Update, are also included in Table 8. When looking at the build out of the Housing Element Update as a project, emissions of ROG would exceed annual and average daily thresholds. ROG is a precursor pollutant to the formation of ozone. Ozone is a criteria air pollutant that is not directly emitted by air pollution sources. Any project that builds out over 1,000 units has the potential to exceed the ROG thresholds. The

significance of Plan impacts is judged by the rate of increase in traffic (e.g., VMT) compared to population. This was found to be a less than significant impact. The operational emissions provided in Table 8 are for informational purposes only to provide guidance for the City in determining the level of air quality analysis required for housing projects proposed that are consistent with the Housing Element Update.

Table 8. San Bruno Housing Element Update Operational Period Emissions

Scenario	ROG	NO _x	PM ₁₀	PM _{2.5}
Annual Emissions in tons per year				
	17.52tons	5.31tons	9.89tons	2.85tons
BAAQMD Project Thresholds (tons per year)	<i>10 tons</i>	<i>10 tons</i>	<i>15 tons</i>	<i>10 tons</i>
Average Daily Emissions				
	96 lbs/day	29 lbs/day	54 lbs/day	16 lbs/day
BAAQMD Thresholds (pounds per day)	<i>54 lbs./day</i>	<i>54 lbs./day</i>	<i>82 lbs./day</i>	<i>54 lbs./day</i>
¹ Assumes 365-day operation. Bold indicates emissions above threshold Note: <i>Since this analysis, the HEU includes slightly adjusted housing inventory of 138 single family homes, 835 low-rise apartments, and 1,735 mid-rise apartments that result in slightly higher emissions.</i>				

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

In December 2015, the Supreme Court determined that an analysis of the impacts of the environment on a project – known as “CEQA-in-reverse” – is only required under two limited circumstances: (1) when a statute provides an express legislative directive to consider such impacts; and (2) when a proposed project risks exacerbating environmental hazards or conditions that already exist (Cal. Supreme Court Case No. S213478). However, the Clean Air Plan contains the following goal: “reduce population exposure and protecting public health in the Bay Area.” Therefore, the potential community risk impact to future on-site receptors is addressed here.

To address exposure of sensitive receptors to substantial pollutant levels, the BAAQMD CEQA Guidelines developed thresholds that address community health risk. These include increased cancer risk, non-cancer hazards, and increased annual concentrations of PM_{2.5}. Sources of TACs and PM_{2.5} led to increased community risk levels. Diesel particulate matter (DPM) is the predominant TAC in the area.

As previously described, the *Environmental Resources and Conservation Element* Chapter of the San Bruno 2025 General Plan includes the following policies related to Air Quality that would serve to minimize health risk impacts:

Policy ERC-32: Coordinate air quality planning efforts with local, regional, and State agencies. Support the Bay Area Air Quality Management District’s efforts to monitor and control air pollutants from stationary sources

Policy ERC-33: Require all large construction projects to mitigate diesel exhaust emissions through use of alternate fuels and control devices.

Policy ERC-34: Require that adequate buffer distances be provided between odor sources and sensitive receptors, such as schools, hospitals, and community centers.

The proposed Housing Element Update would not result in a direct increase in pollutants or TACs due to redevelopment within the key site locations planned for housing. Single- and multi-family residential uses are not stationary sources of TACs, and do not involve the continued use of diesel-powered trucks that generate mobile TAC emissions. Implementation of the Project is not expected to introduce any new substantial sources of TACs with the potential to impact sensitive receptors and, therefore, this impact would be less than significant.

TAC Effects on Housing Element Sensitive Receptors

The BAAQMD CEQA Guidelines recommend that General Plans identify overlay zones around existing and planned sources of TACs (including adopted Risk Reduction Plan areas) and develop risk reduction measures to avoid exposures. The Housing Element Update may lead to the introduction of new sensitive receptors, in the form of residents, that may be exposed to substantial levels of air pollutants or TACs. Substantial sources of air pollution can adversely affect sensitive receptors proposed as part of new projects. BAAQMD recommends using a 1,000-foot screening radius around a project site for purposes of identifying community health risk from siting a new sensitive receptor or a new source of TACs. Nearby stationary sources of TACs (e.g., emergency back-up generators and gas stations) and traffic on local roadways could affect the proposed residences. Busy nearby roadways with average daily traffic (ADT) of over 10,000 vehicles include Interstate 280, Interstate 380, El Camino Real, Sneath Lane, San Bruno Avenue, and Caltrain. There are some stationary sources identified within the 1,000-foot influence area using the BAAQMD's stationary source website map and GIS map tool.¹³ Emissions from most of these sources do not cause substantial risk beyond their facility boundaries. Figure 3 shows the General Plan area, the 1,000-foot influence area, significance areas from roadways, and the nearby stationary sources. Screening risk levels are shown in Table 7 for sources that present potential health risk issues. Details of the screening and community risk calculations are included in *Attachment 2*.

Mitigation Measure AQ-1: Require Future Residential Projects Affected by TAC sources to Perform a Health Risk Assessment.

Applicants proposing development of projects that are potentially affected by existing TAC sources (see Table 7 and Figure 3) shall prepare a site-specific health risk assessment (HRA). If the HRA demonstrates, to the satisfaction of the City, that the health risk exposures for sensitive receptors will be less than BAAQMD project-level thresholds, then additional mitigation would be unnecessary. However, if the HRA demonstrates that health risks would exceed BAAQMD project level thresholds, additional feasible on- and off-site mitigation shall be analyzed by the

¹³ BAAQMD, Website:
<https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=2387ae674013413f987b1071715daa65>

applicant to help reduce risks to the greatest extent practicable. Such measures to be evaluated may include enhanced ventilation systems with filtration capable of reducing TAC exposure such that health risks are reduced to acceptable levels.

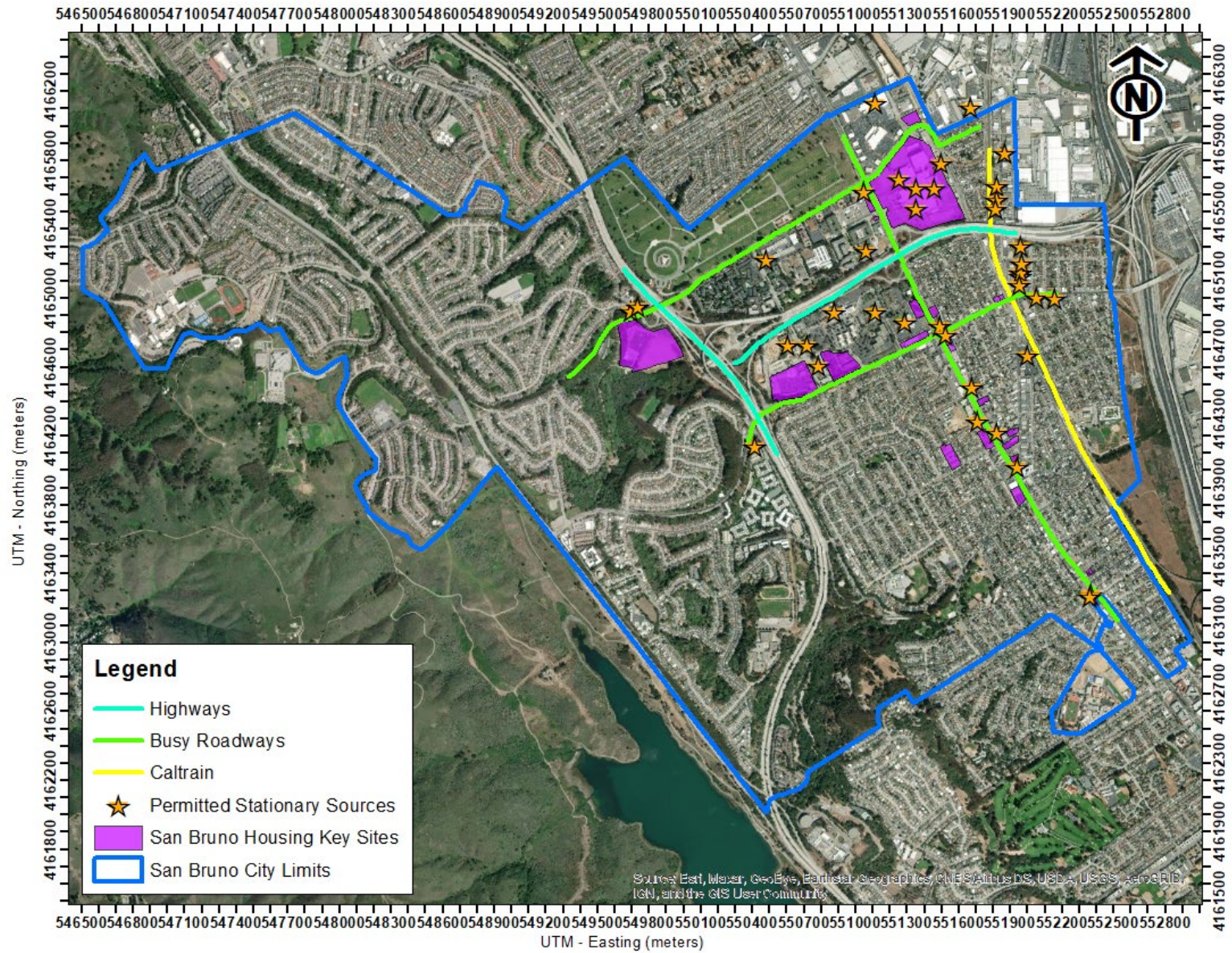
Table 7. Screening Distances from Existing Air Pollutant and TAC Sources

Source Description	Distance to Screening Threshold ¹			Source of Reference Level	Key Sites Potentially Affected
	Cancer Risk	Hazard Index	Annual PM _{2.5}		
Roadway: Interstate 280	300 ft west 1,000 ft east	-- ² -- ²	300 ft west 1,200 ft east	BAAQMD Raster Database	3, 6
Roadway: Interstate 380	500 ft north 1,400 ft south	-- ² -- ²	400 ft north 1,000 ft south	BAAQMD Raster Database	3, 6, 13, 14, 18, 19, 20
Roadway: El Camino Real	300 ft	-- ²	300 ft	Estimate based on 45,000 ADT	1, 2, 4, 5, 7, 9, 10, 11, 12, 14, 16, 17, 18, 19, 20, 22, 23
Roadway: Sneath Lane	100 ft	-- ²	100 ft	Estimate based on 25,000 ADT	6, 14, 19
Roadway: San Bruno Ave	150 ft	-- ²	150 ft	Estimate based on 30,000 ADT	1, 3, 12, 13, 15, 21
Caltrain	500 ft west 3,600ft east	-- ²	-- ²	BAAQMD Raster Database	14, 15, 21
Stationary: #7371 La Loma Auto Body Shop – Auto Body	0	-- ²	0	BAAQMD Generic Distance Multiplier Tool (e.g., Auto Body Facilities)	--
Stationary: #10764 National Color Auto Paint Inc – Auto Body	0	-- ²	0		-
Stationary: #14507 Five Star Auto Body – Auto Body	0	-- ²	0		--
Stationary: #20470 A & Z Auto Body Shop Inc – Auto Body	0	-- ²	0		--
Stationary: #20725 C & C Automotive Refinishing – Auto Body	0	-- ²	0		--
Stationary: #18756 M C Auto Body – Auto Body	0	-- ²	0		-
Stationary: #18968 Technics Auto Body & Detailing – Auto Body	0	-- ²	0		--
Stationary: #17309 A & W Auto Body – Auto Body	0	-- ²	0		--
Stationary: #21931 Ungo Ultimate Finishes, Inc – Wood Manufacturing	0	-- ²	0		-
Stationary: #3478 G & M Auto Body – Auto Body	0	-- ²	0		--
Stationary: #15582 S F Bay Area Rapid Transit District – Generators	-- ²	-- ²	-- ²		--

Stationary: #15880 Target Corporation- Store T-1054 – Generators	-- ²	-- ²	-- ²	BAAQMD IC Engine Distance Multiplier Tool (e.g., Diesel Generators)	--
Stationary: # 13202 Lowe's HTW, Inc /Corporate Payables – Generators	-- ²	-- ²	-- ²		--
Stationary: #4756 Artichoke Joe's Casino – Generators	350 ft	-- ²	-- ²		--
Stationary: #19262 DaVita – Generators	-- ²	-- ²	-- ²		--
Stationary: #19271 Vince's Shellfish Co Inc – Generators	-- ²	-- ²	-- ²		--
Stationary: #19340 YouTube – Generators	-- ²	-- ²	-- ²		-
Stationary: #16395 JC Penny Company Store #J1959-6 – Generators	-- ²	-- ²	-- ²		--
Stationary: #16807 Sears, #1478 – Generators	-- ²	-- ²	-- ²		--
Stationary: #18040 The Shops at Tanforan– Generators	100 ft	-- ²	-- ²		14
Stationary: #18234 Avalon San Bruno – Generators	-- ²	-- ²	-- ²		-
Stationary: #22875 Walmart eCommerce, Building #4398 – Generators	-- ²	-- ²	-- ²		--
Stationary: #23515 Google LLC – Generators	-- ²	-- ²	-- ²		--
Stationary: #200385 SF Police Credit Union– Generators	130 ft	-- ²	-- ²		3, 13
Stationary: #23970 Google Inc – Generators	-- ²	-- ²	-- ²		--
Stationary: #22106 Verizon Wireless - San Mateo and Mills– Generators	0	0	-- ²		--
Stationary: #22479 Walmart.com Headquarters #8771– Generators	-- ²	-- ²	-- ²		--
Stationary: #100273 San Bruno Fire Station– GDF	-- ²	-- ²	0		--

Stationary: #103134 San Bruno Kwik Serv – GDF	230 ft	-- ²	0		3
Stationary: #109025 Tanforan Shell– GDF	140 ft	-- ²	0		14, 18, 19
Stationary: #109421 San Bruno Chevron – GDF	-- ²	-- ²	0	BAAQMD Gas Dispensing Facility (GDF) Distance Multiplier Tool	--
Stationary: #112607 Double AA El Camino – GDF	230 ft	-- ²	0		--
Stationary: #110666 ARCO Facility #00743 – GDF	125 ft	-- ²	0		10, 16
Stationary: #110761 Rollingwood Chevron – GDF	175 ft	-- ²	0		6
Stationary: #111596 Unocal #0109 – GDF	160 ft	-- ²	0		2, 5, 23
Stationary: #111846 San Bruno Valero – GDF	-- ²	-- ²	0		--
Stationary: #112375Rollingwood 76 - Sahbhagi Corp – GDF	100 ft	-- ²	0		6
Stationary: #112418 San Bruno Shell – GDF	190 ft	-- ²	0		1, 12
Stationary: #20271 Atlantic Richfield Company c/o Antea Group– GDF	-- ²	-- ²	0		--
¹ Using BAAQMD Screening tools and BAAQMD Permitted Facilities 2018 database. ² Extent of risk within facility boundaries.					

Figure 3. San Bruno Housing Element with Identified Key Sites, Busy Roadways, Caltrain, and Stationary Sources



Construction TAC Exposure

Subsequent land use activities associated with implementation of the Project could include short-term construction sources of TACs. There are sensitive receptors throughout San Bruno and there will be future residents in the San Bruno 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 community risks for sensitive receptors such as nearby residents. The primary community risk impact issues associated with construction emissions are cancer risk and exposure to PM_{2.5}. Diesel exhaust poses both a potential health and nuisance impact to nearby receptors. A community risk assessment of the project construction activities would have to be conducted at a project level to address 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. There are various measures that can be incorporated into construction plans that could minimize these potential impacts. Health risks to nearby off-site and future on-site sensitive receptors associated with temporary construction near Housing Element Update sites is considered *potentially significant*. San Bruno 2025 General Plan *Policies ERC-25, ERC-26, and ERC-33* requires construction projects to reduce their impacts for dust, diesel exhaust, and air quality impacts.

Mitigation Measure AQ-1: Require Future Construction Projects Located within 1,000 Feet of Sensitive Receptors to Perform a Health Risk Assessment.

Applicants proposing development of projects within 1,000 feet of existing sensitive receptors as defined by the BAAQMD (e.g., residential, daycares) shall prepare a site-specific construction and operational health risk assessment (HRA). If the HRA demonstrates, to the satisfaction of the City, that the health risk exposures for adjacent receptors will be less than BAAQMD project-level thresholds, then additional mitigation would be unnecessary. However, if the HRA demonstrates that health risks would exceed BAAQMD project level thresholds, additional feasible on- and off-site mitigation shall be analyzed to further reduce risks to the greatest extent practicable.

Measures to avoid significant construction health risks impacts that could be included in projects, depending on the results of an HRA could include the following:

1. Use Tier 4 engines for all off-road equipment greater than 50 horsepower (hp) and operating for more than 20 total hours over the entire duration of construction activities.
2. Use diesel trucks with 2010 or later compliant model year engines during construction.
3. Use renewable diesel during construction.
4. Use low-VOC coatings during construction.
5. Implement fugitive dust best management practices and if necessary, enhanced measures recommended by BAAQMD.

6. Use portable electrical equipment where commercially available and practicable to complete construction. Construction contractors shall utilize electrical grid power instead of diesel generators when (1) grid power is available at the construction site; (2) when construction of temporary power lines are not necessary in order to provide power to portions of the site distant from existing utility lines; (3) when use of portable extension lines is practicable given construction safety and operational limitations; and (4) when use of electrical grid power does not compromise construction schedules.

Project Operation TAC Exposure

Development under the Project would be residential that is not considered a source of TACs or PM_{2.5} emissions. Traffic would be generated by new housing. Diesel powered vehicles are the primary concern with local traffic-generated TAC impacts. Per BAAQMD recommended risks and methodology, a single road with less than 10,000 total vehicle per day is considered a low-impact source of TACs.¹⁴ The addition of the new housing under the HEU would add about 14,451 new daily trips dispersed on the City's roadway system with a majority of the trips being from light-duty vehicles (i.e., passenger automobiles). No single roadway is likely to experience an increase in traffic that approaches the 10,000-daily vehicles guidance. The types of projects with the potential to cause or contribute to increased cancer risk from traffic include those that have attract high numbers of diesel-powered on road trucks or use off-road diesel equipment on site, such as a warehouse distribution center, a quarry, or a manufacturing facility, may potentially expose existing or future planned receptors to substantial cancer risk levels and/or health hazards. This is not a project of concern for non-BAAQMD permitted mobile sources. Therefore, emissions from project traffic are considered negligible and not included within this analysis.

Some stationary sources could be installed as part of these projects that may include diesel generator that would require permitting by BAAQMD. These types of sources of air pollution that operate within accordance of BAAQMD rules and regulations would not cause significant exposure for on- or off-site sensitive receptors.

To protect new sensitive receptors from exposure to existing or new TAC sources, San Bruno 2025 General Plan *Policy ERC-34* requires all large construction projects to mitigate diesel exhaust emissions by using control devices and alternative fuels.

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

Residential development is not a typical source 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.

¹⁴ BAAQMD, 2012, *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0*. May. Web: <https://www.baaqmd.gov/~media/files/planning-and-research/ceqa/risk-modeling-approach-may-2012.pdf?la=en>

BAAQMD publishes screening buffer distances for odor sources and sensitive receptors in their CEQA Air Quality Guidelines. There are no identified major sources of odors in San Bruno that are near the Key Sites identified for housing. Uses in the plan area may include restaurants or auto repair shops that could have localized odors but are not likely to result in frequent odor complaints.

As previously described, the *Environmental Resources and Conservation Element* Chapter of the San Bruno 2025 General Plan includes the following policy related to Odor that would serve to minimize impacts:

Policy ERC-34: Require that adequate buffer distances be provided between odor sources and sensitive receptors, such as schools, hospitals, and community centers.

Greenhouse Gas Regulatory Framework

This section summarizes key federal, State, and City statutes, regulations, and policies that would apply to the General Plan. Global climate change resulting from GHG emissions is an emerging environmental concern being raised and discussed at the international, national, statewide, and local levels. At each level, agencies are considering strategies to control emissions of gases that contribute to global climate change.

Global temperatures are affected by naturally occurring and anthropogenic-generated (generated by humankind) atmospheric gases, such as water vapor, carbon dioxide, methane, and nitrous oxide. Gases that trap heat in the atmosphere are called greenhouse gases. Solar radiation enters the earth's atmosphere from space, and a portion of the radiation is absorbed at the surface. The earth emits this radiation back toward space as infrared radiation. Greenhouse gases, which are mostly transparent to incoming solar radiation, are effective in absorbing infrared radiation and redirecting some of this back to the earth's surface. As a result, this radiation that otherwise would have escaped back into space is now retained, resulting in a warming of the atmosphere. This is known as the greenhouse effect.

The greenhouse effect helps maintain a habitable climate. Emissions of GHGs from human activities, such as electricity production, motor vehicle use, and agriculture, are elevating the concentration of GHGs in the atmosphere, and are reported to have led to a trend of unnatural warming of the earth's natural climate, known as global warming or global climate change. The term "global climate change" is often used interchangeably with the term "global warming," but "global climate change" is preferred because it implies that there are other consequences to the global climate in addition to rising temperatures. Other than water vapor, the primary GHGs contributing to global climate change include the following gases:

- Carbon dioxide (CO₂), primarily a byproduct of fuel combustion;
- Nitrous oxide (N₂O), a byproduct of fuel combustion; also associated with agricultural operations such as the fertilization of crops;
- Methane (CH₄), commonly created by off-gassing from agricultural practices (e.g., livestock), wastewater treatment and landfill operations;
- Chlorofluorocarbons (CFCs) were used as refrigerants, propellants, and cleaning solvents, but their production has been mostly prohibited by international treaty;
- Hydrofluorocarbons (HFCs) are now widely used as a substitute for chlorofluorocarbons in refrigeration and cooling; and
- Perfluorocarbons (PFCs) and sulfur hexafluoride (SF₆) emissions are commonly created by industries such as aluminum production and semiconductor manufacturing.

These gases vary considerably in terms of Global Warming Potential (GWP), a term developed to compare the propensity of each GHG to trap heat in the atmosphere relative to another GHG. GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and the length of time of gas remains in the atmosphere. The GWP of each GHG is measured relative to CO₂. Accordingly, GHG emissions are typically measured and reported in terms of equivalent CO₂ (CO₂e). For instance, SF₆ is 22,800 times more intense in terms of global climate change contribution than CO₂.

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

Federal and Statewide GHG Emissions

The U.S. EPA reported that in 2018, total gross nationwide GHG emissions were 6,676.6 million metric tons (MMT) carbon dioxide equivalent (CO₂e).¹⁵ These emissions were lower than peak levels of 7,416 MMT that were emitted in 2007. CARB updates the statewide GHG emission inventory on an annual basis where the latest inventory includes 2000 through 2017 emissions.¹⁶ In 2017, GHG emissions from statewide emitting activities were 424 MMT. The 2017 emissions have decreased by 14 percent since peak levels in 2004 and are 7 MMT below the 1990 emissions level and the State's 2020 GHG limit. Per capita GHG emissions in California have dropped from a 2001 peak of 14.1 MT per person to 10.7 MT per person in 2017. The most recent Bay Area emission inventory was computed for the year 2011.¹⁷ The Bay Area GHG emission were 87 MMT. As a point of comparison, statewide emissions were about 444 MMT in 2011.

Federal Regulations

The United States participates in the United Nations Framework Convention on Climate Change (UNFCCC). While the United States signed the Kyoto Protocol, which would have required reductions in GHGs, Congress never ratified the protocol. The federal government chose voluntary and incentive-based programs to reduce emissions and has established programs to promote climate technology and science. Currently, there are no federal regulations or policies pertaining to GHG emissions from proposed projects or plans.

State Regulations

The State of California is concerned about GHG emissions and their effect on global climate change. The State recognizes that “there appears to be a close relationship between the concentration of GHGs in the atmosphere and global temperatures” and that “the evidence for

¹⁵ United States Environmental Protection Agency, 2020. *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2018*. April. Web: <https://www.epa.gov/sites/production/files/2020-04/documents/us-ghg-inventory-2020-main-text.pdf>

¹⁶ CARB. 2019. *2019 Edition, California Greenhouse Gas Emission Inventory: 2000 – 2017*. Web: https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2017/ghg_inventory_trends_00-17.pdf

¹⁷ BAAQMD. 2015. *Bay Area Emissions Inventory Summary Report: Greenhouse Gases Base Year 2011*. January. Web: http://www.baaqmd.gov/~media/files/planning-and-research/emission-inventory/by2011_ghgsummary.pdf accessed Nov. 26, 2019.

climate change is overwhelming.” The effects of climate change on California, in terms of how it would affect the ecosystem and economy, remain uncertain. The State has many areas of concern regarding climate change with respect to global warming. According to the 2006 Climate Action Team Report, the following climate change effects and conditions can be expected in California over the course of the next century:

- A diminishing Sierra snowpack declining by 70 percent to 90 percent, effecting the state’s water supply;
- Increasing temperatures from 8 to 10.4 degrees Fahrenheit (°F) under the higher emission scenarios, leading to a 25 to 35 percent increase in the number of days ozone pollution standards are exceeded in most urban areas;
- Coastal erosion along the length of California and seawater intrusion into the Sacramento River Delta from a 4- to 33-inch rise in sea level. This would exacerbate flooding in already vulnerable regions;
- Increased vulnerability of forests due to pest infestation and increased temperatures;
- Increased challenges for the state’s important agricultural industry from water shortages, increasing temperatures, and saltwater intrusion into the Delta; and
- Increased electricity demand, particularly in the hot summer months.

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

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

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

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

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

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

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

In April 2015, Governor Brown signed EO B-30-15, which extended the goals of AB 32, setting a greenhouse gas emissions target at 40 percent of 1990 levels by 2030. On September 8, 2016, Governor Brown signed Senate Bill (SB) 32, which legislatively established the GHG reduction target of 40 percent of 1990 levels by 2030. In November 2017, CARB issued *California's 2017 Climate Change Scoping Plan*.¹⁸ While the State is on track to exceed the AB 32 scoping plan 2020 targets, this plan is an update to reflect the enacted SB 32 reduction target.

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

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

The draft Scoping Plan Update was published on May 10, 2022 and, once final, will lay out how the state can get to carbon neutrality by 2045 or earlier. It is also the first Scoping Plan that adds

¹⁸ California Air Resource Board, 2017. *California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Targets*. November. Web: https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping_plan_2017.pdf

carbon neutrality as a science-based guide and touchstone beyond statutorily established emission reduction targets.¹⁹

The mid-term 2030 target is considered critical by CARB on the path to obtaining an even deeper GHG emissions target of 80 percent below 1990 levels by 2050, as directed in Executive Order S-3-05. The 2022 Draft Scoping Plan outlines the suite of policy measures, regulations, planning efforts, and investments in clean technologies and infrastructure, providing a blueprint to continue driving down GHG emissions and to not only obtain the statewide goals, but cost-effectively achieve carbon-neutrality by 2045 or earlier. In the draft 2022 Scoping Plan, CARB recommends:

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

Executive Order B-55-18 – Carbon Neutrality

In 2018, a new statewide goal was established to achieve carbon neutrality as soon as possible, but no later than 2045, and to maintain net negative emissions thereafter. CARB and other relevant state agencies are tasked with establishing sequestration targets and create policies/programs that would meet this goal. The Draft 2022 Scoping Plan Update addresses EO B-55-18 and would cost-effectively achieve carbon-neutrality by 2045 or earlier.

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

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

¹⁹ <https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents>

Transportation Commission [MTC]) to align their regional transportation, housing, and land use plans to reduce vehicle miles traveled and demonstrate the region's ability to attain its GHG reduction targets. A similar process is used to reduce transportation emissions of ozone precursor pollutants in the Bay Area.

Senate Bill 350 - Renewable Portfolio Standards

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

Senate Bill 100 – Current Renewable Portfolio Standards

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

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

The California Green Building Standards Code (CALGreen Code) is part of the California Building Standards Code under Title 24, Part 11.²⁰ The CALGreen Code encourages sustainable construction standards that involve planning/design, energy efficiency, water efficiency resource efficiency, and environmental quality. These green building standard codes are mandatory statewide and are applicable to residential and non-residential developments. The most recent CALGreen Code (2019 California Building Standard Code) was effective as of January 1, 2020.

The California Building Energy Efficiency Standards (California Energy Code) is under Title 24, Part 6 and is overseen by the California Energy Commission (CEC). This code includes design requirements to conserve energy in new residential and non-residential developments, while being cost effective for homeowners. This Energy Code is enforced and verified by cities during the planning and building permit process. The current energy efficiency standards (2019 Energy Code) replaced the 2016 Energy Code as of January 1, 2020. Under the 2019 standards, single-family homes are predicted to be 53 percent more efficient than homes built under the 2016 standard due more stringent energy-efficiency standards and mandatory installation of solar photovoltaic systems. For nonresidential developments, it is predicted that these buildings will use 30 percent less energy due to lighting upgrades.²¹

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

²¹ See: https://www.energy.ca.gov/sites/default/files/2020-03/Title_24_2019_Building_Standards_FAQ_ada.pdf

CEC studies have identified the most aggressive electrification scenario as putting the building sector on track to reach the carbon neutrality goal by 2045.²² Installing new natural gas infrastructure in new buildings will interfere with this goal. To meet the State’s goal, communities have been adopting “Reach” codes that prohibit natural gas connections in new and remodeled buildings.

Requirements for electric vehicle (EV) charging infrastructure are set forth in Title 24 of the California Code of Regulations and are regularly updated on a 3-year cycle. The CALGreen standards consist of a set of mandatory standards required for new development, as well as two more voluntary standards known as Tier 1 and Tier 2. The CalGreen standards have recently been updated (2022 version) to require deployment of additional EV chargers in various building types, including multifamily residential and nonresidential land uses. They include requirements for both EV capable parking spaces and the installation of Level 2 EV supply equipment for multifamily residential and nonresidential buildings. The 2022 CALGreen standards include requirements for both EV readiness and the actual installation of EV chargers. The 2022 CALGreen standards include both mandatory requirements and more aggressive voluntary Tier 1 and Tier 2 provisions. Providing EV charging infrastructure that meets current CALGreen requirements will not be sufficient to power the anticipated more extensive level of EV penetration in the future that is needed to meet SB 30 climate goals.

SB 743 Transportation Impacts

Senate Bill 743 required lead agencies to abandon the old “level of service” metric for evaluating a project’s transportation impacts, which was based solely on the amount of delay experienced by motor vehicles. In response, the Governor’s Office of Planning and Research (OPR) developed a VMT metric that considered other factors such as reducing GHG emissions and developing multimodal transportation²³. A VMT-per-capita metric was adopted into the CEQA Guidelines Section 15064.3 in November 2017. Given current baseline per-capita VMT levels computed by CARB in the 2030 Scoping Plan of 22.24 miles per day for light-duty vehicles and 24.61 miles per day for all vehicle types, the reductions needed to achieve the 2050 climate goal are 16.8 percent for light-duty vehicles and 14.3 percent for all vehicle types combined. *Based on this analysis (as well as other factors), OPR recommended using a 15-percent reduction in per capita VMT as an appropriate threshold of significance for evaluating transportation impacts.*

Climate Change Scoping Plan

The initial Scoping Plan to reduce statewide GHG emissions was developed in 2008 and, per AB 32, must be updated at least once every five years. The 2013 First Update to the Climate Change Scoping Plan (2013 Update) defined CARB’s climate change priorities for the subsequent five years and laid the groundwork to start the transition to the post-2020 goals set forth in Executive Orders S-3-05 and B-16-2012. The 2017 Scoping Plan Update (2017 Update) described the path to achieving the 2030 GHG emissions target codified under SB 32, which is 40 percent below

²² California Energy Commission. 2021. *Final Commission Report: California Building Decarbonization Assessment*. Publication Number CEC-400-2021-006-CMF. August

²³ Governor’s Office of Planning and Research. 2018. *Technical Advisory on Evaluating Transportation Impacts in CEQA*. December.

1990 levels. CARB is now in the process of updating the Scoping Plan to meet the 2022 statutory deadline. The Proposed 2022 Scoping Plan Update assesses progress toward the statutory 2030 target, while laying out a path to achieving carbon neutrality no later than 2045. The Proposed 2022 Scoping Plan Update focuses on outcomes needed to achieve carbon neutrality by assessing paths for clean technology, energy deployment, natural and working lands, and others, and is designed to meet the State's long-term climate objectives and support a range of economic, environmental, energy security, environmental justice, and public health priorities. A draft of this scoping plan was released on May 10, 2022.

Bay Area Air Quality Management District

BAAQMD is the regional government agency that regulates sources of air pollution within the nine San Francisco Bay Area counties. The BAAQMD regulates GHG emissions through the following plans, programs, and guidelines.

Regional Clean Air Plans

BAAQMD and other air districts prepare clean air plans in accordance with the State and Federal Clean Air Acts. The Bay Area 2017 Clean Air Plan (CAP) is a comprehensive plan to improve Bay Area air quality and protect public health through implementation of a control strategy designed to reduce emissions and ambient concentrations of harmful pollutants. The most recent CAP also includes measures designed to reduce GHG emissions.

BAAQMD Climate Protection Program

The BAAQMD established a climate protection program to reduce pollutants that contribute to global climate change and affect air quality in the San Francisco Bay Area Air Basin. The climate protection program includes measures that promote energy efficiency, reduce vehicle miles traveled, and develop alternative sources of energy, all of which assist in reducing emissions of GHG and in reducing air pollutants that affect the health of residents. BAAQMD also seeks to support current climate protection programs in the region and to stimulate additional efforts through public education and outreach, technical assistance to local governments and other interested parties, and promotion of collaborative efforts among stakeholders.

BAAQMD CEQA Air Quality Guidelines

The BAAQMD adopted revised CEQA Air Quality Guidelines on June 2, 2010, and then adopted a modified version of the Guidelines in May 2011. The BAAQMD CEQA Air Quality Guidelines include thresholds of significance for greenhouse gas emissions. Under the latest CEQA Air Quality Guidelines, a local government may prepare a qualified greenhouse gas Reduction Strategy that is consistent with AB 32 goals. If a project is consistent with an adopted qualified greenhouse gas Reduction Strategy, it can be presumed that the project will not have significant GHG emissions under CEQA.²⁴ Alternatively, BAAQMD recommends a GHG threshold of 4.6

²⁴ Bay Area Air Quality Management District, 2017. *CEQA Air Quality Guidelines*. May. See https://www.baaqmd.gov/~media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en

metric tons per capita for projects and 6.6 metric tons per capita for plans that consider all land uses (both ones that will be unchanged and new or modified land uses). These numeric thresholds were developed based on meeting the 2020 GHG targets set in the scoping plan that addressed AB 32. Development of new housing under the Housing Element update would occur beyond 2020, so a threshold that addresses a future target is appropriate. The basis of the BAAQMD thresholds were used to develop plan level thresholds for 2040. Although BAAQMD has not yet published a quantified threshold for 2030 or 2040, this assessment uses a “Substantial Progress” efficiency metric of 4.0 MT CO₂e/year/service population (S.P.) in 2030. This is calculated for 2030 based on the GHG reduction goals of EO B-30-15, taking into account the 1990 inventory and the projected 2030 statewide population and employment levels. An efficiency metric of 2.7 MT CO₂e/year/S.P. was also calculated using the same method but extending the horizon year to 2031 that is consistent with the Housing Element update year. Unfortunately, the tools used to compute GHG emission are constrained to those emissions rates that are occurring or regulated to occur in the future. The currently available models do not reflect the latest scoping plan strategies. For land use projects, these strategies include a phase out of combustion on-road vehicles, increased use of renewable fuels and electricity, and reduced demand for energy from fossil fuels.

BAAQMD CEQA Thresholds

On April 20, 2022, BAAQMD adopted new thresholds for assessing the impacts that projects and plans would have on climate change. BAAQMD provided a justification report that described these new qualitative thresholds that are recommended for lead agencies to consider when approving projects or plans through the CEQA process.²⁵ These thresholds are meant to apply to projects that begin the CEQA review process after adoption of the thresholds.

For land use projects, BAAQMD developed thresholds that evaluate a project based on its effect on the State’s efforts to meet the identified long-term climate goals.

Table 8 reports the threshold for plan-level analyses based on estimated GHG emissions, as well as per capita metrics, developed by BAAQMD.

²⁵ Bay Area Air Quality Management District, 2022. *CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans*. April. See <https://www.baaqmd.gov/~media/files/planning-and-research/ceqa/ceqa-thresholds-2022/justification-report-pdf.pdf?la=en>

Table 8. BAAQMD Recommended Plan-Level Air Quality Significance Thresholds

Pollutant/Contaminant	Construction	Operational
GHGs contained in 2017 CEQA Air Quality Guidelines	None	A. Compliance with Qualified GHG Reduction Strategy OR 6.6 MT CO₂e/SP/year (residents + employees) for Plans and 4.6 MT CO₂e/SP/year for Projects B. For this analysis, a threshold is applied: <i>2.7 metric tons per capita in 2031 that reflects a reduction of 40% below 1990 levels by 2030 and with the same rate of reduction applied to 2031.</i>
GHGs adopted April 2022	None	A. Meet the State's goals to reduce emissions to 40 percent below 1990 levels by 2030 and carbon neutrality by 2045 OR B. Be consistent with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b). C. For Projects: 1. Buildings a. The project will not include natural gas appliances or natural gas plumbing (in both residential and nonresidential development). b. The project will not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines. 2. Transportation a. Achieve a reduction in project-generated vehicle miles traveled (VMT) below the regional average consistent with the current version of the California Climate Change Scoping Plan (currently 15 percent) or meet a locally adopted Senate Bill 743 VMT target, reflecting the recommendations provided in the Governor's Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts. b. Achieve compliance with off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2.

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

GHG Emissions Associated with the Housing Element Update

The California Emissions Estimator Model (CalEEMod version 2020.4.0) was used to compute annual GHG emissions for build out of 2,708 new housing units, consistent with RHNA requirements. The model used for this analysis reflects emissions associated with the new planned

housing units and population. The annual GHG emissions for 2031 from build-out of the Key Sites were divided by the reported increase in population to compute per service population emissions.

Modeling inputs specific to the HEU included:

Land Use

- A total of 967 new housing units, entered as “Apartments Low Rise” using model default building size.
- A total of 1,735 new housing units, entered as “Apartments Mid Rise” using model default building size.
- A total of 6 Single Family Housing units, entered as “Single Family Housing” using model default building size.

Model Year

Emissions associated with vehicle travel depend on the year of analysis because emission control technology requirements are phased in over time. Therefore, the earlier the year analyzed in the model, the higher the emission rates utilized by CalEEMod. The operational year was assumed 2031.

Traffic Inputs

CalEEMod allows the user to enter specific vehicle trip generation rates, which were input to the model using the average daily trip generation rate and travel distances developed from data reported by Hexagon Transportation Consultants. Trip generation was calculated by dividing the total daily trips by the number of dwelling units. The trip distances were computed by dividing the total VMT by the total daily number of trips predicted. These are assumed to reflect weekday conditions and adjustments were made for Saturday and Sunday based on CalEEMod default rates.

Energy

Default energy usage assumptions included in CalEEMod were applied to this modeling.

Electricity Generation

Electricity in San Bruno is provided by Pacific Gas & Electric and Peninsula Clean Energy (PCE). Emissions rates associated with electricity consumption were applied to the project, using default usage rates assumed in CalEEMod for PCE. In 2018, PCE had a CO₂ intensity rate of 0 pounds per megawatt of electricity delivered (lbs/MWhr). PCE’s portfolio was made up of 53% for the ECOplus option and 100% percent renewable sources for the ECO100 option. PCE intends to be 100 percent GHG emissions free by 2025.²⁶ The CalEEMod default CO₂ intensity rate is 0 lbs/MWhr. Some customers already may enroll in some of PCE’s or PG&E’s cleaner energy plans. The CalEEMod modeling reflected the existing PCE carbon intensity rate for 2031 conditions.

²¹ Peninsula Clean Energy, 2022. *Power Mix – Peninsula Clean Energy*.
See <http://www.peninsulacleanenergy.com/power-mix/> Accessed August 16, 2022.

Other Inputs

Default model assumptions for emissions associated with solid waste generation and water/wastewater use were applied to the project. No woodburning emissions from hearths was assumed for new housing constructed as wood fireplaces are prohibited in the Bay Area.²⁷

GHG Operational Emissions

As shown in Table 9, the 2031 full build-out operation of the Key Sites that accommodates the future growth in housing would have unmitigated annual per capita emissions of 1.38 MT/year/person. The variation in emissions is based on trip generation rates and the rate of VMT. The rate of trip generation and VMT would vary by Key Site, as some are further away from transportation and transit facilities, which results in higher rates of GHG emissions. The unmitigated per capita emissions would not exceed the adjusted per capita thresholds of 2.7 MT/year/person at all Key Sites.

The emissions reported in Table 9 reflect unmitigated conditions. There are programs currently in place that would reduce emissions over time. For example, California is moving toward electricity generation with lower carbon intensity such that most electricity produced by 2045 would have no GHG emissions. Including solar power generating systems in new housing and selection of zero carbon emissions electricity through electrical utility providers could result in a net zero increase in electricity related GHG emissions. The current modeling assumes emissions rates representative of 2020 conditions. Many Bay Area communities are adopting enhanced building codes that eliminate new natural gas infrastructure in new residences and commercial buildings. Natural gas appliances are replaced with electric powered ones and no new wood or gas fireplaces are constructed. The City of San Bruno is currently planning to review a similar building code in September which would go into effect in January 2023. Waste management companies are increasingly diverting waste from landfills, including increased collection of compost materials that began in 2022.

Table 9. GHG Emissions for HEU

Source Category	Unmitigated
Area	139
Energy Consumption	1,812
Mobile ¹	7,032
Solid Waste Generation	629
Water Usage	240
Total (MT of CO ₂ e)	9,852
Added Population	7,150
Service Population Efficiency Metric (MT CO₂e/year/SP)	1.38

Note: Since this analysis, the HEU includes slightly adjusted housing inventory of 138 single family homes, 835 low-rise apartments, and 1,735 mid-rise apartments that result in slightly higher emissions.

Consistency with GHG Reduction Strategies

No Climate Action Plans or GHG emission reduction strategies have been adopted on the local level; although, there are measures at the State and federal level that will further reduce GHG emissions

To address current and future State efforts to reduce GHG emissions to 40 percent below 1990 levels by 2030 and carbon neutrality by 2045, BAAQMD adopted new thresholds that pertain to GHG emissions and Climate Change. For plans, the BAAQMD guidance recommends that consistency with GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b) should be demonstrated. However, the City's current General Plan policies do not meet current State goals. To address these current goals, BAAQMD's recommended thresholds for projects are addressed.

1. Buildings

Natural Gas

The City currently does not have building code requirements that prohibit new natural gas appliances or natural gas plumbing in residential developments. Therefore, without a condition of approval or mitigation measures, the Housing Element Update would be inconsistent with BAAQMD's measure. However, the City of San Bruno is currently planning to review an all-electric appliance building code in September, which would go into effect in January 2023.

Energy

The project would construct new single- and multi-family residences to meet the RHNA needs in accordance with the latest Title 24 building code standards, as implemented by the County, that address energy efficiency. Therefore, the project will not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines.

2. Transportation

The San Bruno Walk 'N Bike Plan encourages capital and infrastructure projects to improve conditions for walking and bicycling in attempts to increase the number of pedestrians and bicyclists. These include installation of new bike racks, pedestrian crossing safety improvements, and new Class III bike lanes.

Plan Bay Area 2040 encourages compact, mixed-use, infill development within walkable and bikeable neighborhoods that are close to public transit, jobs, schools, shopping, parks, recreation,

and other amenities. The Plan aims to reduce GHG emissions from cars and light-duty trucks through the year 2040 to meet State goals under SB 375.

VTM Reduction

The transportation study evaluated VMT associated with build out of all Key Sites that would have a build out total capacity of 2,708 dwelling units in accordance with CEQA requirements under SB 743. The City of San Bruno has not formally adopted a VMT policy, therefore, guidance from the City/County Association of Governments in San Mateo County C/CAG's VMT estimation tool for residential developments was used. For residential developments, the VMT threshold is 15 percent below the existing city-wide residential home-based VMT per capita average.

The entire San Bruno Housing Element site consists of multiple Key Sites throughout the City of San Bruno. As previously described, the majority of sites would be found within the Transit Priority Area. Most of the Key Sites are within 1/2-mile of the San Bruno Caltrain Station, San Bruno Bart Station, and/or bus stops along El Camino Real, all of which are considered to be major transit stops. Altogether, the residential developments within the Housing Element would have an approximate average VMT of 11.67 per resident. Therefore, the entire project falls below the threshold of 11.73 VMT per capita.

EV Charging

To achieve compliance with off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2, development of projects under the Housing Element Update would have to include electric vehicle charging infrastructure.

3. Solid Waste

The City and County have several municipal codes and ordinances that include recycling and solid waste measures applicable to the HEU that are intended to reduce GHG emissions. This includes the following that are directly applicable to new housing in the City:

San Bruno Municipal Code §10.23 requires that complete demolition, alteration, or new construction of a building that is valued over \$50,000 must complete a "Recycling and Waste Reduction Form." Construction on a new building requires that at least 65 percent of the debris from construction and demolition be recycled and construction on an existing building requires that at least 50 percent of the construction and demolition debris be recycled.

The City's waste hauler, Recology, supports new State Law SB 1383 that requires food scrap and green waste diversion through the establishment of a countywide Edible Food Recovery Program. Single-family homes in San Bruno are already enrolled in Recology's composting program. Residents must compost all organic waste in their green bins. Multifamily building owners are required to enroll in Recology's composting program. Recology provides multifamily buildings with the necessary green composting bins and outreach materials for tenants.

The City and their waste hauler support the adoption of recycling ordinances that incorporate new standards for trash, recycling, and composting collecting enclosures, including the requirement of enclosures to accommodate two 4-yard containers.

4. Water and Wastewater

The City and County have several municipal code requirements and ordinances applicable to the HEU that are intended to reduce water consumption and wastewater generation. This includes the following that are directly applicable to new housing in the City:

Under San Bruno Municipal Code §10.16, “non-essential” water usage during times of drought is prohibited, including excess landscape watering and indiscriminate running of water resulting in runoff into the gutter or street. Unlawful use of potable water in construction for dust control, or soil compaction unless reclaimed water is not available is also prohibited. Vehicles hauling and spraying such water must have signs indicating “reclaimed” or “non-potable” water is being used. Substantial planting or replanting of new landscaping that is not drought tolerant will also be prohibited until the City Council has declared that the emergency has passed. In new developments, permitting is required to use water dependent landscaping and the City requires a cash bond from the developer.

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

The proposed Housing Element Update would not conflict or otherwise interfere with the statewide GHG reduction measures identified in CARB’s Scoping Plan. The project would comply with requirements of the Green Building Code. For example, proposed buildings would be constructed in conformance with CALGreen and the Title 24 Building Code, which requires high-efficiency water fixtures and water-efficient irrigation systems

Mitigation Measure GHG-1

In addition to implementing City and County requirements, the following measures should be implemented to reduce GHG impacts:

1. Prohibit Natural Gas Infrastructure. Infrastructure to deliver natural gas to shall not be constructed in new housing developments. Note that City is reviewing an all-electric appliance building code in September, which if adopted would go into effect in January 2023.
2. All electric appliances. All new housing developments shall include all electric appliances in order to eliminate the use of natural gas.
3. Require electric vehicle chargers. At a minimum, new housing developments shall comply with off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2 requirements.

Supporting Documentation

Attachment 1 includes the CalEEMod output for project construction and operational criteria air pollutant. Also included are the EMFAC2021 emissions modeling.

Attachment 2 includes the sources of TACs and screening community risk calculations.

Attachment 1: CalEEMod Input Assumptions and Outputs

San Bruno Housing Element - San Mateo County, Annual

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

San Bruno Housing Element

San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	967.00	Dwelling Unit	60.44	967,000.00	2766
Apartments Mid Rise	1,735.00	Dwelling Unit	45.66	1,735,000.00	4962
Single Family Housing	6.00	Dwelling Unit	1.95	10,800.00	17

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	70
Climate Zone	5			Operational Year	2031
Utility Company	Peninsula Clean Energy				
CO2 Intensity (lb/MW hr)	0	CH4 Intensity (lb/MW hr)	0	N2O Intensity (lb/MW hr)	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Based on project trip generation table

Construction Phase - no construction

Off-road Equipment - no construction

Grading -

Vehicle Trips - Trip rates from Hexagon (6.74/4.54/9.43). VMT = 83,430/14,451 trips = 5.77mi

Woodstoves - no wood burning/no wood fireplaces.

Water And Wastewater -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	120.00	0.00

San Bruno Housing Element - San Mateo County, Annual

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

tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	145.05	309.44
tblFireplaces	NumberGas	260.25	525.20
tblFireplaces	NumberGas	1.50	4.08
tblFireplaces	NumberWood	164.39	0.00
tblFireplaces	NumberWood	294.95	0.00
tblFireplaces	NumberWood	2.58	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblVehicleTrips	HO_TL	5.70	5.77
tblVehicleTrips	HO_TL	5.70	5.77
tblVehicleTrips	HO_TL	5.70	5.77
tblVehicleTrips	HS_TL	4.80	5.77
tblVehicleTrips	HS_TL	4.80	5.77
tblVehicleTrips	HS_TL	4.80	5.77
tblVehicleTrips	HW_TL	10.80	5.77
tblVehicleTrips	HW_TL	10.80	5.77
tblVehicleTrips	HW_TL	10.80	5.77
tblVehicleTrips	ST_TR	8.14	7.50
tblVehicleTrips	ST_TR	4.91	4.10
tblVehicleTrips	SU_TR	6.28	5.78
tblVehicleTrips	SU_TR	4.09	3.41
tblVehicleTrips	WD_TR	7.32	6.74
tblVehicleTrips	WD_TR	5.44	4.54
tblWoodstoves	WoodstoveWoodMass	582.40	0.00
tblWoodstoves	WoodstoveWoodMass	582.40	0.00
tblWoodstoves	WoodstoveWoodMass	956.80	0.00

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

[illegible]

San Bruno Housing Element - San Mateo County, Annual

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	13.1149	0.3216	20.0925	1.6400e-003		0.1188	0.1188		0.1188	0.1188	0.0000	137.5500	137.5500	0.0333	1.9200e-003	138.9545
Energy	0.1820	1.5552	0.6618	9.9300e-003		0.1257	0.1257		0.1257	0.1257	0.0000	1,801.1418	1,801.1418	0.0345	0.0330	1,811.8450
Mobile	4.2198	3.4309	38.9754	0.0750	9.6022	0.0433	9.6455	2.5654	0.0403	2.6056	0.0000	6,922.9880	6,922.9880	0.5022	0.3236	7,031.9818
Waste						0.0000	0.0000		0.0000	0.0000	253.7509	0.0000	253.7509	14.9963	0.0000	628.6571
Water						0.0000	0.0000		0.0000	0.0000	55.9754	0.0000	55.9754	5.7492	0.1358	240.1594
Total	17.5167	5.3077	59.7298	0.0866	9.6022	0.2879	9.8900	2.5654	0.2848	2.8502	309.7262	8,861.6797	9,171.4059	21.3154	0.4943	9,851.5978

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	13.1149	0.3216	20.0925	1.6400e-003		0.1188	0.1188		0.1188	0.1188	0.0000	137.5500	137.5500	0.0333	1.9200e-003	138.9545

San Bruno Housing Element - San Mateo County, Annual

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

Energy	0.1820	1.5552	0.6618	9.9300e-003		0.1257	0.1257		0.1257	0.1257	0.0000	1,801.1418	1,801.1418	0.0345	0.0330	1,811.8450
Mobile	4.2198	3.4309	38.9754	0.0750	9.6022	0.0433	9.6455	2.5654	0.0403	2.6056	0.0000	6,922.9880	6,922.9880	0.5022	0.3236	7,031.9818
Waste						0.0000	0.0000		0.0000	0.0000	253.7509	0.0000	253.7509	14.9963	0.0000	628.6571
Water						0.0000	0.0000		0.0000	0.0000	55.9754	0.0000	55.9754	5.7492	0.1358	240.1594
Total	17.5167	5.3077	59.7298	0.0866	9.6022	0.2879	9.8900	2.5654	0.2848	2.8502	309.7262	8,861.6797	9,171.4059	21.3154	0.4943	9,851.5978

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	10/7/2023	10/6/2023	5	0	

Acres of Grading (Site Preparation Phase): 0**Acres of Grading (Grading Phase): 0****Acres of Paving: 0****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37

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

3.1 Mitigation Measures Construction

Unmitigated Construction Off-Site

[illegible]

San Bruno Housing Element - San Mateo County, Annual

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

[illegible]

Mitigated Construction On-Site

[illegible]

Mitigated Construction Off-Site

[illegible]

San Bruno Housing Element - San Mateo County, Annual

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

Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.2198	3.4309	38.9754	0.0750	9.6022	0.0433	9.6455	2.5654	0.0403	2.6056	0.0000	6,922.9880	6,922.9880	0.5022	0.3236	7,031.9818
Unmitigated	4.2198	3.4309	38.9754	0.0750	9.6022	0.0433	9.6455	2.5654	0.0403	2.6056	0.0000	6,922.9880	6,922.9880	0.5022	0.3236	7,031.9818

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	6,517.58	7,252.50	5589.26	12,104,347	12,104,347
Apartments Mid Rise	7,876.90	7,113.50	5916.35	13,965,358	13,965,358
Single Family Housing	56.64	57.24	51.30	104,376	104,376
Total	14,451.12	14,423.24	11,556.91	26,174,081	26,174,081

4.3 Trip Type Information

San Bruno Housing Element - San Mateo County, Annual

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

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	5.77	5.77	5.77	31.00	15.00	54.00	86	11	3
Apartments Mid Rise	5.77	5.77	5.77	31.00	15.00	54.00	86	11	3
Single Family Housing	5.77	5.77	5.77	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.430230	0.078889	0.249554	0.157860	0.027337	0.007255	0.011241	0.001746	0.001332	0.000484	0.030680	0.000419	0.002972
Apartments Mid Rise	0.430230	0.078889	0.249554	0.157860	0.027337	0.007255	0.011241	0.001746	0.001332	0.000484	0.030680	0.000419	0.002972
Single Family Housing	0.430230	0.078889	0.249554	0.157860	0.027337	0.007255	0.011241	0.001746	0.001332	0.000484	0.030680	0.000419	0.002972

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.1820	1.5552	0.6618	9.9300e-003		0.1257	0.1257		0.1257	0.1257	0.0000	1,801.1418	1,801.1418	0.0345	0.0330	1,811.8450
NaturalGas Unmitigated	0.1820	1.5552	0.6618	9.9300e-003		0.1257	0.1257		0.1257	0.1257	0.0000	1,801.1418	1,801.1418	0.0345	0.0330	1,811.8450

San Bruno Housing Element - San Mateo County, Annual

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	1.8872e+07	0.1018	0.8696	0.3700	5.5500e-003		0.0703	0.0703		0.0703	0.0703	0.0000	1,007.0793	1,007.0793	0.0193	0.0185	1,013.0638
Apartments Mid Rise	1.46486e+007	0.0790	0.6750	0.2872	4.3100e-003		0.0546	0.0546		0.0546	0.0546	0.0000	781.7063	781.7063	0.0150	0.0143	786.3516
Single Family Housing	231547	1.2500e-003	0.0107	4.5400e-003	7.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	12.3562	12.3562	2.4000e-004	2.3000e-004	12.4297
Total		0.1820	1.5553	0.6618	9.9300e-003		0.1257	0.1257		0.1257	0.1257	0.0000	1,801.1418	1,801.1418	0.0345	0.0330	1,811.8450

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	1.8872e+07	0.1018	0.8696	0.3700	5.5500e-003		0.0703	0.0703		0.0703	0.0703	0.0000	1,007.0793	1,007.0793	0.0193	0.0185	1,013.0638
Apartments Mid Rise	1.46486e+007	0.0790	0.6750	0.2872	4.3100e-003		0.0546	0.0546		0.0546	0.0546	0.0000	781.7063	781.7063	0.0150	0.0143	786.3516
Single Family Housing	231547	1.2500e-003	0.0107	4.5400e-003	7.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	12.3562	12.3562	2.4000e-004	2.3000e-004	12.4297
Total		0.1820	1.5553	0.6618	9.9300e-003		0.1257	0.1257		0.1257	0.1257	0.0000	1,801.1418	1,801.1418	0.0345	0.0330	1,811.8450

San Bruno Housing Element - San Mateo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**5.3 Energy by Land Use - Electricity****Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	3.89968e+ 006	0.0000	0.0000	0.0000	0.0000
Apartments Mid Rise	6.74285e+ 006	0.0000	0.0000	0.0000	0.0000
Single Family Housing	46863.1	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	3.89968e+ 006	0.0000	0.0000	0.0000	0.0000
Apartments Mid Rise	6.74285e+ 006	0.0000	0.0000	0.0000	0.0000
Single Family Housing	46863.1	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

San Bruno Housing Element - San Mateo County, Annual

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	13.1149	0.3216	20.0925	1.6400e-003		0.1188	0.1188		0.1188	0.1188	0.0000	137.5500	137.5500	0.0333	1.9200e-003	138.9545
Unmitigated	13.1149	0.3216	20.0925	1.6400e-003		0.1188	0.1188		0.1188	0.1188	0.0000	137.5500	137.5500	0.0333	1.9200e-003	138.9545

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.9097					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	10.5948					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0106	0.0904	0.0385	5.8000e-004		7.3100e-003	7.3100e-003		7.3100e-003	7.3100e-003	0.0000	104.7052	104.7052	2.0100e-003	1.9200e-003	105.3274
Landscaping	0.5998	0.2312	20.0541	1.0600e-003		0.1115	0.1115		0.1115	0.1115	0.0000	32.8448	32.8448	0.0313	0.0000	33.6271
Total	13.1149	0.3216	20.0925	1.6400e-003		0.1188	0.1188		0.1188	0.1188	0.0000	137.5500	137.5500	0.0333	1.9200e-003	138.9545

San Bruno Housing Element - San Mateo County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.9097					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	10.5948					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0106	0.0904	0.0385	5.8000e-004		7.3100e-003	7.3100e-003		7.3100e-003	7.3100e-003	0.0000	104.7052	104.7052	2.0100e-003	1.9200e-003	105.3274
Landscaping	0.5998	0.2312	20.0541	1.0600e-003		0.1115	0.1115		0.1115	0.1115	0.0000	32.8448	32.8448	0.0313	0.0000	33.6271
Total	13.1149	0.3216	20.0925	1.6400e-003		0.1188	0.1188		0.1188	0.1188	0.0000	137.5500	137.5500	0.0333	1.9200e-003	138.9545

7.0 Water Detail**7.1 Mitigation Measures Water**

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	55.9754	5.7492	0.1358	240.1594

San Bruno Housing Element - San Mateo County, Annual

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

Unmitigated	55.9754	5.7492	0.1358	240.1594
-------------	---------	--------	--------	----------

7.2 Water by Land Use**Unmitigated**

Indoor/Outdoor Use		Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	63.0039 / 39.7199	19.9882	2.0530	0.0485	85.7585
Apartments Mid Rise	113.042 / 71.2658	35.8631	3.6835	0.0870	153.8687
Single Family Housing	0.390924 / 0.246452	0.1240	0.0127	3.0000e-004	0.5321
Total		55.9754	5.7492	0.1358	240.1594

Mitigated

Indoor/Outdoor Use		Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	63.0039 / 39.7199	19.9882	2.0530	0.0485	85.7585
Apartments Mid Rise	113.042 / 71.2658	35.8631	3.6835	0.0870	153.8687
Single Family Housing	0.390924 / 0.246452	0.1240	0.0127	3.0000e-004	0.5321

San Bruno Housing Element - San Mateo County, Annual

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

Total	55.9754	5.7492	0.1358	240.1594
--------------	----------------	---------------	---------------	-----------------

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	253.7509	14.9963	0.0000	628.6571
Unmitigated	253.7509	14.9963	0.0000	628.6571

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	444.82	90.2944	5.3363	0.0000	223.7007
Apartments Mid Rise	798.1	162.0071	9.5743	0.0000	401.3657
Single Family Housing	7.14	1.4494	0.0857	0.0000	3.5907

San Bruno Housing Element - San Mateo County, Annual

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

Total		253.7509	14.9962	0.0000	628.6571
-------	--	----------	---------	--------	----------

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	444.82	90.2944	5.3363	0.0000	223.7007
Apartments Mid Rise	798.1	162.0071	9.5743	0.0000	401.3657
Single Family Housing	7.14	1.4494	0.0857	0.0000	3.5907
Total		253.7509	14.9962	0.0000	628.6571

9.0 Operational Offroad

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

10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

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

Boilers

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

San Bruno Housing Element - San Mateo County, Annual

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

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Attachment 2: TAC Sources and Screening Levels

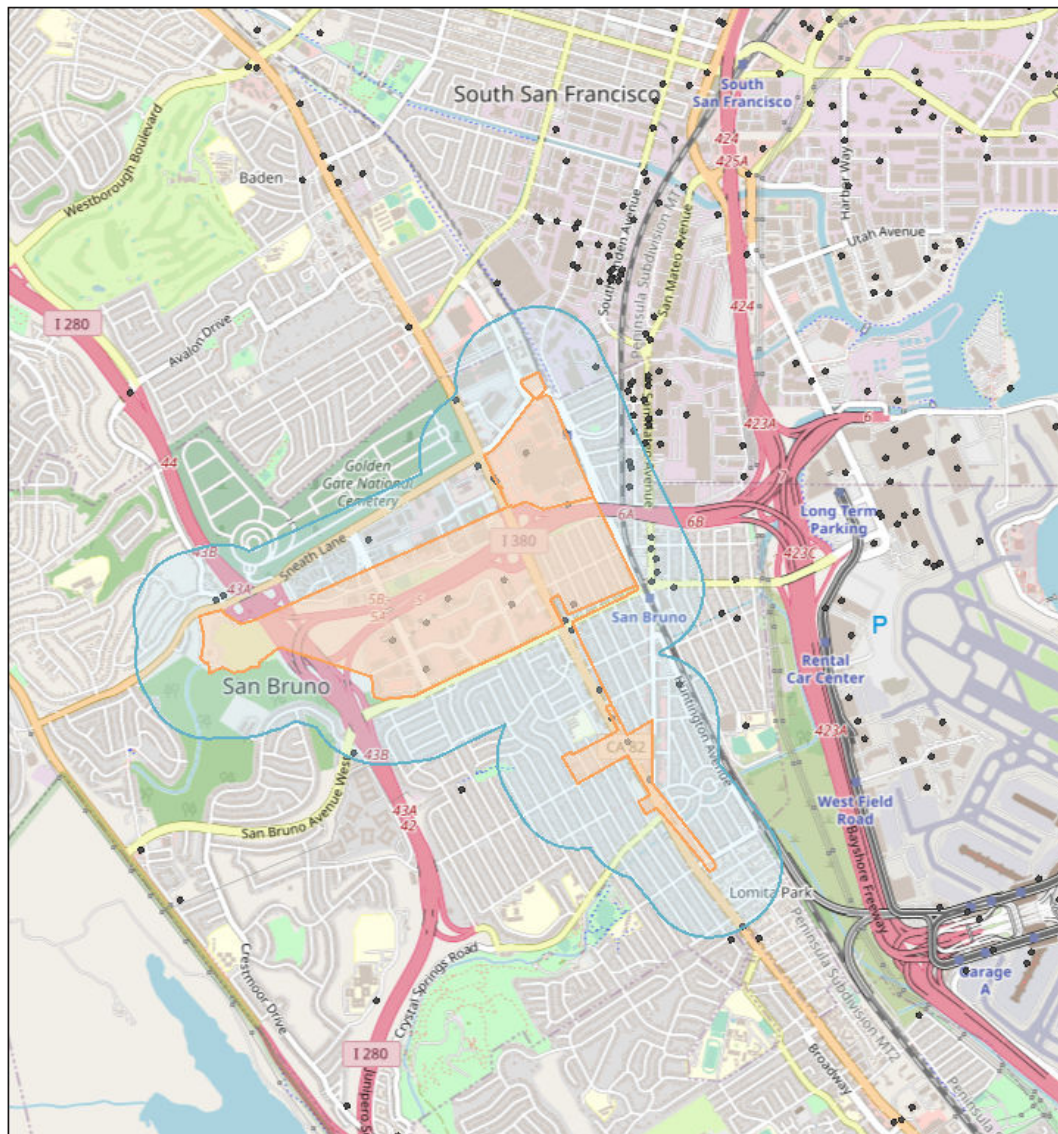


Screening Report

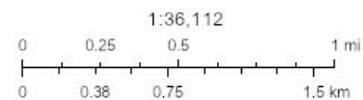
Area of Interest (AOI) Information

Area : 55,714,101.78 ft²

Aug 4 2022 16:37:35 Pacific Daylight Time



• Permitted Stationary Sources



Map data © OpenStreetMap contributors, CC-BY-SA

Summary

Name	Count	Area(ft²)	Length(ft)
Permitted Stationary Sources	37	N/A	N/A

Permitted Stationary Sources

#	FacID	FacName	Address	City	Street
1	15582	S F Bay Area Rapid Transit District	1151 Huntington Ave	San Bruno	CA
2	15880	Target Corporation-Store T-1054	1150 El Camino Real	San Bruno	CA
3	13202	Lowe's HTW, Inc /Corporate Payables	1340 El Camino Real	San Bruno	CA
4	7371	La Loma Auto Body Shop	848 San Mateo Ave	San Bruno	CA
5	10764	National Color Auto Paint Inc	1136 Montgomery Ave	San Bruno	CA
6	4756	Artichoke Joe's Casino	659 Huntington Avenue	San Bruno	CA
7	14507	Five Star Auto Body	916 San Mateo Ave	San Bruno	CA
8	20470	A & Z Auto Body Shop Inc	1079 Montgomery Ave	San Bruno	CA
9	20725	C & C Automotive Refinishing	860 San Mateo Ave	San Bruno	CA
10	18756	M C Auto Body	828 San Mateo Ave	San Bruno	CA
11	18968	Technics Auto Body & Detailing	898 San Mateo Ave	San Bruno	CA
12	19262	DaVita	1178 Cherry Avenue	San Bruno	CA
13	19271	Vince's Shellfish Co Inc	1063 Montgomery Ave	San Bruno	CA
14	19340	YouTube	901 Cherry Avenue	San Bruno	CA
15	16395	JC Penny Company Store #J1959-6	1122 El Camino Real	San Bruno	CA
16	16807	Sears, #1478	1178 El Camino Real	San Bruno	CA
17	17309	A & W Auto Body	1045 Montgomery Ave	San Bruno	CA
18	18040	The Shops at Tanforan	1188 El Camino Real	San Bruno	CA
19	18234	Avalon San Bruno	1000 National Avenue	San Bruno	CA
20	22875	Walmart eCommerce, Building #4398	950 Elm Street	San Bruno	CA
21	23515	Google LLC	900 Cherry Avenue	San Bruno	CA
22	200385	SF Police Credit Union	1250 GRUNDY LN	SAN BRUNO	CA
23	100273_1	San Bruno Fire Station	555 El Camino Real	San Bruno	CA
24	23970	Google Inc	999 Bayhill Drive	San Bruno	CA
25	103134_1	San Bruno Kwik Serv	2101 San Bruno Ave W	San Bruno	CA
26	21931	Ungo Ultimate Finishes, Inc	80 Tanforan Avenue, Unit 2	South San Francisco	CA
27	22106	Verizon Wireless - San Mateo and Mills	620 El Camino Real	San Bruno	CA
28	22479	Walmart.com Headquarters #8771	850 Cherry Avenue	San Bruno	CA
29	109025_1	Tanforan Shell	1199 El Camino Real	San Bruno	CA
30	109421_1	San Bruno Chevron	512 El Camino Real	San Bruno	CA
31	112607_1	Double AA El Camino	800 El Camino Real	San Bruno	CA
32	110666_1	ARCO Facility #00743	1799 El Camino Real	San Bruno	CA
33	110761_1	Rollingwood Chevron	2001 Rollingwood Dr	San Bruno	CA
34	111596_1	Unocal #0109	401 San Mateo Ave	San Bruno	CA
35	111846_1	San Bruno Valero	310 San Bruno Ave E	San Bruno	CA

36	112375_1	Rollingwood 76 - Sahbhagi Corp	2000 Rollingwood Dr	San Bruno	CA
37	112418_1	San Bruno Shell	798 El Camino Real	San Bruno	CA

#	Zip	County	Latitude	Longitude	Details
1	94,066.00	San Mateo	37.64	-122.42	Generator
2	94,066.00	San Mateo	37.63	-122.42	Generator
3	94,066.00	San Mateo	37.64	-122.42	Generator
4	94,066.00	San Mateo	37.63	-122.41	No Data
5	94,066.00	San Mateo	37.64	-122.41	No Data
6	94,066.00	San Mateo	37.63	-122.41	Generator
7	94,066.00	San Mateo	37.63	-122.41	No Data
8	94,066.00	San Mateo	37.64	-122.41	No Data
9	94,066.00	San Mateo	37.63	-122.41	No Data
10	94,066.00	San Mateo	37.63	-122.41	No Data
11	94,066.00	San Mateo	37.63	-122.41	No Data
12	94,066.00	San Mateo	37.63	-122.43	Generator
13	94,066.00	San Mateo	37.64	-122.41	Generator
14	94,066.00	San Mateo	37.63	-122.43	Generator
15	94,066.00	San Mateo	37.64	-122.42	Generator
16	94,066.00	San Mateo	37.64	-122.42	Generator
17	94,066.00	San Mateo	37.64	-122.41	No Data
18	94,066.00	San Mateo	37.64	-122.42	Generator
19	94,066.00	San Mateo	37.63	-122.42	Generator
20	94,066.00	San Mateo	37.63	-122.42	Generator
21	94,066.00	San Mateo	37.63	-122.42	Generator
22	94,066.00	San Mateo	37.63	-122.42	Generator
23	94,066.00	San Mateo	37.62	-122.41	Gas Dispensing Facility
24	94,066.00	San Mateo	37.63	-122.42	Generator
25	94,066.00	San Mateo	37.62	-122.43	Gas Dispensing Facility
26	94,080.00	San Mateo	37.64	-122.41	No Data
27	94,066.00	San Mateo	37.63	-122.41	Generator
28	94,066.00	San Mateo	37.63	-122.42	Generator
29	94,066.00	San Mateo	37.64	-122.42	Gas Dispensing Facility
30	94,066.00	San Mateo	37.62	-122.41	Gas Dispensing Facility
31	94,066.00	San Mateo	37.63	-122.42	Gas Dispensing Facility
32	94,066.00	San Mateo	37.62	-122.41	Gas Dispensing Facility
33	94,066.00	San Mateo	37.63	-122.44	Gas Dispensing Facility
34	94,066.00	San Mateo	37.62	-122.41	Gas Dispensing Facility
35	94,066.00	San Mateo	37.63	-122.41	Gas Dispensing Facility
36	94,066.00	San Mateo	37.63	-122.44	Gas Dispensing Facility
37	94,066.00	San Mateo	37.63	-122.42	Gas Dispensing Facility

#	NAICS	Sector	Sub_Sector	Industry	ChronicHI
1	221,112.00	Utilities	Utilities	Fossil Fuel Electric Power Generation	0.0068137
2	452,111.00	Retail Trade	General Merchandise Stores	Department Stores (except Discount Department Stores)	0.0000912
3	444,130.00	Retail Trade	Building Material and Garden Equipment and Supplies Dealers	Hardware Stores	0.0149127
4	811,121.00	Other Services (except Public Administration)	Repair and Maintenance	Automotive Body, Paint, and Interior Repair and Maintenance	0.0003785
5	811,121.00	Other Services (except Public Administration)	Repair and Maintenance	Automotive Body, Paint, and Interior Repair and Maintenance	0.0037851
6	237,310.00	Construction	Heavy and Civil Engineering Construction	Highway, Street, and Bridge Construction	0.0775803
7	811,121.00	Other Services (except Public Administration)	Repair and Maintenance	Automotive Body, Paint, and Interior Repair and Maintenance	0.0006056
8	811,121.00	Other Services (except Public Administration)	Repair and Maintenance	Automotive Body, Paint, and Interior Repair and Maintenance	0.0002776
9	811,121.00	Other Services (except Public Administration)	Repair and Maintenance	Automotive Body, Paint, and Interior Repair and Maintenance	0.0037851
10	811,121.00	Other Services (except Public Administration)	Repair and Maintenance	Automotive Body, Paint, and Interior Repair and Maintenance	0.0000883
11	811,121.00	Other Services (except Public Administration)	Repair and Maintenance	Automotive Body, Paint, and Interior Repair and Maintenance	0.0001262
12	621,492.00	Health Care and Social Assistance	Ambulatory Health Care Services	Kidney Dialysis Centers	0.0002952
13	114,112.00	Agriculture, Forestry, Fishing and Hunting	Fishing, Hunting and Trapping	Shellfish Fishing	0.0008352
14	519,130.00	Information	Other Information Services	Internet Publishing and Broadcasting and Web Search Portals	0.0015920
15	221,112.00	Utilities	Utilities	Fossil Fuel Electric Power Generation	0.0000304
16	452,111.00	Retail Trade	General Merchandise Stores	Department Stores (except Discount Department Stores)	0.0000479
17	811,121.00	Other Services (except Public Administration)	Repair and Maintenance	Automotive Body, Paint, and Interior Repair and Maintenance	0.0001893
18	531,120.00	Real Estate and Rental and Leasing	Real Estate	Lessors of Nonresidential Buildings (except Miniwarehouses)	0.0292729
19	236,115.00	Construction	Construction of Buildings	New Single-Family Housing Construction (except Operative Builders)	0.0000054
20	334,111.00	Manufacturing	Computer and Electronic Product Manufacturing	Electronic Computer Manufacturing	0.0127503
21	518,210.00	Information	Data Processing, Hosting and Related Services	Data Processing, Hosting, and Related Services	0.0028570

22	522,130.00	Finance and Insurance	Credit Intermediation and Related Activities	Credit Unions	0.0045421
23	922,160.00	Public Administration	Justice, Public Order, and Safety Activities	Fire Protection	0.0058497
24	518,210.00	Information	Data Processing, Hosting and Related Services	Data Processing, Hosting, and Related Services	0.0007568
25	447,110.00	Retail Trade	Gasoline Stations	Gasoline Stations with Convenience Stores	0.3059925
26	337,110.00	Manufacturing	Furniture and Related Product Manufacturing	Wood Kitchen Cabinet and Countertop Manufacturing	0.0001627
27	517,210.00	Information	Telecommunications	Wireless Telecommunications Carriers (except Satellite)	0.0000000
28	424,330.00	Wholesale Trade	Merchant Wholesalers, Nondurable Goods	Women's, Children's, and Infants' Clothing and Accessories Merchant Wholesalers	0.0084920
29	447,110.00	Retail Trade	Gasoline Stations	Gasoline Stations with Convenience Stores	0.1317512
30	447,110.00	Retail Trade	Gasoline Stations	Gasoline Stations with Convenience Stores	0.0385892
31	447,110.00	Retail Trade	Gasoline Stations	Gasoline Stations with Convenience Stores	0.2781497
32	447,110.00	Retail Trade	Gasoline Stations	Gasoline Stations with Convenience Stores	0.1126785
33	447,110.00	Retail Trade	Gasoline Stations	Gasoline Stations with Convenience Stores	0.1902770
34	447,110.00	Retail Trade	Gasoline Stations	Gasoline Stations with Convenience Stores	0.1761615
35	447,110.00	Retail Trade	Gasoline Stations	Gasoline Stations with Convenience Stores	0.0370866
36	447,110.00	Retail Trade	Gasoline Stations	Gasoline Stations with Convenience Stores	0.0800579
37	447,110.00	Retail Trade	Gasoline Stations	Gasoline Stations with Convenience Stores	0.2194521

#	PM2_5	Cancer Risk {expression/expr0}	Chronic Hazard Index {expression/expr1}	PM2.5 {expression/expr2}	Count
1	0.0042030	3.333	0.007	0.004	1
2	0.0004429	0.013	0	0	1
3	0.0122906	9.638	0.015	0.012	1
4	0.0000000	No Data	0	No Data	1
5	0.0000000	No Data	0.004	No Data	1
6	0.0619166	48.243	0.078	0.062	1
7	0.0000000	No Data	0.001	No Data	1
8	0.0000000	No Data	0	No Data	1
9	0.0000000	No Data	0.004	No Data	1
10	0.0000000	No Data	0	No Data	1
11	0.0000000	No Data	0	No Data	1
12	0.0013828	1.098	0	0.001	1
13	0.0039127	3.108	0.001	0.004	1
14	0.0074586	5.925	0.002	0.007	1
15	0.0001426	0.113	0	0	1
16	0.0002327	0.007	0	0	1
17	0.0000000	No Data	0	No Data	1
18	0.0157313	12.554	0.029	0.016	1
19	0.0000253	0.02	0	0	1
20	0.0093474	7.36	0.013	0.009	1
21	0.0020595	1.606	0.003	0.002	1
22	0.0212797	16.903	0.005	0.021	1
23	0.0000000	1.221	0.006	No Data	1
24	0.0004912	0.389	0.001	0	1
25	0.0000000	63.891	0.306	No Data	1
26	0.0000000	No Data	0	No Data	1
27	0.0002911	No Data	No Data	0	1
28	0.0047126	3.704	0.008	0.005	1
29	0.0000000	27.51	0.132	No Data	1
30	0.0000000	8.057	0.039	No Data	1
31	0.0000000	58.077	0.278	No Data	1
32	0.0000000	23.527	0.113	No Data	1
33	0.0000000	39.73	0.19	No Data	1
34	0.0000000	36.782	0.176	No Data	1
35	0.0000000	7.744	0.037	No Data	1
36	0.0000000	16.716	0.08	No Data	1
37	0.0000000	45.821	0.219	No Data	1

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