4.2 Air Quality and Greenhouse Gas Emissions

This section describes current air quality conditions in and around the City of Santa Maria and evaluates the possible impacts related to air quality and greenhouse gas (GHG) emissions that could result from implementation of the 2045 General Plan Update. Information included in this section is based on the policies from the plan, Environmental Background Report (Santa Maria 2020) and the Santa Maria Municipal Code (Santa Maria 2024), as well as transportation VMT data produced by GHD in June 2025.

4.2.1 Setting

a. Air Quality Setting

Climate and Topography

The plan area is part of the South Central Coast Air Basin (SCCAB) that includes all of San Luis Obispo, Santa Barbara, and Ventura counties. The climate of the Santa Barbara County area and all of the SCCAB is strongly influenced by its proximity to the Pacific Ocean and the location of the semi-permanent high-pressure cell in the northeastern Pacific Ocean. The Mediterranean climate of the region produces moderate average temperatures, although slightly more extreme temperatures can be reached in the winter and summer. The proximity of the Pacific Ocean tends to moderate temperature near the coast while the steep mountain ranges produce a significant “orographic effect.” Orographic effect occurs when storms approaching the county from the Pacific Ocean are forced upward against the mountains resulting in increased precipitation release with topographic elevation. The orographic effect, in conjunction with steep, short watersheds occasionally result in flash flooding along the county's south coast.

Santa Barbara County is situated among a series of transverse mountain ranges, the only ranges within the continental United States to trend in an east-westerly direction. Most of the County's developed areas are located along the coastal plain and in the inter-mountain valleys, such as Santa Maria which is located within the Santa Maria Valley. The warmest months of the year in Santa Maria are July through October, with an average maximum temperature of 74 degrees Fahrenheit, while the coldest months of the year are December and January with an average minimum temperature of 39 degrees Fahrenheit. The climate is semi-arid, with rainfall concentrated in the winter months. Table 4.2-1 summarizes local climatic conditions.

Table 4.2-1 Climatic Conditions in Santa Maria

Average annual rainfall	13.9 inches
Average maximum temperature (annual)	74 °F
Average minimum temperature (annual)	39 °F
Warmest month(s)	July through September
Coolest month(s)	December & January

Source: U.S. Climate Data 2023.

Note: Data is based on historic climate in Santa Maria.

Air Pollutants of Primary Concern

The federal and State Clean Air Act (CAA) mandate the control and reduction of certain air pollutants. Under these laws, the United States Environmental Protection Agency (USEPA) and the California Air Resource Board (CARB) have established the National Ambient Air Quality Standards (NAAQS) and the California Ambient Air Quality Standards (CAAQS) for "criteria pollutants" and other pollutants, which are discussed in more detail under Section 4.2.2, Regulatory Setting. Primary criteria pollutants are emitted directly from a source (e.g., vehicle tailpipe, an exhaust stack of a factory, etc.) into the atmosphere and include carbon monoxide (CO), VOC (volatile organic gases)/reactive organic gases (ROG),[1] nitric oxide (NO_X), particulate matter, sulfur dioxide (SO_2), and lead (Pb). Secondary criteria pollutants are created by atmospheric chemical and photochemical reactions primarily between ROG and NO_X. Secondary pollutants include oxidants, ozone (O_3), and sulfate and nitrate particulates (smog). The characteristics, sources and effects of criteria pollutants are discussed in the following subsections.

Ozone

O_3 is a highly oxidative unstable gas produced by a photochemical reaction (triggered by sunlight) between NO_X and ROG. ROG is composed of non-methane hydrocarbons (with specific exclusions), and NO_X is composed of different chemical combinations of nitrogen and oxygen, mainly nitric oxide and nitrogen dioxide (NO_2). NO_X is formed during the combustion of fuels, while ROG is formed during the combustion and evaporation of organic solvents. As a highly reactive molecule, O_3 readily combines with many different atmosphere components. Consequently, high O_3 levels tend to exist only while high ROG and NO_X levels are present to sustain the O_3 formation process. Once the precursors have been depleted, O_3 levels rapidly decline. Because these reactions occur on a regional rather than local scale, O_3 is considered a regional pollutant. In addition, because O_3 requires sunlight to form, it mainly occurs in concentrations considered serious between April and October. People most at risk from O_3 include people with asthma, children, older adults, and people who are active outdoors, especially outdoor workers. In addition, people with reduced intake of certain nutrients, such as vitamins C and E, are at greater risk from O_3 exposure. Depending on the level of exposure, O_3 can cause coughing and a sore or scratch throat; make it more difficult to breathe deeply and vigorously and cause pain when taking a deep breath; inflame and damage the airways; make the lungs more susceptible to infection; aggravate lung diseases such as asthma, emphysema, and chronic bronchitis; and increase the frequency of asthma attacks (USEPA 2025a).

Carbon Monoxide

CO is a localized pollutant found in high concentrations only near its source. The primary source of CO, a colorless, odorless, poisonous gas, is automobile traffic's incomplete combustion of petroleum fuels. Therefore, elevated concentrations are usually only found near areas of high traffic volumes. When CO levels are elevated outdoors, they can be of particular concern for people with some types of heart disease. These people already have a reduced ability to get oxygenated blood to their hearts in situations where they need more oxygen than usual. As a result, they are especially vulnerable to the effects of CO when exercising or under increased stress. In these situations, short-

[1] CARB defines VOC and ROG similarly as, "any compound of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate," with the exception that VOC are compounds that participate in atmospheric photochemical reactions. For the purposes of this analysis, ROG and VOC are considered comparable in terms of mass emissions, and the term ROG is used in this EIR.

term exposure to elevated CO may result in reduced oxygen to the heart accompanied by chest pain, also known as angina (USEPA 2025b).

Nitrogen Dioxide

NO_2 is a by-product of coal, oil, gas or diesel fuel combustion. The primary sources are motor vehicles and industrial boilers, and furnaces. The principal form of NO_x produced by combustion is nitric oxide (NO), but NO reacts rapidly to form NO_2, creating the mixture of NO and NO_2, commonly called NO_x. NO_2 is a reactive, oxidizing gas and an acute irritant capable of damaging cell linings in the respiratory tract. Breathing air with a high concentration of NO_2 can irritate airways in the human respiratory system. Such exposures over short periods can aggravate respiratory diseases leading to respiratory symptoms (such as coughing, wheezing, or difficulty breathing), hospital admissions, and visits to emergency rooms. Longer exposures to elevated concentrations of NO_2 may contribute to the development of asthma and potentially increase susceptibility to respiratory infections. People with asthma and children and the elderly are generally at greater risk for the health effects of NO_2 (USEPA 2025c). NO_2 absorbs blue light and causes a reddish-brown cast to the atmosphere and reduced visibility. It can also contribute to the formation of O_3/smog and acid rain.

Sulfur Dioxide

SO_2 is included in a group of highly reactive gases known as “oxides of sulfur.” The largest sources of SO_2 emissions are from fossil fuel combustion at power plants (73 percent) and other industrial facilities (20 percent). Smaller sources of SO_2 emissions include industrial processes such as extracting metal from ore and burning fuels with a high sulfur content by locomotives, large ships, and off-road equipment. Short-term exposures to SO_2 can harm the human respiratory system and make breathing difficult. People with asthma, particularly children, are sensitive to these effects of SO_2 (USEPA 2025d).

Particulate Matter

Suspended atmospheric PM_{10} (particular matter with diameter of 10 microns or less) and $PM_{2.5}$ (particulate matter with diameter of 2.5 microns or less) are comprised of finely divided solids and liquids such as dust, soot, aerosols, fumes, and mist. Both PM_{10} and $PM_{2.5}$ are emitted into the atmosphere as by-products of coal, gas, or diesel fuel combustion and wind erosion of soil and unpaved roads. The atmosphere, through chemical reactions, can form particulate matter. The characteristics, sources, and potential health effects of PM_{10} and $PM_{2.5}$ can be very different. PM_{10} is generally associated with dust mobilized by wind and vehicles. In contrast, $PM_{2.5}$ is generally associated with combustion processes and formation in the atmosphere as a secondary pollutant through chemical reactions. PM_{10} can cause increased respiratory disease, lung damage, cancer, premature death, reduced visibility, surface soiling. For $PM_{2.5}$, short-term exposures (up to 24-hours duration) have been associated with premature mortality, increased hospital admissions for heart or lung causes, acute and chronic bronchitis, asthma attacks, emergency room visits, respiratory symptoms, and restricted activity days. These adverse health effects have been reported primarily in infants, children, and older adults with preexisting heart or lung diseases (CARB 2025a).

Lead

Pb is a metal found naturally in the environment, as well as in manufacturing products. The major sources of Pb emissions historically have been mobile and industrial. However, due to the USEPA ’s regulatory efforts to remove Pb from gasoline, atmospheric Pb concentrations have declined

substantially over the past several decades. The most dramatic reductions in Pb emissions occurred before 1990 due to the removal of Pb from gasoline sold for most highway vehicles. Pb emissions were further reduced substantially between 1990 and 2008, with reductions occurring in the metals industries at least partly due to national emissions standards for hazardous air pollutants (USEPA 2014). As a result of phasing out leaded gasoline, metal processing is currently the primary source of Pb emissions. The highest Pb level in the air is generally found near Pb smelters. Other stationary sources include waste incinerators, utilities, and Pb-acid battery manufacturers. Pb can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems, and cardiovascular system depending on exposure. Pb exposure also affects the oxygen-carrying capacity of the blood. The Pb effects most likely encountered in current populations are neurological in children. Infants and young children are susceptible to Pb exposures, contributing to behavioral problems, learning deficits, and lowered IQ (USEPA 2025e).

Toxic Air Contaminants

In addition to the criteria pollutants discussed above, Toxic Air Contaminants (TACs) are airborne substances and a diverse group of air pollutants that may cause or contribute to an increase in deaths or serious illness, or that may pose a present or potential hazard to human health. TACs include both organic and inorganic chemical substances that may be emitted from a variety of common sources, including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research and teaching facilities. One of the main sources of TACs in California is diesel engine exhaust that contains solid material known as diesel particulate matter (DPM). More than 90 percent of DPM is less than one micron in diameter (about $1/70^{th}$ the diameter of a human hair) and thus is a subset of $PM_{2.5}$. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lungs (CARB 2025a).

TACs are different than criteria pollutants because ambient air quality standards have not been established for TACs. TACs occurring at extremely low levels may still cause health effects and it is typically difficult to identify levels of exposure that do not produce adverse health effects. TAC impacts are described by carcinogenic risk and by chronic (i.e., long duration) and acute (i.e., severe but of short duration) adverse effects on human health. People exposed to TACs at sufficient concentrations and durations may have an increased chance of getting cancer or experiencing other serious health effects. These health effects can include damage to the immune system, as well as neurological, reproductive (e.g., reduced fertility), developmental, respiratory, and other health problems (USEPA 2025f).

Air Quality Standards and Attainment

The federal and State governments have authority under the federal and State CAA to regulate emissions of airborne pollutants and have established AAQS for the protection of public health. An air quality standard is defined as "the maximum amount of a pollutant averaged over a specified period of time that can be present in outdoor air without harming public health" (CARB 2025b) The USEPA is the federal agency designated to administer air quality regulation, while CARB is the State equivalent in California. Federal and State AAQS have been established for six criteria pollutants: O_3, CO, NO_2, sulfur dioxide, $PM_{10,}$ $PM_{2.5}$, and lead. AAQS are designed to protect those segments of the public most susceptible to respiratory distress, such as children under the age of 14, the elderly (over the age of 65), persons engaged in strenuous work or exercise, and people with cardiovascular and chronic respiratory diseases (USEPA 2025g). In addition to the federal criteria pollutants, the CAAQS also specify standards for visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl

chloride (CARB 2025c). Table 4.2-2 lists the current NAAQS as well as the CAAQS for regulated pollutants.

Table 4.2-2 Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	NAAQS	CAAQS
Ozone	1-Hour	–	0.09 ppm
	8-Hour	0.070 ppm	0.070 ppm
Carbon Monoxide	8-Hour	9.0 ppm	9.0 ppm
	1-Hour	35.0 ppm	20.0 ppm
Nitrogen Dioxide	Annual	0.053 ppm	0.030 ppm
	1-Hour	0.100 ppm	0.18 ppm
Sulfur Dioxide	Annual	–	–
	24-Hour	–	0.04 ppm
	1-Hour	0.075 ppm	0.25 ppm
PM_{10}	Annual	–	20 µg/m^3
	24-Hour	150 µg/m^3	50 µg/m^3
PM_{25}	Annual	12 µg/m^3	12 µg/m^3
	24-Hour	35 µg/m^3	–
Lead	30-Day Average	–	1.5 µg/m^3
	3-Month Average	0.15 µg/m^3	–

NAAQS = National Ambient Air Quality Standards; CAAQS = California Ambient Air Quality Standards; ppm = parts per million; µg/m^3 = micrograms per cubic meter

Source: USEPA 2025h

USEPA and CARB designate air basins or portions of air basins and counties as being in "attainment" or "nonattainment" for each of the criteria pollutants. Areas that do not meet the AAQS standards are classified as nonattainment areas. Areas that are unclassified have insufficient monitoring data for a specific pollutant to determine attainment or nonattainment status, although unclassified areas are typically treated as attainment for a specific pollutant. Since attainment and nonattainment designation is pollutant-specific, an area may be classified as nonattainment for one pollutant and attainment for another. Similarly, because the State and federal standards differ, an area could be classified as attainment for the federal standards of a pollutant and as nonattainment for the State standards of the same pollutant. The NAAQS (other than O_3, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. The NAAQS for O_3, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over one- to three-year periods, depending on the pollutant. The CAAQS are not to be exceeded during a three-year period. The attainment status for Santa Barbara County is included in Table 4.2-3.

Table 4.2-3 Attainment Status of Criteria Pollutants in Santa Barbara County

Pollutant	State Designation	Federal Designation
O_3	Nonattainment-Transitional	Unclassified/Attainment
PM_{10}	Nonattainment	Unclassified/Attainment
$PM_{2.5}$	Attainment	Unclassified/Attainment
CO	Attainment	Unclassified/Attainment
NO_2	Attainment	Unclassified/Attainment
SO_2	Attainment	Unclassified/Attainment

O_3 = Ozone; NO_2 = nitrogen dioxide; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = particulate matter 10 microns in diameter or less; $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter.

Sources: SBCAPCD 2025

The Santa Barbara County Air Pollution Control District (SBAPCD) monitors criteria pollutant levels to assure that air quality standards are met, and if they are not met, develops strategies to meet the standards. As shown in Table 4.2-3, Santa Barbara County is in non-attainment for the 8-hour ozone State standards and PM_{10} State standard (SBAPCD 2025).

More than 250 air quality monitoring stations operated by federal, State, and local agencies comprise the California Ambient Air Monitoring Network, including ten stations in Santa Barbara County (CARB 2025d). There are two existing monitoring stations in Santa Maria: Orcutt Road and 906 South Broadway. The Orcutt Road Station collects data on ozone, $PM_{2.5}$, PM_{10}; and the 906 South Broadway Station collects data on ozone, $PM_{2.5}$, PM_{10}, and NO_2. NO_2 data from the Santa Maria 906 South Broadway Station is only available for 2021, therefore, NO_2 data from the Lompoc-South H Street Station located approximately 27 miles south of the city is used as data from the Lompoc – South H Street Station is available through 2023. The data collected at these stations are generally considered to be representative of the baseline air quality experienced in Santa Maria.

Table 4.2-4 summarizes the annual air quality data for the local airshed. As shown, PM_{10} measurements exceeded the State standards once in 2021, three times in 2022, and ten times in 2023. No other State or federal standards were exceeded at these monitoring stations. Since CO and SO_2 are in attainment with the SCCAB region, these pollutants are not monitored at the nearest air monitoring stations and ambient air quality is not reported for these pollutants.

Table 4.2-4 Ambient Air Quality Data

Pollutant	2021	2022	2023
Ozone (ppm), Worst 1-Hour	0.075[1]	0.057[2]	0.060[2]
Number of days of State exceedances (>0.09 ppm)	0	0	0
Ozone (ppm), 8-Hour Average	0.050[1]	0.054[2]	0.053[2]
Number of days of State exceedances (>0.07 ppm)	0	0	0
Number of days of federal exceedances (>0.07 ppm)	0	0	0
Nitrogen Dioxide (ppm), Highest 1 Hour	25[1]	24[3]	25[3]
Number of days above CAAQS (>0.180 ppm)	0	0	0
Number of days above NAAQS (>0.100 ppm)	0	0	0
Particulate Matter <10 microns, $\mu g/m^3$, Worst 24 Hours [2]	56.1[1]	75.6[2]	114.5[2]
Number of days above State standard (>50 $\mu g/m^3$) [2]	1	3	10
Number of days above federal standard (>150 $\mu g/m^3$)[2]	0	0	0

Pollutant	2021	2022	2023
Particulate Matter <2.5 microns, μg/m^3, Worst 24 Hours [3]	12.4[1]	13.5[2]	26.9[2]
Number of days above federal standard (>35 μg/m^3) [3]	0	0	0

Notes: ppm = parts per million; μg/m^3 = micrograms per cubic meter

[1] Data from the Santa Maria Station at 906 South Broadway

[2] Data from the Santa Maria Station at Orcutt Road

[3] Data from the Lompoc-South H Street Station

Source: CARB 2025d

Sensitive Receptors

Federal and State AAQS have been established to represent the levels of air quality considered sufficient, with an adequate margin of safety, to protect public health and welfare. They are designed to protect that segment of the public most susceptible to respiratory distress, such as children under 14; the elderly over 65; persons engaged in strenuous work or exercise; and people with cardiovascular and chronic respiratory diseases.

Sensitive receptor locations are therefore typically associated with residences, schools, and hospitals. The Dignity Health – Marian Regional Medical Center is located at 1400 East Church Street in Santa Maria. Additional sensitive receptors in the plan area include residences and K-12 schools located throughout the city. Schools in Santa Maria are identified in Section 4.9, *Effects Found Not to be Significant*.

b. Greenhouse Gas Emissions Setting

Gases that absorb and re-emit infrared radiation in the atmosphere are called GHGs. Gases that are widely seen as the principal contributors to human-induced climate change include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), fluorinated gases such as hydrofluorocarbons (HFC) and perfluorocarbons (PFC), and sulfur hexafluoride (SF_6). Water vapor is excluded from the list of GHGs, because it is short-lived in the atmosphere, and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

Different GHGs have varying global warming potentials (GWP). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years). Because GHGs absorb different amounts of heat, a common reference gas (CO_2) is used to relate the amount of heat absorbed to the amount of the gas, referred to as "carbon dioxide equivalent" (CO_2e), which is the amount of GHG multiplied by its GWP. CO2 has a 100-year GWP of 1. By contrast, methane has a 100-year GWP of 30, meaning its global warming effect is 30 times greater than CO2 on a molecule-per-molecule basis (United Nations Intergovernmental Panel on Climate Change [IPCC] 2021).[2]

GHGs are emitted by natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are usually by-products of fossil fuel combustion, and CH_4 results from off-gassing associated with leakage from natural gas pipelines and processes, agricultural practices and landfills. Human-made GHGs, which have greater heat-absorption potential than CO_2, include fluorinated gases and SF_6 (USEPA 2025h).

[2] The IPCC's (2021) *Sixth Assessment Report* determined that methane has a GWP of 30. However, the 2017 *Climate Change Scoping Plan* published by CARB uses a GWP of 25 for CH_4, consistent with the IPCC's (2007) *Fourth Assessment Report*. Therefore, this analysis utilizes a GWP of 25.

Climate change is the observed increase in the average temperature of the Earth's atmosphere, land and oceans along with other substantial changes in climate (such as wind patterns, precipitation, and storms) over an extended period. The term "climate change" is often used interchangeably with the term "global warming," but climate change is preferred, because it conveys that other changes are happening in addition to rising temperatures. The baseline against which these changes are measured originates from historical records that identify temperature changes that occurred in the past, such as during previous ice ages. The global climate is changing continuously, as evidenced in the geologic record, which indicates repeated episodes of substantial warming and cooling. The rate of change has typically been incremental, with warming or cooling trends occurring over the course of thousands of years. The past 10,000 years have been marked by a period of incremental warming, as glaciers have steadily retreated across the globe. However, scientists have observed acceleration in the rate of warming over the past 150 years. The IPCC expressed in their *Sixth Assessment Report* that the rise and continued growth of atmospheric CO_2 concentrations is unequivocally due to human activities (IPCC 2021). Human influence has warmed the atmosphere, ocean, and land and has led the climate to warm at an unprecedented rate in the last 2,000 years. It is estimated that between the period of 1850 through 2019, a total of 2,390 gigatons of anthropogenic CO_2 was emitted. It is likely that anthropogenic activities have increased the global surface temperature by approximately 1.07 degrees Celsius between the years 2010 through 2019 (IPCC 2021).

GHGs in the atmosphere regulate the earth's temperature. Without the natural heat-trapping effect of GHGs, the earth's surface would be approximately 33 degrees Celsius cooler (World Meteorological Organization 2013). However, since 1750, estimated concentrations of CO_2, CH_4, and N_2O in the atmosphere have increased by 47 percent, 156 percent, and 23 percent, respectively, primarily due to human activity (IPCC 2021). GHG emissions from human activities, particularly the consumption of fossil fuels for electricity production and transportation are believed to have elevated the concentration of these gases in the atmosphere far beyond the level of concentrations that occur naturally.

GHG Emissions Inventory

Global GHG Emissions Inventory

In 2015, worldwide anthropogenic GHG emissions totaled 47,000 million metric tons (MMT) of CO_2e, which is a 43 percent increase from 1990 GHG levels (U.S. EPA 2021b). Specifically, 34,522 MMT of CO_2e of CO_2, 8,241 MMT of CO_2e of CH_4, 2,997 MMT of CO_2e of N_2O, and 1,001 MMT of CO_2e of fluorinated gases were emitted in 2015. The largest source of GHG emissions were energy production and use (includes fuels used by vehicles and buildings), which accounted for 75 percent of the global GHG emissions. Agriculture uses and industrial processes contributed 12 percent and six percent, respectively. Waste sources contributed three percent, and two percent was due to international transportation sources. These sources account for approximately 98 percent because there was a net sink of two percent from land-use change and forestry. (U.S. EPA 2021b).

United States GHG Emissions Inventory

Total U.S. GHG emissions were 6,558 MMT of CO_2e in 2019. Emissions decreased by 1.7 percent from 2018 to 2019; since 1990, total U.S. emissions have increased by an average annual rate of 0.06 percent for a total increase of 1.8 percent between 1990 and 2019. The decrease from 2018 to 2019 reflects the combined influences of several long-term trends, including population changes, economic growth, energy market shifts, technological changes such as improvements in energy

efficiency, and decrease in carbon intensity of energy fuel choices. In 2019, the industrial and transportation end-use sectors accounted for 30 percent and 29 percent, respectively, of nationwide GHG emissions while the commercial and residential end-use sectors accounted for 16 percent and 15 percent of nationwide GHG emissions, respectively, with electricity emissions distributed among the various sectors (U.S. EPA 2021c).

California GHG Emissions Inventory

Based on the CARB California Greenhouse Gas Inventory for 2000-2022, California produced 371.1 MMT of CO_2e in 2022, which is 9.3 MMT of CO_2e lower than 2021 levels. The major source of GHG emissions in California is the transportation sector, which comprises 39 percent of the State of California's total GHG emissions. The industrial sector is the second largest source, comprising 23 percent of the State's GHG emissions while electric power accounts for approximately 16 percent (CARB 2025e). The magnitude of California's total GHG emissions is due in part to its large size and large population compared to other states. However, a factor that reduces California's per capita fuel use and GHG emissions as compared to other states is its relatively mild climate. In 2016, the State of California (State) achieved its 2020 GHG emission reduction target of reducing emissions to 1990 levels as emissions fell below 431 MMT of CO_2e (CARB 2021). The annual 2030 statewide target emissions level is 260 MMT of CO_2e (CARB 2017).

Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources though potential impacts related to future air temperatures and precipitation patterns. Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. The year 2022 was the sixth warmest year since global records began in 1880 at 0.86°C (1.55°F) above the 20th century average of 13.9°C (57.0°F). This value is 0.13°C (0.23°F) less than the record set in 2016 and it is only 0.02°C (0.04°F) higher than the last year's (2021) value, which now ranks as the seventh highest (National Oceanic and Atmospheric Administration 2023). Furthermore, several independently analyzed data records of global and regional Land-Surface Air Temperature obtained from station observations jointly indicate that Land Surface Air Temperature and sea surface temperatures have increased.

Potential impacts of climate change in California may include reduced water supply from snowpack, sea level rise, more extreme heat days per year, more large forest fires, and more drought years. *California's Fourth Climate Change Assessment* (California Natural Resource Agency 2019) includes regional reports that summarize climate impacts and adaptation solutions for nine regions of the State and regionally specific climate change case studies. However, while there is growing scientific consensus about the possible effects of climate change at a global and Statewide level, current scientific modeling tools are unable to predict what local impacts may occur with a similar degree of accuracy. A summary follows of some of the potential effects that climate change could generate in California.

Air Quality

Scientists project that the annual average maximum daily temperatures in California could rise by 2.4 to 3.2°C in the next 50 years and by 3.1 to 4.9°C in the next century. Higher temperatures are conducive to air pollution formation and rising temperatures could therefore result in worsened air quality in California. As a result, climate change may increase the concentration of ground-level

ozone, but the magnitude of the effect, and therefore its indirect effects, are uncertain. In addition, as temperatures have increased in recent years, the area burned by wildfires throughout the State has increased, and wildfires have occurred at higher elevations in the Sierra Nevada Mountains (California Natural Resource Agency 2019). If higher temperatures continue to be accompanied by an increase in the incidence and extent of large wildfires, air quality could worsen. Severe heat accompanied by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the State. With increasing temperatures, shifting weather patterns, longer dry seasons, and more dry fuel loads, the frequency of large wildfires and area burned is expected to increase (California Natural Resources Agency 2021).

Water Supply

Analysis of paleoclimatic data (such as tree-ring reconstructions of stream flow and precipitation) indicates a history of naturally and widely varying hydrologic conditions in California and the west, including a pattern of recurring and extended droughts. Uncertainty remains with respect to the overall impact of climate change on future precipitation trends and water supplies in California. Year-to-year variability in Statewide precipitation levels has increased since 1980, meaning that wet and dry precipitation extremes have become more common (California Department of Water Resources 2018). For example, the winter of 2022-2023 had severe storms and flooding from increased rainfall and snowmelt, which the California Department of Water Resources identified as "the latest example that California's climate is becoming more extreme" (California Department of Wate Resources 2023). This uncertainty regarding future precipitation trends complicates the analysis of future water demand, especially where the relationship between climate change and its potential effect on water demand is not well understood. The average early spring snowpack in the western United States, including the Sierra Nevada Mountains, decreased by about 10 percent during the last century. During the same period, sea level rose over 0.15 meter along the central and southern California coasts. The Sierra snowpack provides most of California's water supply as snow that accumulates during wet winters is released slowly during the dry months of spring and summer. A warmer climate is predicted to reduce the fraction of precipitation that falls as snow and the amount of snowfall at lower elevations, thereby reducing the total snowpack. Projections indicate that the average spring snowpack in the Sierra Nevada and other mountain catchments in central and northern California will decline by approximately 66 percent from its historical average by 2050 (California Natural Resource Agency 2019).

Hydrology and Sea Level Rise

Climate change could affect the intensity and frequency of storms and flooding (California Natural Resource Agency 2019). Furthermore, climate change could induce substantial sea level rise in the coming century. Rising sea level increases the likelihood of and risk from flooding. The rate of increase of global mean sea levels between 1993 to 2022, observed by satellites, is approximately 3.4 millimeters per year, double the twentieth century trend of 1.6 millimeters per year (World Meteorological Organization 2013; National Aeronautics and Space Administration 2023). Global mean sea levels in 2013 were about 0.23 meter higher than those of 1880 (National Oceanic and Atmospheric Administration 2022). Sea levels are rising faster now than in the previous two millennia, and the rise will probably accelerate, even with robust GHG emission control measures. The most recent IPCC report predicts a mean sea level rise ranging between 0.25 to 1.01 meters by 2100 with the sea level ranges dependent on a low, intermediate, or high GHG emissions scenario (IPCC 2021). A rise in sea levels could erode 31 to 67 percent of southern California beaches and cause flooding of approximately 370 miles of coastal highways during 100-year storm events. This

would also jeopardize California's water supply due to saltwater intrusion and induce groundwater flooding and/or exposure of buried infrastructure (California Natural Resource Agency 2019). Furthermore, increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.

Agriculture

California has an over $51 billion annual agricultural industry that produces over a third of the country's vegetables and three-quarters of the country's fruits and nuts (California Department of Food and Agriculture 2022). Higher CO_2 levels can stimulate plant production and increase plant water-use efficiency. However, if temperatures rise and drier conditions prevail, certain regions of agricultural production could experience water shortages of up to 16 percent, which would increase water demand as hotter conditions lead to the loss of soil moisture. In addition, crop yield could be threatened by water-induced stress and extreme heat waves, and plants may be susceptible to new and changing pest and disease outbreaks (California Natural Resource Agency 2019). Temperature increases could also change the time of year that certain crops, such as wine grapes, bloom or ripen, and thereby affect their quality (California Climate Change Center 2006).

Ecosystems

Climate change and the potential resultant changes in weather patterns could have ecological effects on the global and local scales. Soil moisture is likely to decline in many regions due to higher temperatures, and intense rainstorms are likely to become more frequent. Rising temperatures could have four major impacts on plants and animals: timing of ecological events; geographic distribution and range of species; species composition and the incidence of nonnative species within communities; and ecosystem processes, such as carbon cycling and storage (Parmesan 2006; California Natural Resource Agency 2019).

4.2.2 Regulatory Setting

a. Federal Regulations

Federal Clean Air Act

The U.S. Supreme Court determined in *Massachusetts et al. v. Environmental Protection Agency* et al. ([2007] 549 U.S. 05-1120) that the USEPA has the authority to regulate motor vehicle GHG emissions under the federal Clean Air Act. The USEPA issued a Final Rule for mandatory reporting of GHG emissions in October 2009. This Final Rule applies to fossil fuel suppliers, industrial gas suppliers, direct GHG emitters, and manufacturers of heavy-duty and off-road vehicles and vehicle engines and requires annual reporting of emissions. In 2012, the USEPA issued a Final Rule that established the GHG permitting thresholds that determine when Clean Air Act permits under the New Source Review Prevention of Significant Deterioration and Title V Operating Permit programs are required for new and existing industrial facilities.

In *Utility Air Regulatory Group v. Environmental Protection Agency* (134 Supreme Court 2427 [2014]), the Supreme Court held the USEPA may not treat GHGs as an air pollutant for purposes of determining whether a source can be considered a major source required to obtain a Prevention of Significant Deterioration or Title V permit. The Supreme Court also held that Prevention of Significant Deterioration permits otherwise required based on emissions of other pollutants may

continue to require limitations on GHG emissions based on the application of Best Available Control Technology.

Federal Fuel Efficiency Standards (CAFE)

Under the CAA, corporate average fuel economy (CAFE) standards have been set for passenger cars and light trucks. The State of California has traditionally had a waiver to set its own more stringent fuel efficiency standards. In 2020, the NHTSA and USEPA implemented the Safer Affordable Fuel-Efficient Vehicles Rule (SAFE Rule). Part One of the SAFE Rule revoked a waiver granted by USEPA to the State of California to enforce more stringent emission standards for motor vehicles those required by USEPA for the explicit purpose of GHG reduction. However, in 2021 the federal government formally proposed to roll back portions of the SAFE Rule, restoring California's right to enforce more stringent fuel efficiency standards (NHTSA 2022). In December 2021, the NHTSA finalized rules to repeal the SAFE I Rule established in 2020. However, the status of California's fuel efficiency standard waivers are again in question as of the writing of this document.

Construction Equipment Fuel-Efficiency Standard

USEPA sets emission standards for construction equipment. The first federal standards (Tier 1) were adopted in 1994 for all off-road engines over 50 horsepower (hp) and were phased in by 2000. A new standard was adopted in 1998 that introduced Tier 1 for all equipment below 50 hp and established the Tier 2 and Tier 3 standards. The Tier 2 and Tier 3 standards were phased in by 2008 for all equipment. The current iteration of emissions standards for construction equipment are the Tier 4 efficiency requirements, which are contained in 40 CFR Parts 1039, 1065, and 1068 (originally adopted in 69 Federal Register 38958 [June 29, 2004] and most recently updated in 2014 [79 Federal Register 46356]). Emissions requirements for new off-road Tier 4 vehicles were completely phased in by the end of 2015.

b. State Regulations

California Clean Air Act

The CCAA was enacted in 1988 (California Health & Safety Code Section 39000 et seq.). Under the CCAA, the State has developed the CAAQS, which are generally more stringent than the NAAQS. Table 4.2-2 lists the current State standards for regulated pollutants. In addition to the federal criteria pollutants, the CAAQS also specify standards for visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. Similar to the federal CAA, the CCAA classifies specific geographic areas as either "attainment" or "nonattainment" areas for each pollutant, based on the comparison of measured data within the CAAQS.

California Air Toxics Program

A TAC is an air pollutant that may cause or contribute to an increase in mortality or serious illness, or which may pose a present or potential hazard to human health. TACs may result in long-term health effects such as cancer, birth defects, neurological damage, asthma, or genetic damage, or short-term acute effects such as eye watering, respiratory irritation, runny nose, throat pain, and headaches. TACs are considered either carcinogenic or non-carcinogenic based on the nature of the health effects associated with exposure.

In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health (Assembly Bill [AB] 1807: Health

and Safety Code Sections 39650–39674). The Legislature established a two-step process to address the potential health effects from TACs. The first step is the risk assessment (or identification) phase. The second step is the risk management (or control) phase of the process.

The California Air Toxics Program establishes the process for the identification and control of TACs and includes provisions to make the public aware of significant toxic exposures and for reducing risk. Additionally, the Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, 1987, Connelly Bill) was enacted in 1987 and requires stationary sources to report the types and quantities of certain substances routinely released into the air. The goals of the Air Toxics "Hot Spots" Act are to collect emission data, identify facilities having localized impacts, ascertain health risks, notify nearby residents of significant risks, and reduce those significant risks to acceptable levels. The Children's Environmental Health Protection Act, California Senate Bill (SB) 25 (Chapter 731, Escutia, Statutes of 1999), focuses on children's exposure to air pollutants. The act requires CARB to review its air quality standards from a children's health perspective, evaluate the Statewide air quality monitoring network, and develop any additional air toxic control measures needed to protect children's health.

State Implementation Plan

The SIP is a collection of documents that set forth the State's strategies for achieving the AAQS. In California, the SIP is a compilation of new and previously submitted plans, programs (such as monitoring, modeling, and permitting), district rules, State regulations, and federal controls. CARB is the lead agency for all purposes related to the SIP under State law. Local air districts and other agencies, such as the Department of Pesticide Regulation and the Bureau of Automotive Repair, prepare SIP elements and submit them to CARB for review and approval. CARB then forwards SIP revisions to the USEPA for approval and publication in the Federal Register. The items included in the California SIP are listed in the Code of Federal Regulations at 40 Code of Federal Regulations 52.220.

The 2022 Santa Barbara County Ozone Plan is the SIP for Santa Barbara County. The 2022 Ozone Plan (2022 Plan) accommodates growth by projecting the growth in emissions based on different indicators. For example, population forecasts adopted by SCCAB are used to forecast population-related emissions. Through the planning process, emissions growth is offset by basin-wide controls on stationary, area, and transportation sources of air pollution.

In addition, the following California Code of Regulations would be applicable to the 2045 General Plan:

- **Engine Idling.** In accordance with Section 2485 of Title 13 of the California Code of Regulations, the idling of all diesel-fueled commercial vehicles (weighing over 10,000 pounds) during construction shall be limited to five minutes at any location.
- **Emission Standards.** In accordance with Section 93115 of Title 17 of the California Code of Regulations, operation of any stationary, diesel-fueled, compression-ignition engines shall meet specified fuel and fuel additive requirements and emission standards.

California Advanced Clean Cars Program

Assembly Bill (AB) 1493 (2002), California's Advanced Clean Cars program (referred to as "Pavley"), requires CARB to develop and adopt regulations to achieve "the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles." On June 30, 2009, the U.S. EPA granted the waiver of Clean Air Act preemption to California for its GHG emission standards for motor vehicles, beginning with the 2009 model year, which allows California to implement more stringent

vehicle emission standards than those promulgated by the U.S. EPA. Pavley I regulates model years from 2009 to 2016 and Pavley II, now referred to as "LEV (Low Emission Vehicle) III GHG," regulates model years from 2017 to 2025. The Advanced Clean Cars program coordinates the goals of the LEV, Zero Emissions Vehicles (ZEV), and Clean Fuels Outlet programs and would provide major reductions in GHG emissions. By 2025, the rules have been fully implemented, and new automobiles will emit 34 percent fewer GHGs and 75 percent fewer smog-forming emissions from their model year 2016 levels.

California Global Warming Solutions Act of 2006 (Assembly Bill 32, and Senate Bill 32, and Assembly Bill 1279)

California's major initiative for reducing GHG emissions is outlined in AB 32, the "California Global Warming Solutions Act of 2006," which was signed into law in 2006. AB 32 codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020 and requires CARB to prepare a Scoping Plan that outlines the main State strategies for reducing GHGs to meet the 2020 deadline. AB 32 requires CARB to adopt regulations to require reporting and verification of statewide GHG emissions. Based on this guidance, CARB approved a 1990 statewide GHG level and 2020 limit of 427 MMT CO_2e. The Scoping Plan was approved by CARB on December 11, 2008 and included measures to address GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among other measures. Many of the GHG reduction measures included in the Scoping Plan (e.g., Low Carbon Fuel Standard, Advanced Clean Car standards, and Cap-and-Trade) have been adopted since approval of the Scoping Plan.

Senate Bill (SB) 32, signed into law on September 8, 2016, extends AB 32 by requiring the State to further reduce GHGs to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remain unchanged). On December 14, 2017, CARB adopted the 2017 Scoping Plan, which provides a framework for achieving the 2030 target. The 2017 Scoping Plan relies on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program, as well as implementation of recently adopted policies and policies, such as SB 350 and SB 1383 (see below). The 2017 Scoping Plan also puts an increased emphasis on innovation, adoption of existing technology, and strategic investment to support its strategies. As with the 2013 Scoping Plan Update, the 2017 Scoping Plan does not provide project-level thresholds for land use development. Instead, it recommends that local governments adopt policies and locally appropriate quantitative thresholds consistent with statewide per capita goals of 6 MT CO_2e by 2030 and 2 MT CO_2e by 2050 (CARB 2017). As stated in the 2017 Scoping Plan, these goals may be appropriate for plan-level analyses (city, county, subregional, or regional level), but not for specific individual projects because they include all emissions sectors in the State (CARB 2017).

AB 1279, "The California Climate Crisis Act," was passed on September 16, 2022, and declares the State would achieve net zero GHG emissions as soon as possible, but no later than 2045, and to achieve and maintain net negative GHG emissions thereafter. In addition, the bill states that the State would reduce GHG emissions by 85 percent below 1990 levels no later than 2045. The Draft 2022 Scoping Plan Update has been prepared to assess the progress towards the 2030 target as well as to outline a plan to achieve carbon neutrality no later than 2045. The 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 (CARB 2022).

Senate Bill 375

The Sustainable Communities and Climate Protection Act of 2008 (SB 375), signed in August 2008, enhances the state's ability to reach AB 32 goals by directing the CARB to develop regional GHG emission reduction targets to be achieved from passenger vehicles by 2020 and 2035. SB 375 aligns regional transportation planning efforts, regional GHG reduction targets, and affordable housing allocations. Metropolitan Planning Organizations (MPOs) are required to adopt a Sustainable Communities Strategy (SCS), which allocates land uses in the MPO's Regional Transportation Plan (RTP). Qualified projects consistent with an approved SCS or Alternative Planning Strategy (categorized as "transit priority projects") can receive incentives to streamline CEQA processing.

On March 22, 2018, CARB adopted updated regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035. The Santa Barbara County Association of Governments (SBCAG) adopted the Connected 2050 RTP/SCS to demonstrate that the SBCAG region would achieve emissions reductions consistent with targets set forth by SB 375.

Senate Bill 1383

Adopted in September 2016, SB 1383 (Lara, Chapter 395, Statues of 2016) requires the CARB to approve and begin implementing a comprehensive strategy to reduce emissions of short-lived climate pollutants. SB 1383 requires the strategy to achieve the following reduction targets by 2030:

- Methane – 40 percent below 2013 levels
- Hydrofluorocarbons – 40 percent below 2013 levels
- Anthropogenic black carbon – 50 percent below 2013 levels

SB 1383 also requires the California Department of Resources Recycling and Recovery (CalRecycle), in consultation with the CARB, to adopt regulations that achieve specified targets for reducing organic waste in landfills.

Senate Bill 100

Adopted on September 10, 2018, SB 100 supports the reduction of GHG emissions from the electricity sector by accelerating the state's Renewables Portfolio Standard (RPS) Program, which was last updated by SB 350 in 2015. SB 100 requires electricity providers to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045.

Executive Order B-55-18

On September 10, 2018, the former Governor Brown issued Executive Order (EO) B-55-18, which established a new statewide goal of achieving carbon neutrality by 2045 and maintaining net negative emissions thereafter. This goal is in addition to the existing statewide GHG reduction targets established by SB 375, SB 32, SB 1383, and SB 100.

Clean Energy, Jobs, and Affordability Act of 2022 (Senate Bill 1020)

Adopted on September 16, 2022, SB 1020 creates clean electricity targets for eligible renewable energy resources and zero-carbon resources to supply 90 percent of retail sale electricity by 2035, 95 percent by 2040, 100 percent by 2045, and 100 percent of electricity procured to serve all state

agencies by 2035. This bill shall not increase carbon emissions elsewhere in the western grid and shall not allow resource shuffling.

California Building Standards Code

The CEC first adopted the Energy Efficiency Standards for Residential and Nonresidential Buildings (CCR, Title 24, Part 6) in 1978 in response to a legislative mandate to reduce energy consumption in the State. Although not originally intended to reduce GHG emissions, increased energy efficiency, and reduced consumption of electricity, natural gas, and other fuels would result in fewer GHG emissions from residential and nonresidential buildings subject to the standard. The standards are updated periodically to allow for the consideration and inclusion of new energy efficiency technologies and methods.

Part 11 of the Title 24 Building Standards is referred to as the California Green Building Standards (CALGreen) Code and was developed to help the State achieve its GHG reduction goals under HSC Division 25.5 (e.g., AB 32) by codifying standards for reducing building-related energy, water, and resource demand, which in turn reduces GHG emissions from energy, water, and resource demand. The purpose of the CALGreen Code is to "improve public health, safety and general welfare by enhancing the design and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices in the following categories: (1) planning and design; (2) energy efficiency; (3) water efficiency and conservation; (4) material conservation and resource efficiency; and (5) environmental air quality." The CALGreen Code is not intended to substitute for or be identified as meeting the certification requirements of any green building program that is not established and adopted by the California Building Standards Commission. The CALGreen Code establishes mandatory measures for new residential and non-residential buildings. Such mandatory measures include energy efficiency, water conservation, material conservation, planning and design, and overall environmental quality.

On August 11, 2021, the CEC adopted the 2022 Title 24 Standards, which go into effect on January 1, 2023. The 2022 standards continue to improve upon the previous (2019) Title 24 standards for new construction of, and additions and alterations to, residential and non-residential buildings (CEC 2022a). The 2022 Title 24 Standards "build on California's technology innovations, encouraging energy efficient approaches to encourage building decarbonization, emphasizing in particular on heat pumps for space heating and water heating. This set of Energy Codes also extends the benefits of photovoltaic and battery storage systems and other demand flexible technology to work in combinations with heat pumps to enable California buildings to be responsive to climate change. This Energy code also strengthens ventilation standards to improve indoor air quality. This update provides crucial steps in the state's progress toward 100 percent clean carbon neutrality by midcentury" (CEC 2022b). The 2022 Energy Code is anticipated to reduce GHG emissions by 10 MMT of CO_2e over the next 30 years and result in approximately 1.5 billion dollars in consumer savings (CEC 2022c). Compliance with Title 24 is enforced through the building permit process.

c. Local Regulations

Santa Barbara County Air Pollution Control District

As the local air quality management agency, the SBCAPCD is required to monitor air pollutant levels to ensure that State and federal air quality standards are met and, if they are not met, to develop strategies to meet the standards. Depending on whether the standards are met or exceeded, the SCCAB is classified as being in "attainment" or "nonattainment." In areas designated as non-

attainment for one or more air pollutants, a cumulative air quality impact exists for those air pollutants, and the human health impacts described in Section 2.1, *Environmental and Regulatory Setting*, are already occurring in that area as part of the environmental baseline condition.

Under State law, air districts are required to prepare a plan for air quality improvement for pollutants for which the district is in non-compliance. The *2001 Clean Air Plan* (2002) was the first plan prepared by SBCAPCD and established specific planning requirements to maintain the State one-hour O_3 standard. In 2006, CARB revised the CAAQS and added an 8-hour average to the O_3 standard. Both components of the standard must now be met before CARB can designate an area to be in attainment. The most recent *2022 Ozone Plan* was adopted by SBCAPCD in December 2022 and was the seventh update to the *2001 Clean Air Plan*. The *2022 Ozone Plan* addresses the State O_3 standards only because SBCAPCD is designated "attainment" for the federal 8-hour O_3 standards, including the most recent standard of 0.070 ppm promulgated by the United States EPA in 2015.

To minimize potential impacts from the plan emissions, the SBCAPCD implements rules and regulations for emissions that may be generated by various uses and activities. The rules and regulations detail pollution-reduction measures that must be implemented during construction and operation of Projects. Rules and regulations relevant to the plan include the following:

- **Rule 345 (Control of Fugitive Dust from Construction and Demolition Activities).** This rule establishes fugitive dust control requirements for any activity associated with construction or demolition of a structure or structures.
- **Rule 323.1 (Architectural Coatings).** This rule establishes volatile organic content limits for architectural coatings that are manufactured, blended, repackaged, supplied, sold, or offered for sale within the SBCAPCD. Rule 323.1 limits the volatile organic content to 50 grams per liter for flat coatings and 100 grams per liter for nonflat coatings and traffic marking coatings.
- **Rule 329 (Cutback and Emulsified Asphalt Paving Materials).** This rule establishes ROC content limits pertaining to the manufacture, application, and sale of cutback and emulsified asphalt materials for paving, construction, and maintenance of streets, highways, parking lots, and driveways.

SBCAG Connected 2050 RTP/SCS

The Connected 2050 RTP/SCS was adopted by Santa Barbara County Association of Governments (SBCAG) in 2021 and updated in April 2025, and it builds upon the goals, policies, and forecasts of preceding plans. The Connected 2050 RTP/SCS demonstrates that the SBCAG region would achieve emissions reductions consistent with targets set forth by SB 375. GHG reductions achieved through the Connected 2050 RTP/SCS would result in corresponding reductions in energy consumption in the region. The Connected 2050 RTP/SCS sets forth goals and objectives related to mixed-use development and the jobs-housing balance by allotting more housing to the southern portion of Santa Barbara County, as well as incorporating region-specific analysis of environmental justice indicators. Policies in the Connected 2050 RTP/SCS applicable to the plan include meeting SB 375 requirements, promoting renewable energy, and promoting alternative transportation (SBCAG 2025).

City of Santa Maria

The City of Santa Maria has not adopted a qualified greenhouse gas reduction plan pursuant to CEQA Guidelines Section 15183.5(b)(1). Therefore, this analysis does not utilize the tiering and

streamlining provisions of CEQA Guidelines Section 15183.5(b)(2) in evaluating the significance of the plan's impacts related to GHG emissions.

4.2.3 Impact Analysis

a. Methodology and Significance Thresholds

Air Quality Methodology

The assessment of potential environmental impacts related to air quality is based on a review of regional air quality plans and data within the plan. As a programmatic document, this EIR presents a citywide assessment of the plan. Table 4.2-5 summarizes the land use assumptions used in the California Emissions Estimator Model (CalEEMod), which represent the net new uses from the 2045 General Plan Update as detailed under Section 2.6.5 of the *Project Description*:

Table 4.2-5 CalEEMod Land Use Assumptions

Land Use Categories	New Uses	Reduction in Uses
Residential	+16,140 units	-
Mixed-Use (assumed to be office uses in CalEEMod)	+452 ac	-
Industrial	+7 ac	-
Recreational Parks	+33 ac	-
Planned Future Development (assumed to be office uses in CalEEMod)	+1,021 ac	-
Commercial	-	-463 ac

N/A = not applicable; ac = acres

Construction Emissions

Construction-related emissions are temporary but may still cause adverse air quality impacts. Construction of development associated with the 2045 General Plan Update would generate temporary emissions from three primary sources: the operation of construction equipment (e.g., scrapers, loaders, dump trucks, etc.); ground disturbance during site preparation and grading, which creates fugitive dust; and the application of asphalt, paint, or other oil-based substances. At this time, there is not sufficient detail to allow project-level analysis and thus it would be speculative to analyze project-level impacts. Rather, construction impacts for the 2045 General Plan Update are discussed qualitatively.

Operational Emissions

Operational emissions were estimated using CalEEMod, version 2022.1. CalEEMod uses default and project-specific information, including the plan's land uses, square footage for different uses (e.g., multi-family residence, hotel, etc.), and location, to estimate the plan's operational emissions. Land use assumptions are included in Table 4.2-5**.**

Operational emissions would be comprised of mobile source emissions, energy emissions, and area source emissions. Area source emissions are generated by landscape maintenance equipment, consumer products, and architectural coating. Emissions attributed to energy use include electricity and natural gas consumption for space and water heating. The energy use estimates account for the 2019 Building Energy Efficiency Standards (Title 24). This is a conservative assumption since the energy use estimates do not account for potential energy efficiency measures required by the

subsequent Title 24 update in 2022, as well as anticipated future updates. Mobile source emissions were estimated using vehicle activity data presented in Section 4.7, *Transportation and Traffic*. Table 4.2-6 shows the 2045 General Plan Update's VMT per capita for 2045. Annual VMT were estimated by multiplying the daily VMT per household by the projected increase of 16,140 residential units and by 365 days per year. Similarly, daily VMT per employee was multiplied by the projected increase of 23,750 employees and by 365 days to estimate annual employee-related VMT. This approach represents a conservative assumption, as it applies daily VMT rates uniformly across all days of the year, without accounting for reduced travel on weekends or holidays.

Table 4.2-6 Plan 2045 VMT

Activity	VMT per Household	VMT per Employee
VMT	47.6	9.8

VMT = Vehicle Miles Traveled

Source: Santa Maria Travel Demand Model, GHD, June 2025.

Air Quality Significance Thresholds

This analysis follows the guidance and methodologies recommended in Appendix G of the State CEQA Guidelines and SBCAPCD's *Scope and Content of Air Quality Sections in Environmental Documents* (2022a). Pursuant to the CEQA Guidelines, air quality impacts related to a project would be significant if the project would:

a) Conflict with or obstruct implementation of the applicable air quality plan;
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or State ambient air quality standard;
c) Expose sensitive receptors to substantial pollutant concentrations; and/or
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

According to the SBCAPCD *Scope and Content of Air Quality Sections in Environmental Documents*, a project would have a significant air quality impact on the environment if operation of the project would:

a) Emit from all project sources (both stationary and mobile) less than 240 pounds per day of ROC;
b) Emit from all project sources (both stationary and mobile) less than 240 pounds per day of NO_X;
c) Emit from all project sources (both stationary and mobile) less than 80 pounds per day of PM_{10};
d) Emit less than 25 pounds per day of ROC from motor vehicle trips only;
e) Emit less than 25 pounds per day of NO_X from motor vehicle trips only; and
f) Not cause or contribute to a violation of any California or National Ambient Air Quality Standard (except ozone); or
g) Not exceed the public notification health risk thresholds adopted by the SBCAPCD of 10 excess cancer cases in a million for cancer risk or a Hazard Index of more than 1.0 for non-cancer risk; or
h) Be consistent with the latest adopted in federal and State air quality plans for Santa Barbara County

The SBCAPCD *Scope and Content of Air Quality Sections in Environmental Documents* state that, due to the relatively low background ambient CO levels in Santa Barbara County, localized CO impacts associated with congested intersections are not expected to exceed the CO health-related air quality standards. As such, CO hotspot analyses are not required.

Plan Consistency

Consistency with land use and population forecasts in local and regional plans, including the 2022 Ozone Plan (previously known as the Clean Air Plan), is required under CEQA for all projects.

The 2022 Ozone Plan relies primarily on the land use and population projections provided by SBCAG and CARB on-road emissions forecast as a basis for vehicle emission forecasting (SBCAPCD 2022b). The 2022 Ozone Plan uses SBCAG's Countywide Regional Transportation Demand Model for on-road mobile source emissions estimates and SBCAG's socio-economic projections contained in the most recent RTP/SCS to form the basis for some stationary and area source growth forecasts.

The SBCAPCD's *Scope and Content of Air Quality Sections in Environmental Documents* States that any general plan amendment that would provide for increased population growth above that forecasted in the most recently adopted Ozone Plan is inconsistent with the Ozone Plan and may have a significant impact on air quality (SBCAPCD 2022a).

Toxic Air Contaminants

The USEPA considers those pollutants that could cause cancer risks between one in 10,000 (1.0×10^{4}) and one in one million (1.0×10^{-6}) for risk management. Proposition 65 (California Health and Safety Code Section 25249.6), enacted in 1986, prohibits a person in the course of doing business from knowingly and intentionally exposing any individual to a chemical that has been listed as known to the State to cause cancer or reproductive toxicity without first giving clear and reasonable warning. For a chemical that is listed as a carcinogen, the "no significant risk" level under Proposition 65 is defined as the level that is calculated to result in not more than one excess case of cancer in 100,000 individuals (1.0×10^{-5}). The SBCAPCD recommends the use of this risk level (also reportable as 10 in one million) as the significance threshold for TACs. The SBCAPCD also recommends that the non-carcinogenic hazards of TACs should not exceed a hazard index (the summation of the hazard quotients for all chemicals to which an individual would be exposed) of 1.0 for either chronic or acute effects (SBCAPCD 2022a).

GHG Methodology

GHG emissions result from both direct and indirect sources. Direct emissions include emissions from fuel combustion in vehicles and natural gas combustion from stationary sources. Indirect sources include off-site emissions occurring as a result of electricity and water consumption and solid waste. In addition, construction activities would result in direct and indirect emissions. Details for mobile source, energy source, and area source inputs included in the modeling of GHG emissions are provided above under Air Quality Methodology.

As discussed above, the 2045 General Plan Update is analyzed for consistency with the 2022 Scoping Plan and SBCAG 2050 RTP/SCS.

GHG Significance Thresholds

Appendix G of the CEQA Guidelines States that a project may have a significant adverse impact if it would:

1. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; and/or
2. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The majority of individual projects do not generate sufficient GHG emissions to directly influence climate change. However, physical changes caused by a project can contribute incrementally to cumulative effects that are significant, even if individual changes resulting from a project are limited. The issue of climate change typically involves an analysis of whether a project's contribution towards an impact would be cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (CEQA Guidelines, Section 15064[h][1]).

According to the CEQA Guidelines, projects can tier from a qualified GHG reduction plan, which allows for project-level evaluation of GHG emissions through the comparison of the proposed project's consistency with the GHG reduction policies included in a qualified GHG reduction plan. This approach is considered by the Association of Environmental Professionals [AEP] (2016) in its white paper, *Beyond Newhall and 2020*, to be the most defensible approach presently available under CEQA to determine the significance of a project's GHG emissions.

The City of Santa Maria has not adopted a numerical significance threshold for assessing impacts related to GHG emissions. Therefore, the 2045 General Plan Update is evaluated based on consistency with the 2022 Scoping Plan and SBCAG 2050 RTP/SCS.

b. Projects Impacts and Mitigation Measures

Threshold 1:	Would the project conflict with or obstruct implementation of the applicable air quality plan?

Impact AQGHG-1 The 2045 General Plan Update would result in new emissions that may exceed the 2022 Ozone Plan's direct and indirect emissions inventory for the County. As a result, the plan would conflict with or obstruct implementation of the 2022 Ozone Plan. This impact would be significant and unavoidable.

The SBCAPCD Guidelines State that a project is consistent with the 2022 Ozone Plan (previously known as the Clean Air Plan) if its direct and indirect emissions have been accounted for in the 2022 Ozone Plan's emissions forecast assumptions, and if it would incorporate the standard fugitive dust control measures recommended by SBCAPCD during construction activities.

Emissions Forecast Assumptions

The 2022 Ozone Plan's direct and indirect emissions inventory for the County as a whole is reliant on population projections provided by the SBCAG. SBCAG generates population projections based on local General Plans. In this case, SBCAG utilized population projections contained in the existing City of Santa Maria General Plan, which are based on existing and anticipated land uses in the city.

As discussed in Section 4.9, *Effects Found Not to be Significant,* the proposed plan would add 16,140 additional residential units leading to an increase of approximately 58,265 new residents.[3] This estimate is based on the California Department of Finance's population estimates, which identified the average persons per household in Santa Maria as 3.61 in 2024 (DOF 2024) and assumes full occupancy of residential units at this rate. Actual population growth may be lower. According to the SBCAG Regional Growth Forecast 2050 for Santa Barbara County, the population of Santa Maria is expected to increase by 34,600 residents by 2050. The Plan's anticipated addition of roughly 58,265 residents by the year 2045 would exceed SBCAG's projection by roughly 23,665 residents or 31 percent. Although SBCAG would update their growth projections to be consistent with the 2045 General Plan Update during the next planning cycle, the level of population growth and associated development anticipated under the 2045 General Plan Update would substantially exceed the existing SBCAG population forecasts. In addition, as discussed below under Impact AQGHG-2, the 2045 General Plan Update would exceed SBCAPCD's construction and operational criteria pollutant thresholds, which represents a conflict with the goals and measures outlined in the 2022 Ozone Plan. Therefore, this impact would be significant and unavoidable.

Fugitive Dust Control Measures

Pursuant to SBCAPCD Guidelines to be consistent with the 2022 Ozone Plan, a project must incorporate the standard fugitive dust control measures recommended by SBCAPCD during construction activities. The 2045 General Plan Update contains the following policy and action that would require fugitive dust control measures and the use of SBCACPD's short-term construction emissions guidelines.

> **Policy COS-5.3: Fugitive Dust Emissions.** Mitigate air pollutants and fugitive dust emissions resulting from construction and demolition activities by requiring the use of best management practices consistent with SBCAPCD Guidelines regarding fugitive dust control.
>
> > **Action COS 5.3.1:** Utilize SBCAPCD's short-term construction emissions guidelines to determine levels of significance for construction-related emissions.

Policies included in the 2045 General Plan Update would ensure that future development facilitated by the plan would comply with SBCAPCD's standard fugitive dust control measures, ensuring consistency with this component of the 2022 Ozone Plan.

Mitigation Measures

The 2045 General Plan Update includes policies which are intended to achieve consistency with the 2022 Ozone Plan's direct and indirect emissions inventory for the County. However, there is no set of General Plan policies or mitigation measures that could feasibly achieve consistency with SBCAG's population forecasts or reduce emissions in a manner that would be consistent with the 2022 Ozone Plan's direct and indirect emissions inventory for the County as a whole.

Significance After Mitigation

Policies included in the 2045 General Plan Update would ensure that future development facilitated by the 2045 General Plan Update would comply with SBCAPCD's standard fugitive dust control measures. However, because the 2045 General Plan Update would substantially exceed SBCAG's

[3] This calculation represents a conservative analysis in which every potential residential unit (16,140 as described in Section 2.6.5, Proposed 2045 General Plan Buildout) is occupied at the full potential persons per household rate.

population forecasts and would result in new emissions that could exceed 2022 Ozone Plan's direct and indirect emissions inventory for the County as a whole, this impact would be significant and unavoidable.

Threshold 2:	Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard?

Impact AQGHG-2 THE 2045 GENERAL PLAN UPDATE COULD RESULT IN A CUMULATIVELY CONSIDERABLE NET INCREASE OF ALL CRITERIA POLLUTANTS FOR WHICH THE PLAN REGION IS IN NON-ATTAINMENT UNDER AN APPLICABLE FEDERAL OR STATE AMBIENT AIR QUALITY STANDARD. EVEN WITH IMPLEMENTATION OF MITIGATION MEASURE AQGHG-2, THIS IMPACT WOULD BE SIGNIFICANT AND UNAVOIDABLE.

Construction

Construction of development facilitated by the 2045 General Plan Update may involve activities that result in air pollutant emissions. Construction activities such as demolition, grading, construction worker travel, delivery and hauling of construction supplies and debris, and fuel combustion by on-site construction equipment would generate pollutant emissions. These construction activities would temporarily create emissions of dust, fumes, equipment exhaust, and other air contaminants, particularly during site preparation and grading. The extent of daily emissions, particularly ROC and NO_X emissions, generated by construction equipment, would depend on the quantity of equipment used and the hours of operation for each project. The extent of $PM_{2.5}$ and PM_{10} emissions would depend upon the following factors: 1) the amount of disturbed soils; 2) the length of disturbance time; 3) whether existing structures are demolished; 4) whether excavation is involved; and 5) whether transporting excavated materials offsite is necessary. Dust emissions can lead to both nuisance and health impacts.

SBCAPCD does not currently have quantitative thresholds of significance for plan-level construction that would apply to the 2045 General Plan Update. However, CEQA requires that the short-term impacts such as exhaust emissions from construction equipment and fugitive dust generation during grading be analyzed. If an individual project's construction emissions fall below the project-level thresholds, the plan's impacts on regional air quality would be individually and cumulatively less than significant. According to SBCAPCD's *Scope and Content of Air Quality Sections in Environmental Documents,* it recommends quantification of construction-related emissions and suggests a 25 tons per year threshold for ROC or NO_X as a guideline for determining the significance of construction impacts (SBCAPCD 2022a). This is a limit that requires offsets if the construction activity is for a project that requires SBCAPCD permits and also provides guidance for other construction projects involving standard grading and building activities. In addition, standard dust control measures must be implemented for any discretionary project involving earthmoving activities, regardless of size or duration. According to the SBCAPCD, proper implementation of these required measures reduces fugitive dust emissions to a level that is less than significant (SBCAPCD 2022a).

Construction of development envisioned under the 2045 General Plan Update would temporarily increase air pollutant emissions, possibly creating localized areas of unhealthy air pollution concentrations or air quality nuisances. To promote clean air quality to protect public health and safety and to minimize adverse air quality impacts, the 2045 General Plan Update includes Policies COS-5.1 through 5.3 and associated actions which would minimize emissions of air contaminants associated with buildout of the 2045 General Plan Update. These policies are listed below:

Policy COS-5.1: Santa Barbara County Air Pollution Control District policies. Ensure consistency between the City and the Santa Barbara County Air Pollution Control District (SBCAPCD) air quality plans and regulations. Continue to enforce the standards and regulations set by the SBCAPCD.

Action COS-5.1.1: Continue to refer projects requiring an APCD permit to the SBCAPCD and require ACPD permit approval.

Action COS-5.1.2: Evaluate potential impacts of proposed development on air quality during the development and environmental review process, using Air Pollution Control District (APCD) threshold standards as guidelines

Action COS-5.1.3: Ensure new development complies with the Santa Barbara County Congestion Management Program (CMP), Air Quality Attainment Plan (AQAP), Ozone Plan, and other relevant regulations during the development and environmental review process.

Policy COS-5.2: Agricultural air pollutant emissions. Reduce air pollutant emissions associated with agricultural uses.

Action COS-5.2.1: Work with agricultural operators located within City limits and in adjacent unincorporated areas to encourage the adoption of farming practices that minimize dust, consistent with the Santa Barbara County's dust control measures, including limiting plowing, disking, mowing, and tilling when soil is dry and winds are high, and using surface coverings or cover crops to reduce wind erosion and stabilize soil.

Action COS-5.2.2: Coordinate with SBCAPCD to report illegal burnings and enforce SBCAPCD regulations pertaining to agricultural burnings.

Action COS-5.2.3: Collaborate with SBCAPCD to monitor pesticide residues in the air and enforce pesticide use and storage regulations.

Action COS-5.2.4: Update the Municipal Code to establish a minimum buffer requirement between agricultural uses, including agricultural supply businesses, and development based on the type of use. Sensitive land uses, including residential uses, schools, day cares, senior homes, and hospitals, shall require the largest buffer distance from agricultural and related uses.

Action COS-5.2.5: Update the Municipal Code to require the use of green walls or vegetation barriers in combination with minimum buffers to provide a physical barrier between agricultural and sensitive uses.

Policy COS-5.3: Fugitive dust emissions. Mitigate air pollutants and fugitive dust emissions resulting from construction and demolition activities by requiring the use of best management practices consistent with SBCAPCD Guidelines regarding fugitive dust control.

Action COS-5.3.1: Utilize SBCAPCD's short-term construction emissions guidelines to determine levels of significance for construction-related emissions

While consistency with SBCAPCD's Guidelines through implementation of fugitive dust control measures would reduce impacts from construction emissions to less than significant for the majority of projects, specific project-level details are unknown at this level of planning and individual projects may still exceed SBCAPCD thresholds. Therefore, construction impacts would be significant and unavoidable.

Operation

Reasonably expected future development from the 2045 General Plan Update would generate long-term regional air pollutant emissions, which would result from mobile sources (motor vehicle exhaust) and area sources, such as consumer products and natural gas combustion. Emissions from motor vehicle exhaust were estimated using VMT data for the 2045 General Plan Update (2045). The impact analysis is based on net new uses within the city as detailed in Section 2, *Project Description*.

Operation of development facilitated by the 2045 General Plan Update would generate criteria air pollutant emissions associated with area sources (e.g., architectural coatings, consumer products, and landscaping equipment), energy sources (i.e., use of natural gas for space and water heating), and mobile sources (i.e., vehicle trips to and from the project site). The 2045 General Plan Update would increase residential, office, industrial, and recreational land uses under 2045 buildout, and would decrease commercial uses under 2045 buildout. Operational emissions were based on the plan characteristics described in Section 2, *Project Description,* and the new and reduced land uses categories proposed by the plan as compared to the existing City land use designations (Table 4.2-5). In addition, VMT per capita data presented in Table 4.2-6 were used to generate estimates of annual VMT.

Table 4.2-7 shows the net difference in operational emissions by subtracting net new uses by net reduction in uses. As shown in Table 4.2-7, the net new emissions would exceed SBCAPCD thresholds for all sources and mobile sources. Therefore, this impact would be potentially significant.

Table 4.2-7 Estimated Operational Emissions

	Maximum Daily Emissions (pounds per day)					
Emissions Source	**ROC**	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
New Uses						
Mobile	55	94	1,314	5	615	157
Area	2,491	32	3,724	<1	5	4
Energy	55	493	372	3	38	38
Total	**2,601**	**619**	**5,410**	**8**	**658**	**199**
Reduction in Uses						
Mobile	4	6	84	<1	39	10
Area	639	7	877	<1	9	9
Energy	14	122	103	1	9	9
Total	**657**	**135**	**1,064**	**1**	**57**	**28**
Net New Emissions						
Net New Emissions	**1,944**	**484**	**4,346**	**7**	**601**	**171**
Threshold (area + energy + mobile)	240	240	N/A	N/A	80	N/A
Threshold Exceeded?	**Yes**	**Yes**	**N/A**	**N/A**	**Yes**	**N/A**
Threshold (mobile only)	25	25	N/A	N/A	N/A	N/A
Threshold Exceeded?	**Yes**	**Yes**	**N/A**	**N/A**	**N/A**	**N/A**

ROC = reactive organic compounds, NO_X = nitrogen oxides, CO = carbon monoxide, SO_2 = sulfur dioxide, PM_{10} = particulate matter 10 microns in diameter or less, $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter

Notes: All emissions modeling was completed using CalEEMod. See Appendix B for modeling results. Emissions presented are the highest of the winter and summer modeled emissions.

Mitigation Measures

AQGHG-2 Project-Level Air Quality Analysis and Mitigation

The City shall require applicants for future discretionary development projects facilitated by the 2045 General Plan Update to prepare a project-specific air quality analysis in accordance with SBCAPCD Environmental Review Guidelines. The analysis shall quantify construction and operational emissions and compare estimated emissions to the SBCAPCD's adopted thresholds of significance for criteria air pollutants. If the analysis determines that emissions would exceed any of the applicable thresholds, the project applicant shall implement all feasible mitigation measures to reduce emissions to below the thresholds. All mitigation measures shall be documented and verified by the lead agency prior to project approval or issuance of grading/building permits.

Significance After Mitigation

While consistency with SBCAPCD's Guidelines through implementation of fugitive dust control measures would reduce impacts from construction emissions to less than significant for the majority of projects, specific project-level details are unknown at this level of planning and individual projects may still exceed SBCAPCD thresholds. Therefore, construction impacts would be significant and unavoidable.

Implementation of Mitigation Measure AQGHG-2 would require project-specific air quality analyses and incorporation of mitigation for future development facilitated by the 2045 General Plan Update. However, because the nature and intensity of future projects are not known at this time, construction and operational impacts would be significant and unavoidable.

Threshold 3:	Would the project expose sensitive receptors to substantial pollutant concentrations?

Impact AQGHG-3 CONSTRUCTION ACTIVITIES FOR PROJECTS LASTING LONGER THAN TWO MONTHS OR LOCATED WITHIN 1,000 FEET OF SENSITIVE RECEPTORS COULD EXPOSE SENSITIVE RECEPTORS TO SUBSTANTIAL POLLUTANT CONCENTRATIONS. HOWEVER, WITH IMPLEMENTATION OF MITIGATION MEASURE AQGHG-3, THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

Construction

Construction-related activities associated with new development facilitated by the 2045 General Plan Update would result in DPM exhaust emissions from off-road, heavy-duty diesel equipment associated with site preparation (e.g., excavation, grading, clearing), building construction, and other construction activities. DPM is identified as a TAC by CARB. The potential cancer risk from the inhalation of DPM (discussed in the following paragraphs) outweighs the potential non-cancer health impacts (CARB 2025a) and is therefore the focus of this analysis.

Generation of DPM from construction typically occurs in a single area for a short period. Future construction would occur over approximately 20 years (assuming a buildout year of 2045), but use of diesel-powered construction equipment in any one area would likely occur in less than one year for an individual project and would cease when construction is completed in that area. It is impossible to quantify risk without identified specific project details and locations.

The extent of DPM emissions from any individual construction project depend upon the following factors: (1) the amount of disturbed soils; (2) the length of disturbance time; (3) whether existing

structures are demolished; (4) whether excavation is involved; and (5) whether transporting excavated materials off site is necessary. DPM emissions would be reduced during the other phases of individual project construction because activities such as building construction and architectural coating require less diesel-fueled construction equipment.

SBCAPCD has not established plan-level significance thresholds for construction air pollutant emissions, and SBCAPCD CEQA guidance does not require preparation of a health risk assessment for short-term construction emissions. At this time, development facilitated by the 2045 General Plan Update does not have sufficient detail (e.g., construction schedule, amount of soil export, specific buildout parameters) to allow for project-level analysis given that project-level details are not currently available for future individual development facilitated by the 2045 General Plan Update. As a result, it would be speculative to analyze project-level impacts that could occur as a result of development facilitated by the 2045 General Plan Update. In addition, SBCAPCD does not recommend project-level emissions thresholds for construction activity. Therefore, a qualitative approach to characterizing construction-related air emissions has been employed for this analysis.

According to the OEHHA, construction of individual projects lasting longer than two months or located within 1,000 feet of sensitive receptors could potentially expose sensitive receptors to substantial pollutant concentrations, which could result in potentially significant health risk impacts.

SBCAPCD recommends diesel equipment meeting the CARB Tier 3 or higher emission standards, which results in substantially lower TAC emissions than older construction equipment, be used in place of older construction equipment to the maximum extent feasible (SBCAPCD 2022a). As a result, construction projects within 1,000 feet of sensitive receptors, that have construction durations longer than two months, and are larger than single-family residences, ADUs, or duplexes could result in potentially significant health risk impacts if construction equipment does not meet CARB Tier 3 or higher for off-road heavy-duty diesel engines. Therefore, this impact would be potentially significant and would require implementation of Mitigation Measure AQGHG-3.

Operation

Development facilitated by the plan could accommodate a net increase of approximately 16,140 additional residential units and 23,750 new jobs in Santa Maria. CARB's guidelines do not designate residential uses as land uses that generate substantial TAC emissions. As a result, this analysis considers quantities of hazardous TACs that could be generated by new residential uses (e.g., cleaning solvents, paints, landscape pesticides, etc.) as below thresholds warranting further study under the California Accidental Release Program. Development facilitated by the 2045 General Plan Update in accordance with land use and zoning regulations would not site land uses that typically generate TACs near sensitive receptors. Additionally, new commercial, retail, or industrial uses that may include a new stationary TAC source, such as an emergency generator, the new stationary source would be required to apply for a permit-to-operate from SBCAPCD. The permitting process would ensure that the potential new stationary source would not present a significant health risk to nearby sensitive receptors. Therefore, the 2045 General Plan Update would not result in exposure of existing sensitive receptors to significant carcinogenic or toxic air contaminants and would be consistent with CARB and SBCAPCD guidelines.

To minimize health risks to sensitive receptors located near roadways, the 2045 General Plan Update includes the following policies that aim to improve air quality and minimize exposure to TAC:

- **Policy COS-6.2: Vehicle emissions reduction.** Reduce vehicle-generated air pollution and GHG emissions by expanding active transportation opportunities.
- **Policy COS-6.3: City vehicle fleet electrification.** Transition the City's vehicle fleet to electric/zero-emission vehicles.

Implementation of these policies would minimize the potential for sensitive receptors in the plan area to be exposed to significant health risks associated with roadway traffic or other operational sources of TACs that may result from new development under the 2045 General Plan Update.

Mitigation Measures

AQGHG-3 Construction Equipment Exhaust Control Measures

For individual discretionary and ministerial residential projects facilitated by the 2045 General Plan Update that would develop three or more units; would involve demolition, mass grading, or excavation and trenching phases longer than two months; and would be located within 1,000 feet of existing sensitive receptors, the City shall enforce a project specific Condition of Approval requiring off-road heavy-duty diesel engines to meet CARB-certified Tier 3 or higher emission standards or employ CARB-certified Level 3 diesel particulate filters to the extent that this equipment is commercially available. "Commercially available" shall be defined as the availability of required equipment in geographic proximity to the project site and within a reasonable timeframe relative to critical path construction timing. If Tier 3 or higher emission standard equipment or Level 3 diesel particulate filters are not commercially available, documentation shall be provided by the project applicant to the City stating that Tier 3 equipment or higher emission standard or Level 3 diesel particulate filters are not commercially available with supporting evidence from the contractor. If CARB-certified Level 3 diesel particulate filters are utilized, they shall be kept in working order and maintained in operable condition according to manufacturer's specifications, as applicable.

Significance After Mitigation

Mitigation Measure AQGHG-3 would reduce potential residual health risk impacts associated with exposure of sensitive receptors to substantial pollutant concentrations of DPM and TACs. Implementation of Mitigation Measure AQGHG-3 would require construction projects that may be a substantial source of health risk exposure to sensitive receptors to utilize Tier 3 equipment or higher emission standard or Level 3 diesel particulate filters to the maximum extent feasible, which reduce potential construction-related TACs exposure impacts to a less than significant level.

Threshold 4:	Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Impact AQGHG-4 FUTURE DEVELOPMENT FACILITATED BY THE 2045 GENERAL PLAN UPDATE WOULD NOT CREATE OBJECTIONABLE ODORS THAT COULD AFFECT A SUBSTANTIAL NUMBER OF PEOPLE OR EXPOSE FUTURE RESIDENTS TO ODORS THAT WOULD PRODUCE A PUBLIC NUISANCE OR HAZARD. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

The occurrence and severity of objectionable odors depend on a number of factors, including the nature, frequency, and intensity of the source; the wind speeds and direction; and the sensitivity of the receiving location. Although objectionable odors seldom cause physical harm, they can be perceived as a nuisance, cause distress among the public, and result in citizen complaints.

The 2045 General Plan Update would facilitate the development of new housing units, which are odor-sensitive receptors, in areas with existing residential and commercial land uses. Construction activities for development forecasted in accordance with the 2045 General Plan Update may produce temporary odors. Examples of potential odors produced by construction activities include concentrations of unburned hydrocarbons from construction equipment tailpipes and reactive organic gases/compounds from architectural coatings. Such odors generally disperse rapidly from individual project sites, occur at magnitudes that would not affect substantial numbers of people, and would be limited to the temporary construction period.

The SBCAPCD *Scope and Content of Air Quality Sections in Environmental Documents* (2022) states that certain projects have the potential to cause significant odor impacts because of the nature of their operation and their location. Examples include fast food restaurants, bakeries, and coffee roasting facilities. In addition, wastewater treatment plants, landfills, confined animal facilities, composting stations, food manufacturing plants, refineries, and chemical plants. Although the annexation area east of the city limits would be located in proximity to agricultural operations, such operations are not typically associated with the generation of substantial or frequent odors. Agricultural activities in the region primarily involve crop cultivation and other practices that do not constitute significant odor sources under typical operating conditions. Thus, the potential for odor-related impacts on future development within the annexation area is considered minimal. The 2045 General Plan Update would not create objectionable odors affecting a substantial number of people or expose future residents to odor in concentrations that would produce a public nuisance or hazard. Therefore, odor impacts would be less than significant.

Mitigation Measures

No mitigation is required because this impact would be less than significant.

Threshold 5:	Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?
Threshold 6:	Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Impact AQGHG-5 DEVELOPMENT FACILITATED BY THE 2045 GENERAL PLAN UPDATE WOULD GENERATE GHG EMISSIONS THAT MAY HAVE A SIGNIFICANT IMPACT ON THE ENVIRONMENT AND CONFLICT WITH AN APPLICABLE PLAN, POLICY, OR REGULATION ADOPTED FOR THE PURPOSE OF REDUCING THE EMISSIONS OF GREENHOUSE GASES. THIS IMPACT WOULD BE SIGNIFICANT AND UNAVOIDABLE.

As discussed above under Section 4.2.3(a), Methodology and Significance Thresholds, the City of Santa Maria has not adopted a quantitative significance threshold for assessing impacts related to GHG emissions. Therefore, the 2045 General Plan Update is evaluated based on consistency with the 2022 Scoping Plan and SBCAG 2050 RTP/SCS. Operational emissions are provided for informational purposes. Construction emissions are not provided as specific individual project-level details are unknown at this level of planning.

The principal State GHG reduction plans and policies are AB 32, SB 32, and AB 1279. The goal of AB 32 is to reduce GHG emissions to 1990 levels by 2020. The goal of SB 32 is to reduce GHG emissions to 40 percent below 1990 levels by 2030. AB 1279 identifies a State-wide target of net-zero GHG emissions by 2045 and a goal of reducing GHG emissions by 85 percent below 1990 levels by 2045. The latest iteration of the Scoping Plan is the 2022 Scoping Plan, which 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.

The 2045 General Plan Update would be generally consistent with these goals since future development would be required to comply with the latest Title 24 Green Building Code and Building Efficiency Energy Standards. Additionally, the 2045 General Plan Update includes the following goal, policies, and actions intended to reduce GHG emissions from building energy use.

Goal COS-6: Greenhouse gas emissions. The city is carbon-neutral.

Policy COS-6.1: GHG reduction strategy. Develop and implement a citywide GHG reduction and monitoring strategy.

Action COS-6.1.1: Establish City GHG emissions reduction targets that are consistent with state-mandated targets of reducing emissions to 40 percent below 1990 levels by 2030 and achieving carbon neutrality by 2045.

Action COS-6.1.2: Develop a sustainability plan or similar document that outlines how the City will achieve its GHG reduction targets. Integrate City-led GHG reduction strategies with regional efforts.

Policy COS-6.4: Energy conservation programs. Promote energy conservation through public awareness programs.

Action COS-6.4.1: Coordinate with 3C-REN to increase awareness of local incentives for improving energy efficiency for homeowners.

Action COS-6.4.2: Identify and pursue funding to create a program offering home energy audits to help property owners identify updates to increase energy efficiency and funding assistance for home retrofits.

Future development would also be served by Southern California Edison or Central Coast Community Energy, both of which are required to increase its renewable energy procurement in accordance with SB 100 targets. Furthermore, development facilitated by the plan would be required to comply with the State's recycling and composting requirements for commercial businesses under AB 341, which requires businesses generating four or more cubic yards of solid waste per week to recycle, and AB 1826, which requires businesses generating two or more cubic yards of solid waste per week to recycle organic waste. Compliance with these state laws would maximize the plan's recycling and solid waste diversion.

Priority GHG reduction strategies outlined in the Scoping Plan include VMT reduction measures aimed at improving and increasing access to public transit by increasing density of development near transit, increasing service frequency, creating bus priority lanes, reducing or eliminating fares, and microtransit alternatives. The following 2045 General Plan Update goals, policies, and actions would reduce GHG emissions.

Goal COS-6: Greenhouse gas emissions. The city is carbon-neutral.

Policy COS-6.1: GHG reduction strategy. Develop and implement a citywide GHG reduction and monitoring strategy.

Action COS-6.1.1: Establish City GHG emissions reduction targets that are consistent with state-mandated targets of reducing emissions to 40 percent below 1990 levels by 2030 and achieving carbon neutrality by 2045.

Action COS-6.1.2: Develop a sustainability plan or similar document that outlines how the City will achieve its GHG reduction targets. Integrate City-led GHG reduction strategies with regional efforts.

Policy COS-6.2: Vehicle emissions reduction. Reduce vehicle-generated air pollution and GHG emissions by expanding active transportation opportunities.

Policy COS-6.3: City vehicle fleet electrification. Transition the City's vehicle fleet to electric/zero-emission vehicles.

Action COS-6.3.1: Amend the City's Capital Improvement Plan to incorporate the replacement of high-mileage fleet vehicles with clean fuel vehicles.

Action COS-6.3.2: Pursue state and federal grants for transitioning City vehicles to clean fuel sources and installing electric vehicle charging stations at City facilities.

Policies listed in Section 4.7, *Transportation,* would encourage active transportation and transit use in accordance with the 2022 Scoping Plan. However, as discussed under Impact TRA-2*,* the 2045 General Plan Update would not meet the 17 percent VMT reduction target set by CARB for the SBCAG region. As such, the forecasted VMT would not be consistent with climate goals established in the 2050 RTP/SCS.

As demonstrated above, the goal, policies, and actions provided in the 2045 General Plan Update to reduce GHG emissions from building use are consistent with measures in the 2022 Scoping Plan aimed at achieving the same thing. However, the 2045 General Plan Update would not reduce GHG

emissions from vehicle use in a sufficiently to meet the 17 percent VMT reduction target established by CARB for the SBCAG region in the 2050 RTP/SCS. Therefore, the 2045 General Plan Update would conflict with the reduction of GHG emissions related to vehicle use goals of the 2022 Scoping Plan.

SBCAG has incorporated a sustainable community strategy into the 2050 RTP/SCS, which is designed to help the region achieve its SB 375 GHG emissions reduction target. The 2050 RTP/SCS demonstrates that the SBCAG region would achieve its regional emissions reduction targets for the 2020 and 2035 target years.

Table 4.2-8 Plan Consistency with the SBCAG 2050 RTP/SCS

Policies	Plan Consistency
Policy 1.1: Land Use	
The planning, construction, and operation of transportation facilities shall be coordinated with local land use planning and should encourage local agencies to: 1. Make land use decisions that adequately address regional transportation issues and are consistent with the RTP-SCS. 2. Promote better balance of jobs and housing to reduce long-distance commuting by means of traditional land use zoning, infill development, and other, unconventional land use tools, such as employer-sponsored housing programs, economic development programs, commercial growth management ordinances, average unit size ordinances and parking pricing policies. 3. Plan for transit-oriented development consistent with the RTP-SCS by: a. Concentrating residences and commercial centers in urban areas near rail stations, transit centers and along transit development corridors. b. Designing and building "complete streets" serving all transportation modes that connect high-usage origins and destinations. 4. Preserve open space, agricultural land and sensitive biological areas. 5. Identify, minimize and mitigate adverse environmental impacts and, in particular, require mitigation of traffic impacts of new land development through on-site and related off-site improvements for all modes of transportation, including incentives to encourage the use of alternative transportation modes. 6. Dissuade siting of new development in high-fire risk areas by means such as ensuring insurability and redundancy of ingress and egress.	**Consistent:** The 2045 General Plan Update would facilitate the development of 16,140 net new residential units in infill and urbanized areas in proximity to services and transit which would encourage walking, bicycling, and the use of alternative transportation. The 2045 General Plan Update would also generate 23,750 net new jobs which would improve the balance of jobs and housing and reduce long-distance commuting.
Policy 1.2: Air Quality	
Transportation planning and projects shall be designed to: 1. Lead to reductions in greenhouse gas and criteria pollutant emissions, consistent with the air quality goals of the region, including targets for greenhouse gas emissions from passenger vehicles in 2020 and 2035 as required by Senate Bill 375 (SB 375).	**Inconsistent:** Future development facilitated by the plan would be required to comply with the latest Title 24 Green Building Code and Building Efficiency Energy Standards and would also be served by Southern California Edison and Electric or Central Coast Community Energy, both of which are required to increase its renewable energy procurement in accordance with SB 100 targets. In

Policies	Plan Consistency
2. Be in conformity with the Air Pollution Control District Ozone Plan and the State Implementation Plan (SIP) and meet the National Ambient Air Quality Standards as required by the federal Clean Air Act.	addition, as discussed under Impact AQGHG-1, the 2045 General Plan Update would be consistent with the 2022 Ozone Plan, and would adhere to SBAPCD Rules 323.1, 329, and 345. Nonetheless, since specific project-level information is currently unknown, there is no guarantee the 2045 General Plan Update would be consistent with State legislation and the 2022 Scoping Plan with goals to achieve carbon neutrality by 2045.
Policy 1.3: Alternative Fuels and Energy	
Transportation planning and projects shall: 1. Encourage the use of alternative fuels, and the application of advanced transportation and energy technologies to reduce vehicular emission production and energy consumption. **2.** Promote renewable energy and energy conservation, consistent with applicable federal, State, and local energy programs, goals, and objectives.	**Consistent.** The 2045 General Plan Update Policies COS-6.2 through 6.4 aim to reduce vehicle-generated air pollution and GHG emissions by expanding active transportation opportunities; transition the City's vehicle fleet to electric or zero-emission vehicles; and promote energy conservation through public awareness programs. Future development would also be required to comply with the latest Title 24 Green Building Code and Building Efficiency Energy Standards and incorporate energy efficient and sustainable designs and appliances.

Source: SBCAG 2025

The 2050 RTP/SCS states that one of the intents of the Sustainable Communities Strategy is "directly addressing regional jobs/housing imbalance by providing more housing on the jobs-rich South Coast and more jobs to communities in the North County" (SBCAG 2021). Improving the intra-County jobs/housing imbalance would decrease transportation demands on U.S. Highway 101, State Route 166, and State Route 1, which would reduce congestion and VMT. The plan would increase employment by adding 23,750 new jobs within the City, which would improve the City's jobs-housing ratio, reducing vehicle emissions. Therefore, the 2045 General Plan Update would be consistent with most of the policies in the SBCAG 2050 RTP/SCS, with the exception of Policy 1.2. Overall, although the 2045 General Plan Update would be generally consistent most of the policies from the SBCAG 2050 RTP/SCS, the plan would be inconsistent with Policy 1.2 from the SBCAG 2050 RTP/SCS and the 2022 Scoping Plan, since the plan has the potential to conflict with the State-wide target of net-zero GHG emissions by 2045. Therefore, this impact would be potentially significant.

GHG emissions associated with the 2045 General Plan Update are shown below under Table 4.2-9 for informational purposes only. As shown in Table 4.2-9, the plan would result in approximately 271,807 MT CO_2e per year.

Table 4.2-9 Operational GHG Emissions

Emission Source	Annual Emissions (MT CO_2e)
Net New Uses Operational	
Mobile	83,629
Area	1,145
Energy	229,129
Water	13,486
Waste	23,447
Refrigerants	57
Total	**350,894**

Emission Source	Annual Emissions (MT CO_2e)
Net Reduction in Uses Operational	
Mobile	5,335
Area	296
Energy	63,577
Water	4,015
Waste	5,856
Refrigerants	8
Total	**79,087**
Net New Emissions	**271,807**

MT CO_2e = metric tons of carbon dioxide equivalent.
Source: CalEEMod worksheets are in Appendix B.

Mitigation Measures

There are no feasible mitigation measures that would reduce plan area emissions of GHGs such that the plan would not potentially conflict with the State-wide target of net-zero GHG emissions by 2045.

Significance After Mitigation

No feasible mitigation measures are available to reduce impacts to a less than significant level. Therefore, this impact would be significant and unavoidable.

4.2.4 Cumulative Impacts

Air Quality

A project's environmental impacts are "cumulatively considerable" if the "incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects" (CEQA Guidelines Section 15065[a][3]). Regional cumulative impacts consider the City-wide impacts together with similar impacts of reasonably anticipated regional projects/programs. The general approach to cumulative impact analysis used in this EIR, as well as the determination of the cumulative impact analysis area, is discussed in Section 3, *Environmental Setting,* Subsection 3.3, *Cumulative Development*.

As described under Impact AQGHG-1, the SBCAPCD's approach for assessing cumulative impacts is based on consistency with the latest adopted Ozone Plan. The population estimate under the 2045 General Plan Update is considered conservative, as it assumes full occupancy of all potential residential units at the maximum persons-per-household rate.[4] Actual population growth may be lower. Nonetheless, the 2045 General Plan Update would still result in exceedance of the population forecasts for the City of Santa Maria in the 2022 Ozone Plan and would potentially exceed SBCAPCD construction and operational criteria air pollutant thresholds. Therefore, the 2045 General Plan

[4] This calculation represents a conservative analysis in which every potential residential unit (16,140 as described in Section 2.6.5, Proposed 2045 General Plan Buildout) is occupied at the full potential persons per household rate.

Update would have a cumulatively considerable contribution to impacts related to consistency with the latest adopted Ozone Plan

As identified under Impact AQGHG-2, the 2045 General Plan Update would exceed SBCAPCD operational emissions thresholds for ROC, NO_X, and PM_{10}. Additionally, at this stage of planning, project-specific details regarding construction activity are currently unknown and could potentially exceed SBCAPCD thresholds after mitigation. Therefore, even with implementation of Mitigation Measure AQGHG-2, the 2045 General Plan Update would result in a cumulatively considerable net increase of criteria pollutants for which the plan region is non-attainment.

As shown under Impact AQGHG-3, construction activity may result in a potentially significant impact related to DPM and TAC exposure within the City. Health risk impacts are localized to the immediate vicinity of DPM and TAC sources, such that people affected by construction-related TAC emissions generated at one housing site would likely not be affected by construction-related TAC emissions generated at another housing site should construction activities occur simultaneously. Discussion of these impacts considers the cumulative nature of the pollutants in the region; for example, the cancer risk and non-cancer risk thresholds have been set pursuant to existing cancer risks in the area and exceeding those thresholds would be considered a cumulative impact. Implementation of Mitigation Measure AQGHG-3 would reduce concentrations of DPM and TAC emissions from construction activity associated with future development under the 2045 General Plan Update. Therefore, the plan's contribution to cumulative air quality impacts related to these pollutants would not result in a cumulatively considerable impact.

Cumulative projects would adversely affect sensitive receptors from odor emissions if cumulative projects were typical odor-producing land uses. Construction of cumulative projects would result in construction equipment-related odors; however, the temporary nature of construction would ensure less than significant cumulative odor impacts. In addition, the 2045 General Plan Update would not facilitate the development of odor-generating sources. Therefore, operational odor impacts would be less than significant and the 2045 General Plan Update would not result in a cumulatively considerable impact related to odors.

GHG

A project's environmental impacts are "cumulatively considerable" if the "incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects" (CEQA Guidelines Section 15065[a][3]). Regional cumulative impacts consider the City-wide impacts together with similar impacts of reasonably anticipated regional projects/programs. The general approach to cumulative impact analysis used in this EIR, as well as the determination of the cumulative impact analysis area, is discussed in Section 3, *Environmental Setting,* Subsection 3.3, *Cumulative Development*.

GHG emissions and climate change are, by definition, cumulative impacts, because impacts of climate change are experienced on a global scale regardless of the location of GHG emission sources. As discussed in Section 4.2.1b, *Potential Effects of Climate Change*, the adverse environmental impacts of cumulative GHG emissions, including sea level rise, increased average temperatures, more drought years, and more large forest fires, are already occurring. As a result, cumulative impacts related to GHG emissions are significant. Thus, the issue of climate change involves an analysis of whether a project's contribution towards an impact is cumulatively considerable. As discussed under Thresholds GHG-1 and GHG-2, plan impacts related to GHG emissions would be significant and unavoidable since there is not guarantee the 2045 General Plan

Update would be consistent with the State-wide target of net-zero GHG emissions by 2045. Therefore, GHG impacts would be cumulatively considerable.