4.7 Greenhouse Gas Emissions

This section describes the environmental setting related to climate change and greenhouse gas (GHG) emissions of the 123 Independence Drive Residential Project (project or proposed project) site and vicinity, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the project.

As discussed in Chapter 2, Introduction, and Chapter 4, Environmental Analysis, two Notices of Preparation (NOPs) were circulated for this environmental impact report (EIR); one in January and February 2021 and one in September and October 2021. Public comments received in response to the NOPs from the Sequoia Union High School District cite concerns with impacts on the TIDE Academy and Menlo-Atherton High School due to construction activities and the potential increase in traffic volumes within the project area. Both NOPs and the comments received in response to them are provided in Appendix A of this EIR.

Information contained in this section is based on the latest version of California Emissions Estimator Model (CalEEMod), Version 2020.4.0, to estimate the project's GHG emissions from both construction and operations. For the relevant data, refer to Appendix C-1, Air Quality, Greenhouse Gas Emissions, and Energy Calculations, prepared by Dudek in March 2022.

The primary sources reviewed to prepare this section includes the Transportation Impact Analysis, included as Appendix J, the Bay Area Air Quality Management District (BAAQMD) California Environmental Quality Act (CEQA) Thresholds for Evaluating the Significance of Climate Impacts From Land Use Projects and Plans (BAAQMD Thresholds) (BAAQMD 2022), and the City of Menlo Park 2030 Climate Action Plan (CAP) (City of Menlo Park 2021a).

4.7.1 Environmental Setting

Climate Change Overview

Climate change refers to any significant change in measures of climate—such as temperature, precipitation, or wind patterns—lasting for an extended period of time (decades or longer). The Earth's temperature depends on the balance between energy entering and leaving the planet's system. Many factors, both natural and human, can cause changes in Earth's energy balance, including variations in the sun's energy reaching Earth, changes in the reflectivity of Earth's atmosphere and surface, and changes in the greenhouse effect, which affects the amount of heat retained by Earth's atmosphere (EPA 2017).

The greenhouse effect is the trapping and buildup of heat in the atmosphere (troposphere) near the Earth's surface. The greenhouse effect traps heat in the troposphere through a three-part process as follows: (1) short-wave radiation emitted by the Sun is absorbed by the Earth, (2) the Earth emits a portion of this energy in the form of long-wave radiation, and (3) GHGs in the upper atmosphere absorb this long-wave radiation and emit it both into space and back toward the Earth. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature and creates a pleasant, livable environment on the Earth. Human activities that emit additional GHGs to the atmosphere increase the amount of infrared radiation that gets absorbed before escaping into space, thus enhancing the greenhouse effect and causing the Earth's surface temperature to rise.

The scientific record of the Earth's climate shows that the climate system varies naturally over a wide range of time scales and that, in general, climate changes prior to the Industrial Revolution in the 1700s can be explained by natural

causes, such as changes in solar energy, volcanic eruptions, and natural changes in GHG concentrations. However, recent climate changes, in particular the warming observed over the past century, cannot be explained by natural causes alone. Rather, it is extremely likely that human activities have been the dominant cause of warming since the mid-twentieth century and are the most significant driver of observed climate change (IPCC 2013; EPA 2017). Human influence on the climate system is evident from the increasing GHG concentrations in the atmosphere, positive radiative forcing, observed warming, and improved understanding of the climate system (IPCC 2013). The atmospheric concentrations of GHGs have increased to levels unprecedented in the last 800,000 years, primarily from fossil fuel emissions and secondarily from emissions associated with land use changes (IPCC 2013). Continued emissions of GHGs will cause further warming and changes in all components of the climate system.

Greenhouse Gases

A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. As defined in California Health and Safety Code, Section 38505(g), for purposes of administering many of the state's primary GHG emissions reduction programs, GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3) (See also CEQA Guidelines, Section 15364.5). Some GHGs, such as CO_2, CH_4, and N_2O, occur naturally and are emitted into the atmosphere through natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Manufactured GHGs, which have a much greater heat-absorption potential than CO_2, include fluorinated gases, such as HFCs, PFCs, and SF_6, which are associated with certain industrial products and processes. The following paragraphs provide a summary of the most common GHGs and their sources.[1]

Carbon Dioxide. CO_2 is a naturally occurring gas and a by-product of human activities and is the principal anthropogenic GHG that affects the Earth's radiative balance. Natural sources of CO_2 include respiration of bacteria, plants, animals, and fungus; evaporation from oceans; volcanic out-gassing; and decomposition of dead organic matter. Human activities that generate CO_2 are from the combustion of fuels such as coal, oil, natural gas, and wood and changes in land use.

Methane. CH_4 is produced through both natural and human activities. CH_4 is a flammable gas and is the main component of natural gas. Methane is produced through anaerobic (without oxygen) decomposition of waste in landfills, flooded rice fields, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.

Nitrous Oxide. N_2O is produced through natural and human activities, mainly through agricultural activities and natural biological processes, although fuel burning and other processes also create N_2O. Sources of N_2O include soil cultivation practices (microbial processes in soil and water), especially the use of commercial and organic fertilizers, manure management, industrial processes (such as in nitric acid production, nylon production, and fossil-fuel-fired power plants), vehicle emissions, and using N_2O as a propellant (e.g., rockets, racecars, and aerosol sprays).

Fluorinated Gases. Fluorinated gases (also referred to as F-gases) are synthetic powerful GHGs emitted from many industrial processes. Fluorinated gases are commonly used as substitutes for stratospheric ozone-depleting

[1] The descriptions of GHGs are summarized from the Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report (1995), IPCC Fourth Assessment Report (2007), CARB's "Glossary of Terms Used in GHG Inventories" (2021a), and EPA's "Glossary of Climate Change Terms" (2017).

substances (e.g., chlorofluorocarbons [CFCs], hydrochlorofluorocarbons [HCFCs], and halons). The most prevalent fluorinated gases include the following:

- **Hydrofluorocarbons:** HFCs are compounds containing only hydrogen, fluorine, and carbon atoms. HFCs are synthetic chemicals used as alternatives to ozone-depleting substances in serving many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are used in manufacturing.
- **Perfluorocarbons:** PFCs are a group of human-made chemicals composed of carbon and fluorine only. These chemicals were introduced as alternatives, with HFCs, to the ozone depleting substances. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing. Since PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere, these chemicals have long lifetimes, ranging between 10,000 and 50,000 years.
- **Sulfur Hexafluoride:** SF_6 is a colorless gas soluble in alcohol and ether and slightly soluble in water. SF_6 is used for insulation in electric power transmission and distribution equipment, semiconductor manufacturing, the magnesium industry, and as a tracer gas for leak detection.
- **Nitrogen Trifluoride:** NF_3 is used in the manufacture of a variety of electronics, including semiconductors and flat panel displays.

Chlorofluorocarbons. CFCs are synthetic chemicals that have been used as cleaning solvents, refrigerants, and aerosol propellants. CFCs are chemically unreactive in the lower atmosphere (troposphere) and the production of CFCs was prohibited in 1987 due to the chemical destruction of stratospheric O_3.

Hydrochlorofluorocarbons. HCFCs are a large group of compounds, whose structure is very close to that of CFCs—containing hydrogen, fluorine, chlorine, and carbon atoms—but including one or more hydrogen atoms. Like HFCs, HCFCs are used in refrigerants and propellants. HCFCs were also used in place of CFCs for some applications; however, their use in general is being phased out.

Black Carbon. Black carbon is a component of fine particulate matter, which has been identified as a leading environmental risk factor for premature death. It is produced from the incomplete combustion of fossil fuels and biomass burning, particularly from older diesel engines and forest fires. Black carbon warms the atmosphere by absorbing solar radiation, influences cloud formation, and darkens the surface of snow and ice, which accelerates heat absorption and melting. Black carbon is a short-lived species that varies spatially, which makes it difficult to quantify the global warming potential. Diesel particulate matter emissions are a major source of black carbon and are TACs that have been regulated and controlled in California for several decades to protect public health. In relation to declining diesel particulate matter from the CARB's regulations pertaining to diesel engines, diesel fuels, and burning activities, CARB estimates that annual black carbon emissions in California have reduced by 70 percent between 1990 and 2010, with 95 percent control expected by 2020 (CARB 2014).

Water Vapor. The primary source of water vapor is evaporation from the ocean, with additional vapor generated by sublimation (change from solid to gas) from ice and snow, evaporation from other water bodies, and transpiration from plant leaves. Water vapor is the most important, abundant, and variable GHG in the atmosphere and maintains a climate necessary for life.

Ozone. Tropospheric O_3, which is created by photochemical reactions involving gases from both natural sources and human activities, acts as a GHG. Stratospheric O_3, which is created by the interaction between solar ultraviolet radiation and molecular oxygen (O_2), plays a decisive role in the stratospheric radiative balance. Depletion of stratospheric O_3, due to chemical reactions that may be enhanced by climate change, results in an increased ground-level flux of ultraviolet-B radiation.

Aerosols. Aerosols are suspensions of particulate matter in a gas emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light.

Global Warming Potential

Gases in the atmosphere can contribute to climate change both directly and indirectly. Direct effects occur when the gas itself absorbs radiation. Indirect radiative forcing occurs when chemical transformations of the substance produce other GHGs, when a gas influences the atmospheric lifetimes of other gases, and/or when a gas affects atmospheric processes that alter the radiative balance of the Earth (e.g., affect cloud formation or albedo). The Intergovernmental Panel on Climate Change (IPCC) developed the global warming potential (GWP) concept to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP of a GHG is defined as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram of a trace substance relative to that of 1 kilogram of a reference gas (IPCC 2014). The reference gas used is CO_2; therefore, GWP-weighted emissions are measured in metric tons of CO_2 equivalent (MT CO_2e).

The current version of CalEEMod (Version 2020.4.0) assumes that the GWP for CH_4 is 25 (so emissions of 1 MT of CH_4 are equivalent to emissions of 25 MT of CO_2), and the GWP for N_2O is 298, based on the IPCC Fourth Assessment Report (IPCC 2007). The GWP values identified in CalEEMod were applied to the project.

Greenhouse Gas Inventories and Climate Change Conditions

Global Inventory

Anthropogenic (human-caused) GHG emissions worldwide in 2019 (the most recent year for which data is available) totaled approximately 38,020 million metric tons (MMT) CO_2e, excluding land use change and forestry (PBL 2020). Six countries (China, the United States, the Russian Federation, India, Japan, and Brazil) and the European Union accounted for approximately 68 percent of the total global emissions, or approximately 26,010 MMT CO_2e (PBL 2020). Table 4.7-1 presents the top GHG-emissions-producing countries.

Table 4.7-1. Six Top Greenhouse-Gas-Producing Countries and the European Union

Emitting Countries (Listed in Order of Emissions)	Greenhouse Gas Emissions (MMT CO_2e)[b]
China	11,580
United States	5,110
European Union	3,300
India	2,600
Russian Federation	1,790
Japan	1,150
Brazil	480
Total[a]	**26,010**

Source: PBL 2020.
Notes: MMT CO_2e = million metric tons of carbon dioxide equivalent.
[a] Total may not sum precisely due to rounding.
[b] GHG emissions do not include land use change and forestry-related GHG emissions.

National and State Inventories

According to the 2021 U.S. Environmental Protection Agency Inventory of U.S. GHG Emissions and Sinks: 1990–2019, total U.S. GHG emissions were approximately 6,558 MMT CO_2e in 2019 (EPA 2021). The primary GHG emitted by human activities in the United States was CO_2, which represented approximately 80.1 percent of total GHG emissions (5,256 MMT CO_2e). The largest source of CO_2, and of overall GHG emissions, was fossil-fuel combustion, which accounted for approximately 74.1 percent of CO_2 emissions in 2019 (4,857 MMT CO_2e). Relative to the 1990 emissions level, gross U.S. GHG emissions in 2019 were 1.8 percent higher; however, the gross emissions were down from a high of 15.6 percent above the 1990 level that occurred in 2007. GHG emissions decreased from 2018 to 2019 by 1.7 percent (113 MMT CO_2e) and, overall, net emissions in 2019 were 13 percent below 2005 levels (EPA 2021).

According to California's 2000–2019 GHG emissions inventory (2021 edition), California emitted 418 MMT CO_2e in 2019, including emissions resulting from out-of-state electrical generation (CARB 2021b). The sources of GHG emissions in California include transportation, industrial uses, electric power production from both in-state and out-of-state sources, commercial and residential uses, agriculture, high-GWP substances, and recycling and waste. Table 4.7-2 presents California GHG emission source categories (as defined in CARB's 2008 Scoping Plan) and their relative contributions to the emissions inventory in 2019.

Table 4.7-2. Greenhouse Gas Emissions Sources in California

Source Category	Annual GHG Emissions (MMT CO_2e)	Percent of Total
Transportation	166.14	40
Industrial uses	88.18	21
Electricity generation	58.83	14
Residential and commercial uses	43.81	10
Agriculture	31.75	8
High-GWP substances	20.58	5
Recycling and waste	8.85	2
Totals[a]	**418.14**	**100**

Source: CARB 2021b.
Notes: GHG = greenhouse gas; MMT CO_2e = million metric tons of carbon dioxide equivalent; GWP = global warming potential. Emissions reflect 2019 California GHG inventory.
[a] Totals may not sum precisely due to rounding.

Between 2000 and 2019, per capita GHG emissions in California dropped from a peak of 14.0 MT per person in 2001 to 10.5 MT per person in 2019, representing a 25 percent decrease. Overall trends in the inventory also continue to demonstrate that the carbon intensity of California's economy (the amount of carbon pollution per million dollars of gross domestic product) is declining (CARB 2021b). The declining trend in GHG emissions, coupled with programs that will continue to provide additional GHG reductions going forward, demonstrates that California achieved the 2020 target of 431 MMT CO_2e.

City of Menlo Park Inventory

Table 4.7-3 presents the City's 2017 baseline GHG emissions and the percent contribution of each emissions source (energy, transportation, and solid waste).

Table 4.7-3. City of Menlo Park Baseline Greenhouse Gas Emissions Inventory (2019)

Emissions Source	Annual GHG Emissions (MT CO_2e/year)	Percent of Total
Transportation	122,029	48
Natural Gas	104,358	41
Electricity	20,963	8
Solid Waste	6,022	2
Totals[a]	**253,371**	**100**

Source: City of Menlo Park 2021b.
Notes: GHG = greenhouse gas; MT CO_2e = metric tons of carbon dioxide equivalent per year.
[a] Totals may not sum precisely due to rounding.

As shown in Table 4.7-3, the primary generators of GHGs within the City were attributed to transportation and natural gas, accounting for 56 percent and 34 percent of the City's GHG emissions in 2017, respectively.

Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. The 2014 *Intergovernmental Panel on Climate Change Synthesis Report* (IPCC 2014) indicated that warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. Signs that global climate change has occurred include warming of the atmosphere and ocean, diminished amounts of snow and ice, and rising sea levels (IPCC 2014).

In California, climate change impacts have the potential to affect sea-level rise, agriculture, snowpack and water supply, forestry, wildfire risk, public health, frequency of severe weather events, and electricity demand and supply. The primary effect of global climate change has been a rise in average global tropospheric temperature. Reflecting the long-term warming trend since pre-industrial times, observed global mean surface temperature for the decade 2006–2015 was 0.87°C, or likely between 33.35°F and 33.78°C, higher than the average over the 1850–1900 period (IPCC 2018). Scientific modeling predicts that continued emissions of GHGs at or above current rates would induce more extreme climate changes during the twenty-first century than were observed during the twentieth century. Human activities are estimated to have caused approximately 1.0°C (1.8°F) of global warming above pre-industrial levels, with a likely range of 0.8°C to 1.2°C (1.4°F to 2.2°F) (IPCC 2018). Global warming is likely to reach 1.5°C (2.7°F) between 2030 and 2052 if it continues to increase at the current rate (IPCC 2018).

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting the state. The Office of Environmental Health Hazard Assessment identified various indicators of climate change in California, which are scientifically based measurements that track trends in various aspects of climate change. Many indicators reveal discernable evidence that climate change is occurring within the state and is having significant, measurable impacts. Changes in the state's climate have been observed including an increase in annual average air temperature with record warmth from 2012 to 2016, more frequent extreme heat events, more extreme drought, a decline in winter chill, an increase in cooling degree days and a decrease in heating degree days, and an increase in variability of statewide precipitation (OEHHA 2018).

Warming temperatures and changing precipitation patterns have altered California's physical systems—the ocean, lakes, rivers, and snowpack—on which the state depends. Winter snowpack and spring snowmelt runoff from the

Sierra Nevada and southern Cascade Mountains provide approximately one-third of the state's annual water supply. Impacts of climate on physical systems have been observed such as high variability of snow-water content (i.e., amount of water stored in snowpack), decrease in snowmelt runoff, glacier change (loss in area), rise in sea levels, increase in average lake water temperature and coastal ocean temperature, and a decrease in dissolved oxygen in coastal waters (OEHHA 2018).

Impacts of climate change on biological systems, including humans, wildlife, and vegetation, have also been observed including climate change impacts on terrestrial, marine, and freshwater ecosystems. As with global observations, species responses include those consistent with warming: elevational or latitudinal shifts in range, changes in the timing of key plant and animal life-cycle events, and changes in the abundance of species and in community composition. Humans are better able to adapt to a changing climate than plants and animals in natural ecosystems. Nevertheless, climate change poses a threat to public health as warming temperatures and changes in precipitation can affect vector-borne pathogen transmission and disease patterns in California as well as the variability of heat-related deaths and illnesses. In addition, since 1950, the area burned by wildfires each year has been increasing.

The California Natural Resources Agency (CNRA) has released four California Climate Change Assessments (CNRA 2006, 2009, 2012, and 2018b), which have addressed the following: acceleration of warming across the state, more intense and frequent heat waves, greater riverine flows, accelerating sea level rise, more intense and frequent drought, more severe and frequent wildfires, more severe storms and extreme weather events, shrinking snowpack and less overall precipitation, and ocean acidification, hypoxia, and warming. To address local and regional governments need for information to support action in their communities, the Fourth Assessment (2018) includes reports for nine regions of the state, including the San Francisco Bay Area Region, where the project is located. Key projected climate changes for the San Francisco Bay Area Region include the following (CNRA 2018a):

- Continued future warming over San Francisco Bay Area Region. Across the region, average maximum temperatures are projected to increase around 2.7°F to 10.8°F by the late century.
- Extreme temperatures are also expected to increase. The hottest day of the year may be up to 10°F warmer for many locations across the San Francisco Bay Area Region by the late century under certain model scenarios. The number of extremely hot days is also expected to increase across the region.
- Several studies suggest that coastal fog along the California coast, so critical to the San Francisco Bay Area Region climate, is less frequent than before.
- Sea level in the San Francisco Bay Area Region has risen over 20 centimeters (8 inches) in the last 100 years. California's Fourth Climate Change Assessment projects median sea level rise between 0.74 meters and 1.37 meters for 2100 along the California coast. However, recent science studies, using advanced models and ice sheet observations, suggest the possibility of extensive loss from Antarctic ice sheets in the twenty-first century — possibly producing sea level rise by 2100 that could approach 3 meters.
- In the San Francisco Bay Area Region, will continue to exhibit high year-to-year variability—"booms and busts"—with very wet and very dry years. The San Francisco Bay Area Region's largest winter storms will likely become more intense, and potentially more damaging, in the coming decades. Wet winters and drier summers are likely to increase summer and fall wildfire activity.
- Future increases in temperature, regardless of whether total precipitation goes up or down, will likely cause longer and deeper California droughts, posing major problems for water supplies, natural ecosystems, and agriculture.

4.7.2 Regulatory Framework

International

United Nations Framework Convention on Climate Change, Kyoto Protocol, and Paris Agreement

In 1992, numerous countries joined an international treaty, the United Nations Framework Convention on Climate Change (UNFCCC), as a framework for international cooperation to combat climate change by limiting average global temperature increases and the resulting climate change, and coping with associated impacts. Currently, there are 197 Parties (196 States and 1 regional economic integration organization) in the UNFCCC (UNFCCC 2019).

By 1995, countries launched negotiations to strengthen the global response to climate change, and 2 years later, adopted the Kyoto Protocol, which was the first international agreement to regulate GHG emissions. The Kyoto Protocol legally binds developed country Parties to emission reduction targets. The Protocol's first commitment period started in 2008 and ended in 2012. The second commitment period began on January 1, 2013 and ended in 2020. More than 160 countries signed the Kyoto Protocol (UNFCCC 2019). In 2001, President George W. Bush indicated that he would not submit the treaty to the U.S. Senate for ratification, which effectively ended the United States involvement in the Kyoto Protocol.

The 2015 Paris Agreement, adopted in Paris on December 12, 2015, marks the latest step in the evolution of the UN climate change regime and builds on the work undertaken under the Convention. The Paris Agreement charts a new course in the global effort to combat climate change. The Paris Agreement central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5°C (UNFCCC 2019). The Paris Agreement also aims to strengthen the ability of countries to deal with the impacts of climate change. The Paris Agreement requires all Parties to put forward their best efforts through nationally determined contributions and to strengthen these efforts in the years ahead.

The Paris Agreement entered into force on November 4, 2016, thirty days after the date on which at least 55 Parties to the Convention accounting in total for at least an estimated 55 percent of the total global GHG emissions have deposited their instruments of ratification, acceptance, approval or accession with the Depositary (UNFCCC 2019). On June 2, 2017 President Donald Trump announced his intention to withdraw from the Paris Agreement, which was formally recognized on November 4, 2019. President Joe Biden re-joined the Paris Agreement on January 21, 2021, which was accepted by the United Nations; the United States was formally re-entered into the Paris Agreement on February 29, 2021.

Federal Regulations

Massachusetts v. EPA

In *Massachusetts v. EPA* (April 2007), the U.S. Supreme Court directed the U.S. Environmental Protection Agency (EPA) administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too

uncertain to make a reasoned decision. In December 2009, the administrator signed a final rule with the following two distinct findings regarding GHGs under Section 202(a) of the federal Clean Air Act:

- The Administrator found that elevated concentrations of GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations. This is the "endangerment finding."
- The Administrator further found the combined emissions of GHGs—CO_2, CH_4, N_2O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is the "cause or contribute finding."

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the Clean Air Act.

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 (December 2007), among other key measures, would do the following, which would aid in the reduction of national GHG emissions (EPA 2007):

- Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.
- Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020, and directs National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.
- Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy-efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

Federal Vehicle Standards

In 2007, in response to the *Massachusetts v. EPA* U.S. Supreme Court ruling, the Bush Administration issued Executive Order (EO) 13432 directing the EPA, the Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the NHTSA issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011; and, in 2010, the EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012 through 2016 (75 FR 25324–25728).

In 2010, President Barack Obama issued a memorandum directing the Department of Transportation, Department of Energy, EPA, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the EPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017 through 2025 light-duty vehicles. The proposed standards projected to achieve 163 grams/mile of CO_2 in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017 through 2021 (77 FR 62624–63200), and NHTSA intends to set standards for model years 2022 through 2025 in a future rulemaking.

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011, the EPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014 through

2018. The standards for CO_2 emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the EPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6 to 23 percent over the 2010 baselines (76 FR 57106–57513).

In August 2016, the EPA and NHTSA announced the adoption of the phase two program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program applies to vehicles with model year 2018 through 2027 for certain trailers, and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans, and all sizes of buses and work trucks. The final standards are expected to lower CO_2 emissions by approximately 1.1 billion MT and reduce oil consumption by up to 2 billion barrels over the lifetime of the vehicles sold under the program (EPA and NHTSA 2016).

In August 2018 (during the administration of President Trump), the EPA and NHTSA proposed to amend certain fuel economy and GHG standards for passenger cars and light trucks and establish new standards for model years 2021 through 2026. Compared to maintaining the post-2020 standards then in place, the 2018 proposal increased U.S. fuel consumption by approximately half a million barrels per day (2–3 percent of total daily consumption, according to the Energy Information Administration) and would impact the global climate by 3/1000th of 1°C by 2100 (EPA and NHTSA 2018).

In September 2019, the EPA and NHTSA published the final Safer Affordable Fuel-Efficient Vehicles Rule Part One: One National Program ([SAFE I] 84 FR 51310), which revoked California's authority to set its own GHG emissions standards and set zero-emission vehicle mandates in California. The EPA and NHTSA subsequently issued the Part Two Rule in March 2020, which set less aggressive CO_2 emissions standards and corporate average fuel economy standards for passenger vehicles and light-duty trucks for model years 2021 through 2026.

On January 20, 2021, President Joe Biden issued an EO on Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis, which called for review of Part One Rule by April 2021 and review of the Part Two Rule by July 2021 (The White House 2021). After reviewing the public comments submitted on the NHTSA's April 2021 Notice of Proposed Rulemaking, the NHTSA concluded that SAFE I overstepped the Agency's legal authority and established overly broad prohibitions that did not account for a variety of important state and local interests. The final rule ensures that SAFE I will no longer form an improper barrier to states exploring creative solutions to address their local communities' environmental and public health challenges (NHTSA 2021).

Clean Power Plan and New Source Performance Standards for Electric Generating Units

On October 23, 2015, EPA published a final rule (effective December 22, 2015) establishing the Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units (80 FR 64510–64660), also known as the Clean Power Plan. These guidelines prescribe how states must develop plans to reduce GHG emissions from existing fossil-fuel-fired electric generating units. The guidelines establish CO_2 emission performance rates representing the best system of emission reduction for two subcategories of existing fossil-fuel-fired electric generating units: (1) fossil-fuel-fired electric utility steam-generating units, and (2) stationary combustion turbines. Concurrently, the EPA published a final rule (effective October 23, 2015) establishing Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units (80 FR 64661–65120). The rule prescribes CO_2 emission standards for newly constructed, modified, and reconstructed affected fossil-fuel-fired electric utility generating units. The U.S. Supreme Court stayed implementation of the Clean Power Plan pending resolution of several lawsuits.

EO 14057

President Joe Biden signed EO 14057 on December 8, 2021, which sets a path for reducing GHG emissions across federal operations, invest in clean energy industries and manufacturing, and create clean, healthy, and resilient communities to achieve carbon neutrality by 2050. The EO outlines five goals:

- 100 percent carbon pollution-free electricity by 2030, at least half of which will be locally supplied clean energy to meet 24/7 demand;
- 100 percent zero-emission vehicle acquisitions by 2035, including 100 percent zero-emission light-duty vehicle acquisitions by 2027;
- Net-zero emissions from federal procurement no later than 2050, including a Buy Clean policy to promote use of construction materials with lower embodied emissions;
- A net-zero emissions building portfolio by 2045, including a 50 percent emissions reduction by 2032; and
- Net-zero emissions from overall federal operations by 2050, including a 65 percent emissions reduction by 2030.

The Inflation Reduction Act of 2022

The Inflation Reduction Act was signed into law by President Biden in August 2022. The bill includes specific investment in energy and climate reform and is projected to reduce GHG emissions within the U.S. by 40 percent as compared to 2005 levels by 2030. The bill allocates funds to boost renewable energy infrastructure (e.g., solar panels and wind turbines), includes tax credits for the purchase of electric vehicles, and includes measures that will make homes more energy efficient.

State Regulations

The statewide GHG emissions regulatory framework is summarized below by category: state climate change targets, building energy, renewable energy and energy procurement, mobile sources, solid waste, water, and other state regulations and goals. The following text describes EOs, legislation, regulations, and other plans and policies that would directly or indirectly reduce GHG emissions and/or address climate change issues.

State Climate Change Targets

The state has taken a number of actions to address climate change. These include EOs, legislation, and CARB plans and requirements. These are summarized below.

EO S-3-05

EO S-3-05 (June 2005) established California's GHG emissions reduction targets and laid out responsibilities among the state agencies for implementing the EO and for reporting on progress toward the targets. This EO established the following targets:

- By 2010, reduce GHG emissions to 2000 levels
- By 2020, reduce GHG emissions to 1990 levels
- By 2050, reduce GHG emissions to 80 percent below 1990 levels

EO S-3-05 also directed the California Environmental Protection Agency to report biannually on progress made toward meeting the GHG targets and the impacts to California due to global warming, including impacts to water supply, public health, agriculture, the coastline, and forestry. The Climate Action Team was formed, which subsequently issued reports from 2006 to 2010 (CAT 2006, 2010).

Assembly Bill 32

In furtherance of the goals established in EO S-3-05, the Legislature enacted Assembly Bill (AB) 32 (Núñez and Pavley). The bill is referred to as the California Global Warming Solutions Act of 2006 (September 27, 2006). AB 32 provided initial direction on creating a comprehensive multiyear program to limit California's GHG emissions at 1990 levels by 2020 and initiate the transformations required to achieve the state's long-range climate objectives.

EO B-30-15

EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under Executive Order S-3-05 and AB 32. Executive Order B-30-15 set an interim target goal of reducing GHG emissions to 40 percent below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing GHG emissions to 80 percent below 1990 levels by 2050 as set forth in Executive Order S-3-05. To facilitate achieving this goal, Executive Order B-30-15 called for CARB to update the scoping plan to express the 2030 target in terms of million metric tons (MMT) CO_2e. Executive Order B-30-15 also called for state agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets.

Senate Bill 32 and AB 197

Senate Bill (SB) 32 and AB 197 (enacted in 2016) are companion bills. SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40 percent below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the Senate and three members of the Assembly, to provide ongoing oversight over implementation of the state's climate policies. AB 197 also added two members of the Legislature to the Board as nonvoting members; requires CARB to make available and update (at least annually via its website) emissions data for GHGs, criteria air pollutants, and TACs from reporting facilities; and requires CARB to identify specific information for GHG emissions reduction measures when updating the scoping plan.

CARB's 2007 Statewide Limit

In 2007, in accordance with California Health and Safety Code, Section 38550, CARB approved a statewide limit on the GHG emissions level for year 2020 consistent with the determined 1990 baseline (427 MMT CO_2e). This 2020 target was later revised to 431 MMT CO_2e based on updated GWP data identified by the IPCC. As discussed in Section 4.7.2, per capita GHG emissions in California dropped from a peak of 14.0 MT per person in 2001 to 10.5 MT per person in 2019, representing a 25 percent decrease, which contributed to California achieving the 2020 target. In addition, overall trends in the statewide inventory continue to demonstrate a trend of declining carbon intensity of California's economy (CARB 2021b).

CARB's Climate Change Scoping Plan

One specific requirement of AB 32 is for CARB to prepare a "scoping plan" for achieving the maximum technologically feasible and cost-effective GHG emission reductions by 2020 (California Health and Safety Code,

Section 38561[a]), and to update the plan at least once every 5 years. In 2008, CARB approved the first scoping plan. The *Climate Change Scoping Plan: A Framework for Change* (*Scoping Plan*) included a mix of recommended strategies that combined direct regulations, market-based approaches, voluntary measures, policies, and other emission reduction programs calculated to meet the 2020 statewide GHG emission limit and initiate the transformations needed to achieve the state's long-range climate objectives. The key elements of the Scoping Plan include the following (CARB 2008):

1. Expanding and strengthening existing energy efficiency programs as well as building and appliance standards
2. Achieving a statewide renewable energy mix of 33 percent
3. Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85 percent of California's GHG emissions
4. Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets
5. Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard (17 CCR 95480 et seq.)
6. Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation

The Scoping Plan also identified local governments as essential partners in achieving California's goals to reduce GHG emissions because they have broad influence and, in some cases, exclusive authority over activities that contribute to significant direct and indirect GHG emissions through their planning and permitting processes, local ordinances, outreach and education efforts, and municipal operations. Specifically, the Scoping Plan encouraged local governments to adopt a reduction goal for municipal operations and for community emissions to reduce GHGs by approximately 15 percent from then levels (2008) by 2020. Many local governments developed community-scale local GHG reduction plans based on this Scoping Plan recommendation.

In 2014, CARB approved the first update to the Scoping Plan. The *First Update to the Climate Change Scoping Plan: Building on the Framework* (*First Update)* defined the state's GHG emission reduction priorities for the next 5 years and laid the groundwork to start the transition to the post-2020 goals set forth in EOs S-3-05 and B-16-2012. The *First Update* concluded that California is on track to meet the 2020 target but recommended a 2030 mid-term GHG reduction target be established to ensure a continuum of action to reduce emissions. The *First Update* recommended a mix of technologies in key economic sectors to reduce emissions through 2050 including: energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and, the rapid market penetration of efficient and clean energy technologies. As part of the *First Update*, CARB recalculated the state's 1990 emissions level, using more recent global warming potentials identified by the IPCC, from 427 MMT CO_2e to 431 MMT CO_2e (CARB 2014).

In 2015, as directed by EO B-30-15, CARB began working on an update to the Scoping Plan to incorporate the 2030 target of 40 percent below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing GHG emissions to 80 percent below 1990 levels by 2050 as set forth in S-3-05. The Governor called on California to pursue a new and ambitious set of strategies, in line with the five climate change pillars from his inaugural address, to reduce GHG emissions and prepare for the unavoidable impacts of climate change. In the summer of 2016, the Legislature affirmed the importance of addressing climate change through passage of SB 32 (Pavley, Chapter 249, Statutes of 2016).

In December 2017, CARB released the 2017 Climate Change Scoping Plan Update (Second Update) for public review and comment (CARB 2017). The Second Update built upon the successful framework established in the initial Scoping Plan and First Update, while identifying new technologically feasible and cost-effective strategies that served as the framework to achieve the 2030 GHG target and define the state's climate change priorities to 2030 and beyond. The strategies' "known commitments" included implementing renewable energy and energy efficiency (including the mandates of SB 350), increased stringency of the Low Carbon Fuel Standard, measures identified in the Mobile Source and Freight Strategies, measures identified in the proposed Short-Lived Climate Pollutant Plan, and increased stringency of SB 375 targets. To fill the gap in additional reductions needed to achieve the 2030 target, the Second Update recommended continuing the Cap-and-Trade Program and a measure to reduce GHGs from refineries by 20 percent. The Second Update was approved by CARB's Governing Board on December 14, 2017.

CARB released the Draft 2022 Scoping Plan Update in May 2022, which outlines the state's plan to reach carbon neutrality by 2045 or earlier, while also assessing the progress the state is making toward reducing GHG emissions by at least 40 percent below 1990 levels by 2030, as is required by SB 32 and laid out in the Second Update. The carbon neutrality goal requires CARB to expand proposed actions from only the reduction of anthropogenic sources of GHG emissions to also include those that capture and store carbon (e.g., through natural and working lands, or mechanical technologies). The carbon reduction programs build on and accelerate those currently in place, including moving to zero-emission transportation; phasing out use of fossil gas use for heating homes and buildings; reducing chemical and refrigerants with high GWP; providing communities with sustainable options for walking, biking, and public transit; displacement of fossil-fuel fired electrical generation through use of renewable energy alternatives (e.g., solar arrays and wind turbines); and scaling up new options such as green hydrogen (CARB 2022).[2]

The Draft 2022 Scoping Plan Update also emphasizes that there is no realistic path to carbon neutrality without carbon removal and sequestration, and to achieve the state's carbon neutrality goal, carbon reduction programs must be supplemented by strategies to remove and sequester carbon. Strategies for carbon removal and sequestration include carbon capture and storage from anthropogenic point sources, where CO_2 is captured as it leaves a facility's smokestack and is injected into geologic formations or used in industrial materials (e.g., concrete); and carbon dioxide removal from ambient air, through mechanical (e.g., direct air capture with sequestration) or nature-based (e.g., management of natural and working lands) applications.

The Scoping Plan recommends strategies for implementation at the statewide level to meet the goals of AB 32, SB 32, and the EOs; it also establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. A project is considered consistent with the statutes and EOs if it would meet the general policies in reducing GHG emissions in order to facilitate the achievement of the state's goals and would not impede attainment of those goals. While the 2022 Scoping Plan Update is still in draft form, the guidance and policies contained in the update are anticipated to largely remain unchanged. The public meeting to consider the Draft 2022 Scoping Plan Update was held in June 2022, and it is anticipated that adoption of the Plan will occur in the fall of 2022.

CARB's Regulations for the Mandatory Reporting of Greenhouse Gas Emissions

CARB's Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (17 CCR 95100–95157) incorporated by reference certain requirements that EPA promulgated in its Final Rule on Mandatory Reporting of Greenhouse

[2] Green hydrogen refers to hydrogen that is generated by renewable energy or from low-carbon power, and has significantly lower associated carbon emissions than grey hydrogen, which is produced using natural gas and makes up the majority of hydrogen production. For the purposes of the *Draft 2022 Scoping Plan*, the term "green hydrogen" is not limited to only electrolytic hydrogen produced from renewables.

Gases (40 CFR, Part 98). Specifically, Section 95100(c) of the Mandatory Reporting Regulation incorporated those requirements that EPA promulgated in the Federal Register on October 30, 2009; July 12, 2010; September 22, 2010; October 28, 2010; November 30, 2010; December 17, 2010; and April 25, 2011. In general, entities subject to the Mandatory Reporting Regulation that emit over 10,000 MT CO_2e per year are required to report annual GHGs through the California Electronic GHG Reporting Tool. Certain sectors, such as refineries and cement plants, are required to report regardless of emission levels. Entities that emit more than the 25,000 MT CO_2e per year threshold are required to have their GHG emission report verified by a CARB-accredited third-party verified.

EO B-18-12

EO B-18-12 (April 2012) directed state agencies, departments, and other entities under the governor's executive authority to take action to reduce entity-wide GHG emissions by at least 10 percent by 2015 and 20 percent by 2020, as measured against a 2010 baseline. EO B-18-12 also established goals for existing state buildings for reducing grid-based energy purchases and water use.

SB 605 and SB 1383

SB 605 (2014) requires CARB to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants in the state; and SB 1383 (2016) requires CARB to approve and implement that strategy by January 1, 2018. SB 1383 also establishes specific targets for the reduction of short-lived climate pollutants (40 percent below 2013 levels by 2030 for methane and HFCs, and 50 percent below 2013 levels by 2030 for anthropogenic black carbon) and provides direction for reductions from dairy and livestock operations and landfills. Accordingly, and as mentioned above, CARB adopted its *Short-Lived Climate Pollutant Reduction Strategy* (SLCP Reduction Strategy) in March 2017. The SLCP Reduction Strategy establishes a framework for the statewide reduction of emissions of black carbon, methane, and fluorinated gases.

EO B-55-18

EO B-55-18 (September 2018) establishes a new statewide goal "to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter." This EO directs CARB to "work with relevant state agencies to ensure future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal."

AB 1279

The Legislature enacted AB 1279, the California Climate Crisis Act, in September 2022. The bill declares the policy of the state to achieve net zero GHG emissions as soon as possible, but no later than 2045, and achieve and maintain net negative GHG emissions thereafter. Additionally, the bill requires that by 2045, statewide anthropogenic GHG emissions be reduced to at least 85 percent below 1990 levels.

Building Energy

Title 24, Part 6

Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically established Building Energy Efficiency Standards that are designed to ensure new and existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. These energy

efficiency standards are reviewed every few years by the Building Standards Commission and the California Energy Commission (CEC) (and revised if necessary) (California Public Resources Code, Section 25402[b][1]). The regulations receive input from members of industry, as well as the public, with the goal of "reducing of wasteful, uneconomic, inefficient, or unnecessary consumption of energy" (California Public Resources Code, Section 25402). These regulations are carefully scrutinized and analyzed for technological and economic feasibility (California Public Resources Code, Section 25402[d]) and cost effectiveness (California Public Resources Code, Sections 25402[b][2] and [b][3]). As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment.

The 2019 Title 24 standards are the currently applicable building energy efficiency standards and became effective on January 1, 2020. The 2019 Title 24 Building Energy Efficiency Standards further reduce energy used and associated GHG emissions compared to prior standards. In general, single-family residences built to the 2019 standards are anticipated to use approximately 7 percent less energy due to energy efficiency measures than those built to the 2016 standards; once rooftop solar electricity generation is factored in, single-family residences built under the 2019 standards will use approximately 53 percent less energy than those under the 2016 standards (CEC 2018).

The 2022 standards will improve upon the 2019 standards for new construction of, and additions and alterations to, residential and nonresidential buildings. The CEC updates the Title 24 Energy Code every 3 years. The CEC adopted the 2022 Title 24 Energy Code in August 2021 and the California Building Standards Commission approved incorporating the updated code into the California Building Standards Code (CALGreen) in December 2021. The 2022 Energy Code will go into effect on January 1, 2023. When compared to the 2019 Title 24 Standards, the 2022 amendments include measures that will further reduce energy use in single family, multifamily, and nonresidential buildings, through the following strategies (CEC 2021a):

- New prescriptive and performance standards for electric heat pumps for space conditioning and water heating, as appropriate for the various climate zones in California,
- Require PV and battery storage systems for newly constructed multifamily and selected nonresidential buildings,
- Updated efficiency measures for lighting, building envelope, HVAC, and
- Improvements to reduce the energy loads of certain equipment covered by (i.e., subject to the requirements of) the Energy Code that perform a commercial process that is not related to the occupant needs in the building (such as refrigeration equipment in refrigerated warehouses, or air conditioning for computer equipment in data processing centers).

Title 24, Part 11

In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24), which is commonly referred to as CALGreen, establishes minimum mandatory standards as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. As noted above, the 2019 CALGreen standards are the current applicable standards, while the 2022 CALGreen standards will become effective on January 1, 2023. Some of the key mandatory CALGreen 2022 standards involve requirements related to bicycle parking, designated parking for clean air vehicles, electric vehicle (EV) charging stations, shade trees, water conserving plumbing fixtures and fittings, outdoor potable water use in landscaped areas, recycled water supply systems, construction waste management, excavated soil and land clearing debris, and commissioning (24 CCR Part 11). The CALGreen standards also include voluntary efficiency measures that are implemented at the discretion of local agencies and applicants. Compliance with the CALGreen code is enforced through the building permit process.

Title 20

Title 20 of the California Code of Regulations requires manufacturers of appliances to meet state and federal standards for energy and water efficiency. The CEC certifies an appliance based on a manufacturer's demonstration that the appliance meets the standards. New appliances regulated under Title 20 include refrigerators, refrigerator-freezers, and freezers; room air conditioners and room air-conditioning heat pumps; central air conditioners; spot air conditioners; vented gas space heaters; gas pool heaters; plumbing fittings and plumbing fixtures; fluorescent lamp ballasts; lamps; emergency lighting; traffic signal modules; dishwaters; clothes washers and dryers; cooking products; electric motors; low-voltage dry-type distribution transformers; power supplies; televisions and consumer audio and video equipment; and battery charger systems. Title 20 presents protocols for testing each type of appliance covered under the regulations and appliances must meet the standards for energy performance, energy design, water performance and water design. Title 20 contains three types of standards for appliances: federal and state standards for federally regulated appliances, state standards for federally regulated appliances, and state standards for non-federally regulated appliances.

SB 1

SB 1 (Murray) (August 2006) established a $3 billion rebate program to support the goal of the state to install rooftop solar energy systems with a generation capacity of 3,000 megawatts through 2016. SB 1 added sections to the Public Resources Code, including Chapter 8.8 (California Solar Initiative), that require building projects applying for ratepayer-funded incentives for photovoltaic systems to meet minimum energy efficiency levels and performance requirements. Section 25780 established that it is a goal of the state to establish a self-sufficient solar industry. The goals included establishing solar energy systems as a viable mainstream option for both homes and businesses within 10 years of adoption and placing solar energy systems on 50 percent of new homes within 13 years of adoption. SB 1, also termed "Go Solar California," was previously titled "Million Solar Roofs."

California AB 1470 (Solar Water Heating)

This bill established the Solar Water Heating and Efficiency Act of 2007. The bill makes findings and declarations of the Legislature relating to the promotion of solar water heating systems and other technologies that reduce natural gas demand. The bill defines several terms for purposes of the act. The bill requires the commission to evaluate the data available from a specified pilot program, and, if it makes a specified determination, to design and implement a program of incentives for the installation of 200,000 solar water heating systems in homes and businesses throughout the state by 2017.

Renewable Energy and Energy Procurement

SB 1078

SB 1078 (Sher) (September 2002) established the Renewables Portfolio Standard (RPS) program, which required an annual increase in renewable generation by the utilities equivalent to at least 1 percent of sales, with an aggregate goal of 20 percent by 2017. This goal was subsequently accelerated, requiring utilities to obtain 20 percent of their power from renewable sources by 2010 (see SB 107, EO S-14-08, and S-21-09).

SB 1368

SB 1368 (September 2006) required the CEC to develop and adopt regulations for GHG emission performance standards for the long-term procurement of electricity by local publicly owned utilities. These standards must be consistent with the standards adopted by the California Public Utilities Commission (CPUC).

AB 1109

Enacted in 2007, AB 1109 required the CEC to adopt minimum energy efficiency standards for general-purpose lighting, to reduce electricity consumption 50 percent for indoor residential lighting and 25 percent for indoor commercial lighting.

EO S-14-08

EO S-14-08 (November 2008) focused on the contribution of renewable energy sources to meet the electrical needs of California while reducing the GHG emissions from the electrical sector. This EO required that all retail suppliers of electricity in California serve 33 percent of their load with renewable energy by 2020. Furthermore, the EO directed state agencies to take appropriate actions to facilitate reaching this target. The CNRA, through collaboration with the CEC and California Department of Fish and Wildlife (formerly the California Department of Fish and Game), was directed to lead this effort.

EO S-21-09 and SBX1-2

EO S-21-09 (September 2009) directed CARB to adopt a regulation consistent with the goal of EO S-14-08 by July 31, 2010. CARB was further directed to work with the CPUC and CEC to ensure that the regulation builds upon the RPS program and was applicable to investor-owned utilities, publicly owned utilities, direct access providers, and community choice providers. Under this order, CARB was to give the highest priority to those renewable resources that provide the greatest environmental benefits with the least environmental costs and impacts on public health and can be developed the most quickly in support of reliable, efficient, cost-effective electricity system operations. On September 23, 2010, CARB initially approved regulations to implement a Renewable Electricity Standard. However, this regulation was not finalized because of subsequent legislation (SB X1-2, Simitian, statutes of 2011) signed by Governor Brown in April 2011.

SB X1 2 expanded the RPS by establishing a renewable energy target of 20 percent of the total electricity sold to retail customers in California per year by December 31, 2013, and 33 percent by December 31, 2020, and in subsequent years. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation (30 megawatts or less), digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current, and that meets other specified requirements with respect to its location.

SB X1-2 applies to all electricity retailers in the state including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators. All of these entities must meet the renewable energy goals previously listed.

SB 350

SB 350 (October 2015, Clean Energy and Pollution Reduction Act) further expanded the RPS by establishing a goal of 50 percent of the total electricity sold to retail customers in California per year by December 31, 2030. In addition,

SB 350 included the goal to double the energy efficiency savings in electricity and natural gas final end uses (e.g., heating, cooling, lighting, or class of energy uses on which an energy-efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also requires the CPUC, in consultation with the CEC, to establish efficiency targets for electrical and gas corporations consistent with this goal. Regarding mobile sources, as one of its elements, SB 350 establishes a statewide policy for widespread electrification of the transportation sector, recognizing that such electrification is required for achievement of the state's 2030 and 2050 reduction targets (see California Public Utilities Code Section 740.12).

SB 100

SB 100 (2018) increased the standards set forth in SB 350 establishing that 44 percent of the total electricity sold to retail customers in California per year by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030, be secured from qualifying renewable energy sources. SB 100 states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100 percent of the retail sales of electricity to California. This bill requires that the achievement of 100 percent zero-carbon electricity resources do not increase the carbon emissions elsewhere in the western grid and that the achievement not be achieved through resource shuffling.

SB 1020

SB 1020 (September 2022) revises the standards from SB 100, requiring the following percentage of retail sales of electricity to California end-use customers come from eligible renewable energy resources and zero-carbon resources: 90 percent by December 31, 2035, 95 percent by December 31, 2040, and 100 percent by December 31, 2045.

Mobile Sources

CARB's Mobile Source Strategy

On May 16, 2016, CARB released the 2016 Mobile Source Strategy that demonstrates how the state can simultaneously meet air quality standards, achieve GHG emission reduction targets, decrease health risk from transportation emissions, and reduce petroleum consumption over the next 15 years. The actions contained in the 2016 Mobile Source Strategy will deliver broad environmental and public health benefits, as well as support much needed efforts to modernize and upgrade transportation infrastructure, enhance system-wide efficiency and mobility options, and promote clean economic growth in the mobile sector. The 2016 Mobile Source Strategy would also result in a 45 percent reduction in GHG emissions and a 50 percent reduction in the consumption of petroleum-based fuels (CARB 2016).

AB 1493

AB 1493 (2002) was enacted in response to the transportation sector accounting for more than half of California's CO_2 emissions at the time of its drafting (California Health and Safety Code Section 43018.5 and Section 42823 amendments). AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the state board to be vehicles that are primarily used for noncommercial personal transportation in the state. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. When fully phased in, the near-term (2009–2012) standards were projected to result in a reduction of approximately 22 percent in GHG emissions compared to the emissions from the 2002 fleet, while the mid-term (2013–2016) standards will result in a reduction of approximately 30 percent.

Heavy-Duty Diesel

The Heavy-Duty Truck and Bus Regulation that went into effect January 2012, requires diesel particulate matter filters be applied to newer heavier trucks and buses by January 1, 2012, with older vehicles required to comply by January 1, 2015. CARB adopted the proposed amendments to the Heavy-Duty Truck and Bus Regulation on December 31, 2014, to reduce diesel particulate matter, a major source of black carbon, and oxides of nitrogen emissions from heavy-duty diesel vehicles (13 CCR, Part 2025). The rule requires nearly all diesel trucks and buses to be compliant with the 2010 model year engine requirement by January 1, 2023. CARB also adopted an Airborne Toxic Control Measure to limit idling of diesel-fueled commercial vehicles on December 12, 2013. This rule requires diesel-fueled vehicles with gross vehicle weights greater than 10,000 pounds to idle no more than 5 minutes at any location (13 CCR, Part 2485).

EO S-1-07

EO S-1-07 (January 2007, implementing regulation adopted in April 2009) sets a declining Low Carbon Fuel Standard for GHG emissions measured in CO_2e grams per unit of fuel energy sold in California. The target of the Low Carbon Fuel Standard is to reduce the carbon intensity of California passenger vehicle fuels by at least 10 percent by 2020 and 20 percent by 2030 (17 CCR 95480 et seq.). The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel—including extraction/feedstock production, processing, transportation, and final consumption—per unit of energy delivered.

SB 375

SB 375 (Steinberg) (September 2008) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. SB 375 requires CARB to adopt regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035 and to update those targets every 8 years. SB 375 requires the state's 18 regional metropolitan planning organizations (MPOs) to prepare a Sustainable Communities Strategy (SCS) as part of their Regional Transportation Plan (RTP) that will achieve the GHG reduction targets set by CARB. If a MPO is unable to devise an SCS to achieve the GHG reduction target, the MPO must prepare an Alternative Planning Strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies.

Pursuant to Government Code, Section 65080(b)(2)(K), an SCS does not: (i) regulate the use of land; (ii) supersede the land use authority of cities and counties; or (iii) require that a city's or county's land use policies and regulations, including those in a general plan, be consistent with it. Nonetheless, SB 375 makes regional and local planning agencies responsible for developing those strategies as part of the federally required metropolitan transportation planning process and the state-mandated housing element process.

On September 23, 2010, CARB adopted the SB 375 targets for the regional MPOs. CARB set a target of 7 percent per capita reduction by 2020 and a 15 percent per capita reduction by 2035 for the Bay Area. The Metropolitan Transportation Commission (MTC), which is the MPO for the Bay Area, as well as the Association of Bay Area Governments (ABAG), adopted *Plan Bay Area 2050* in October 2021 (MTC and ABAG 2021), which is the RTP/SCS for the Bay Area. *Plan Bay Area 2050* is a long-range plan for transportation projects within the planning area. A key focus in Plan Bay Area 2050 is understanding interrelated elements of housing, the economy, transportation, and the environment and implementing strategies to improve conditions throughout the Bay Area, including reducing per capita GHG emissions to comply with SB 375.

Advanced Clean Cars Program and Zero-Emissions Vehicle Program

The Advanced Clean Cars (ACC) program (January 2012) is an emission-control program for model years 2015 through 2025. The program combines the control of smog- and soot-causing pollutants and GHG emissions into a single coordinated package. The package includes elements to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars (CARB 2012). To improve air quality, CARB has implemented new emission standards to reduce smog-forming emissions beginning with 2015 model year vehicles. It is estimated that in 2025, cars will emit 75 percent less smog-forming pollution than the average new car sold today. To reduce GHG emissions, CARB, in conjunction with the EPA and the NHTSA, adopted new GHG standards for model year 2017 to 2025 vehicles; the new standards are estimated to reduce GHG emissions by 34 percent in 2025. The zero-emission vehicle program will act as the focused technology of the Advanced Clean Cars program by requiring manufacturers to produce increasing numbers of zero-emission vehicles and plug-in hybrid EVs in the 2018 to 2025 model years.

The ACC II program establishes the next set of low-emission vehicle and zero-emission vehicle requirements for model years after 2025 to contribute to meeting federal ambient air quality ozone standards and California's carbon neutrality standards (CARB 2021c). The main objectives of ACC II are:

1. Maximize criteria and GHG emission reductions through increased stringency and real-world reductions.
2. Accelerate the transition to zero-emission vehicles through both increased stringency of requirements and associated actions to support wide-scale adoption and use.

An ACC II rulemaking package, which will consider technological feasibility, environmental impacts, equity, economic impacts, and consumer impacts, was adopted by CARB in August 2022. In March 2022, EPA reinstated California's authority under the Clean Air Act to implement its own GHG emission standards and zero emission vehicle (ZEV) sales mandate (EPA 2022). This action concludes the agency's reconsideration of 2019's SAFE I by finding that the actions taken under the previous administration as a part of SAFE I were decided in error and are now entirely rescinded.

Advanced Clean Trucks Regulation

The Advanced Clean Trucks Regulation was also approved by CARB in 2020. The purpose of the Advanced Clean Trucks Regulation is to accelerate the market for zero-emission vehicles in the medium- and heavy-duty truck sector and to reduce air pollutant emissions generated from on-road mobile sources (CARB 2021d). The regulation has two components including (1) a manufacturer sales requirement and (2) a reporting requirement:

- Zero-emission truck sales: Manufacturers who certify Class 2b-8 chassis or complete vehicles with combustion engines will be required to sell zero-emission trucks as an increasing percentage of their annual California sales from 2024 to 2035. By 2035, zero-emission truck/chassis sales would need to be 55 percent of Class 2b-3 truck sales, 75 percent of Class 4-8 straight truck sales, and 40 percent of truck tractor sales.
- Company and fleet reporting: Large employers including retailers, manufacturers, brokers and others will be required to report information about shipments and shuttle services. Fleet owners, with 50 or more trucks, will be required to report about their existing fleet operations. This information will help identify future strategies to ensure that fleets purchase available zero-emission trucks and place them in service where suitable to meet their needs.

EO B-16-12

EO B-16-12 (March 2012) required that state entities under the Governor's direction and control support and facilitate the rapid commercialization of zero-emission vehicles. It ordered CARB, CEC, CPUC, and other relevant agencies to work with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to help achieve benchmark goals by 2015, 2020, and 2025. On a statewide basis, EO B-16-12 established a target reduction of GHG emissions from the transportation sector equaling 80 percent less than 1990 levels by 2050. This directive did not apply to vehicles that have special performance requirements necessary for the protection of the public safety and welfare.

EO N-79-20

Governor Newsom's EO N-79-20 (September 2020) sets a course to end the sale of new internal combustion passenger vehicles by 2035. The primary mechanism to facilitate achievement of this executive specific target is the ACC II program under development that is discussed above. The EO also sets zero-emission vehicle penetration targets for medium- and heavy-duty vehicles, drayage trucks, as well as off-road vehicles and equipment.

AB 1236

AB 1236 (October 2015) (Chiu) required a city, county, or city and county to approve an application for the installation of electric vehicle charging stations, as defined, through the issuance of specified permits unless the city or county makes specified written findings based upon substantial evidence in the record that the proposed installation would have a specific, adverse impact upon the public health or safety, and there is no feasible method to satisfactorily mitigate or avoid the specific, adverse impact. The bill provided for appeal of that decision to the planning commission, as specified. The bill provided that the implementation of consistent statewide standards to achieve the timely and cost-effective installation of electric vehicle charging stations is a matter of statewide concern. The bill required electric vehicle charging stations to meet specified standards. The bill required a city, county, or city and county with a population of 200,000 or more residents to adopt an ordinance, by September 30, 2016, that created an expedited and streamlined permitting process for electric vehicle charging stations, as specified. The bill also required a city, county, or city and county with a population of less than 200,000 residents to adopt this ordinance by September 30, 2017.

Water

EO B-29-15

In response to the ongoing drought in California, EO B-29-15 (April 2015) set a goal of achieving a statewide reduction in potable urban water usage of 25 percent relative to water use in 2013. The term of the EO extended through February 28, 2016, although many of the directives have become permanent water-efficiency standards and requirements. The EO includes specific directives that set strict limits on water usage in the state. In response to EO B-29-15, the California Department of Water Resources has modified and adopted a revised version of the Model Water Efficient Landscape Ordinance that, among other changes, significantly increases the requirements for landscape water use efficiency and broadens its applicability to include new development projects with smaller landscape areas.

EO B-37-16

Issued May 2016, EO B-37-16 directed the State Water Resources Control Board (SWRCB) to adjust emergency water conservation regulations through the end of January 2017 to reflect differing water supply conditions across the state. The SWRCB also developed a proposal to achieve a mandatory reduction of potable urban water usage that builds off the mandatory 25 percent reduction called for in EO B-29-15. The SWRCB and Department of Water Resources will develop new, permanent water use targets that build upon the existing state law requirements that the state achieve 20 percent reduction in urban water usage by 2020. EO B-37-16 also specifies that the SWRCB permanently prohibit water-wasting practices such as hosing off sidewalks, driveways, and other hardscapes; washing automobiles with hoses not equipped with a shut-off nozzle; using non-recirculated water in a fountain or other decorative water feature; watering lawns in a manner that causes runoff, or within 48 hours after measurable precipitation; and irrigating ornamental turf on public street medians.

Solid Waste

AB 939, AB 341, AB 1826, and AB 1383

In 1989, AB 939, known as the Integrated Waste Management Act (California Public Resources Code, Sections 40000 et seq.), was passed because of the increase in waste stream and the decrease in landfill capacity. The statute established the California Integrated Waste Management Board, which oversees a disposal reporting system. AB 939 mandated a reduction of waste being disposed where jurisdictions were required to meet diversion goals of all solid waste through source reduction, recycling, and composting activities of 25 percent by 1995 and 50 percent by the year 2000.

AB 341 (Chapter 476, Statutes of 2011 [Chesbro]) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the state that not less than 75 percent of solid waste generated be source-reduced, recycled, or composted by the year 2020, and annually thereafter. In addition, AB 341 required the California Department of Resources Recycling and Recovery (CalRecycle) to develop strategies to achieve the state's policy goal. CalRecycle conducted several general stakeholder workshops and several focused workshops and in August 2015 published a discussion document titled AB 341 Report to the Legislature, which identifies five priority strategies that CalRecycle believes would assist the state in reaching the 75 percent goal by 2020, legislative and regulatory recommendations and an evaluation of program effectiveness (CalRecycle 2015).

AB 1826 (Chapter 727, Statutes of 2014, effective 2016) requires businesses to recycle their organic waste (i.e., food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste) depending on the amount of waste they generate per week. This law also requires local jurisdictions across the state to implement an organic waste recycling program to divert organic waste generated by businesses, including multifamily residential dwellings that consist of five or more units. The minimum threshold of organic waste generation by businesses decreases over time, which means an increasingly greater proportion of the commercial sector will be required to comply.

SB 1383 (Chapter 395, Statutes of 2016) establishes targets to achieve a 50 percent reduction in the level of the statewide disposal of organic waste from the 2014 level by 2020 and a 75 percent reduction by 2025. CalRecycle was granted the regulatory authority required to achieve the organic waste disposal reduction targets and establishes an additional target that not less than 20 percent of currently disposed edible food is recovered for human consumption by 2025 (CalRecycle 2019).

Other State Actions

SB 97

SB 97 (Dutton) (August 2007) directed the Governor's Office of Planning and Research to develop guidelines under CEQA for the mitigation of GHG emissions. In 2008, the Governor's Office of Planning and Research issued a technical advisory as interim guidance regarding the analysis of GHG emissions in CEQA documents. The advisory indicated that the lead agency should identify and estimate a project's GHG emissions, including those associated with vehicular traffic, energy consumption, water usage, and construction activities (OPR 2008). The advisory further recommended that the lead agency determine significance of the impacts and impose all mitigation measures necessary to reduce GHG emissions to a level that is less than significant. The CNRA adopted the CEQA Guidelines amendments in December 2009, which became effective in March 2010.

Under the amended Guidelines, a lead agency has the discretion to determine whether to use a quantitative or qualitative analysis or apply performance standards to determine the significance of GHG emissions resulting from a particular project (14 CCR 15064.4[a]). The Guidelines require a lead agency to consider the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4[b]). The Guidelines also allow a lead agency to consider feasible means of mitigating the significant effects of GHG emissions, including reductions in emissions through the implementation of project features or off-site measures. The adopted amendments do not establish a GHG emission threshold, instead allowing a lead agency to develop, adopt, and apply its own thresholds of significance or those developed by other agencies or experts. The CNRA also acknowledges that a lead agency may consider compliance with regulations or requirements implementing AB 32 in determining the significance of a project's GHG emissions (CNRA 2009).

With respect to GHG emissions, the CEQA Guidelines state in Section 15064.4(a) that lead agencies should "make a good faith effort, to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions. The CEQA Guidelines note that an agency may identify emissions by either selecting a "model or methodology" to quantify the emissions or by relying on "qualitative analysis or other performance-based standards" (14 CCR 15064.4[a]). Section 15064.4(b) states that the lead agency should consider the following when assessing the significance of impacts from GHG emissions on the environment: (1) the extent a project may increase or reduce GHG emissions as compared to the existing environmental setting; (2) whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and (3) the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4[b]).

EO S-13-08

EO S-13-08 (November 2008) is intended to hasten California's response to the impacts of global climate change, particularly sea-level rise. Therefore, the EO directs state agencies to take specified actions to assess and plan for such impacts. The final 2009 California Climate Adaptation Strategy report was issued in December 2009 (CNRA 2009), and an update, Safeguarding California: Reducing Climate Risk, followed in July 2014 (CNRA 2014). To assess the state's vulnerability, the report summarizes key climate change impacts to the state for the following areas: Agriculture, Biodiversity and Habitat, Emergency Management, Energy, Forestry, Ocean and Coastal Ecosystems and Resources, Public Health, Transportation, and Water. Issuance of the Safeguarding California: Implementation Action Plans followed in March 2016 (CNRA 2016). In January 2018, the CNRA released the Safeguarding California Plan: 2018 Update, which communicates current and needed actions that state government should take to build climate change resiliency (CNRA 2018b).

Amendments to the Small Off-Road Engine Regulations: Transition to Zero Emissions

On December 9, 2021, CARB approved proposed amendments to the SORE Regulations, which would require most newly manufactured small off-road engines (SORE), such as those found in leaf blowers, lawn mowers and other equipment, be zero emission starting in 2024. Portable generators, including those in recreational vehicles, would be required to meet more stringent standards in 2024 and meet zero-emission standards starting in 2028.

Assembly Bill 1757

AB 1757 (September 2022) requires the CNRA to determine a range of targets for natural carbon sequestration, and for nature-based climate solutions that reduce GHG emissions for future years 2030, 2038, and 2045. These targets are to be determined by no later than January 1, 2024, and are established to support the state's goals to achieve carbon neutrality and foster climate adaptation and resilience.

Regional and Local Regulations

Bay Area Air Quality Management District

Air districts typically act in an advisory capacity to local governments in establishing the framework for environmental review of air pollution impacts under CEQA. This may include recommendations regarding significance thresholds, analytical tools to estimate emissions and assess impacts, and mitigations for potentially significant impacts. As discussed in Section 4.7.4, Thresholds of Significance, BAAQMD has CEQA significance thresholds for GHG emissions for lead agencies to use in assessing GHG impacts. See Section 4.2.2, Regulatory Framework, under Bay Area Air Quality Management District for additional discussion on BAAQMD.

Metropolitan Transportation Commission and Association of Bay Area Governments

SB 375 requires MPOs to prepare an SCS in their RTP. In the Bay Area, the MTC and the ABAG are jointly responsible for developing and adopting a SCS that integrates transportation, land use, and housing to meet GHG reduction targets set by CARB. Plan Bay Area 2050 is a 30-year plan that charts a course for a Bay Area that is affordable, connected, diverse, healthy, and vibrant for all residents through 2050 and beyond. There are 35 strategies that comprise the heart of the plan to improve housing, the economy, transportation and the environment across the Bay Area's nine counties (MTC and ABAG 2021). Under Plan Bay Area 2050's strategies, just under half of all Bay Area households would live within one half-mile of frequent transit by 2050, with this share increasing to over 70 percent for households with low incomes. Transportation and environmental strategies that support active and shared modes, combined with a transit-supportive land use pattern, are forecasted to lower the share of Bay Area residents that drive to work alone from 50 percent in 2015 to 33 percent in 2050. GHG emissions from transportation would decrease significantly as a result of these transportation and land use changes, and the Bay Area would meet the state mandate of a 19 percent reduction in per capita emissions by 2035—but only if all strategies are implemented (MTC and ABAG 2021).

City of Menlo Park 2030 Climate Action Plan

In April 2021, the City of Menlo Park adopted its amended 2030 CAP to reduce GHG emissions within the City in order to meet the goal of reducing GHG emissions by 90 percent from 2005 baseline levels by 2030 (City of Menlo Park 2021a). The City updated their inventory of GHG emissions in December 2019 which revealed that GHG emissions in Menlo Park fell from 349,284 MT CO_2e in 2005 to 284,378 MT CO_2e in 2017, a reduction of 19 percent. The aim of the 2030 CAP is to reduce community-wide emissions by another 71 percent for a total reduction of 90 percent from 2005 emissions, leaving just 34,933 MT CO_2e per year by 2030 (City of Menlo Park 2021a).

Under CEQA, local agencies must evaluate the environmental impacts of new development projects, including impacts from GHG emissions associated with construction and operation. Per the state CEQA Guidelines Section 15183.5(b), a qualified GHG reduction plan must:

- Quantify existing and projected GHG emissions within the plan area.
- Establish a reduction target based on SB 32.
- Identify and analyze sector specific GHG emissions from plan activities.
- Specify policies and actions (measures) that local jurisdictions will enact and implement over time to achieve a specified reduction target.
- Establish a tool to monitor progress and amend if necessary. Adopt in a public process following environmental review.

The 2030 CAP Update fulfills these requirements and is therefore a "qualified" GHG reduction plan as defined by the state CEQA Guidelines.

The 2030 CAP establishes robust actions for helping the City achieve its 2030 targets while accommodating growth, however, federal, state, and local efforts contemplated in the future are too speculative to support definitive statements. Overall, the proposed actions would reduce the City's GHG emissions by approximately 98,748 MT CO_2e per year. Additional continuing efforts would be required to meet the City's 2030 goal of reducing GHG emissions by 249,447 MT CO_2e per year by 2030. The six actions are as follows:

1. Explore policy/program options to convert 95 percent of existing buildings to all-electric by 2030
2. Set citywide goal for increasing EVs and decreasing gasoline sales
3. Expand access to EV charging for multifamily and commercial properties
4. Reduce vehicle miles travelled (VMT) by 25 percent or an amount recommended by the Complete Streets Commission
5. Eliminate the use of fossil fuels from municipal operations
6. Develop a climate adaptation plan to protect the community from sea level rise and flooding

City of Menlo Park General Plan

Policies pertaining to promoting sustainability and reducing GHG emissions are addressed in the Circulation and the Open Space/Conservation, and the Noise and Safety Elements of the City's General Plan. Relevant General Plan policies related to air quality are included below.

Circulation Element

Goal CIRC-3: Increase mobility options to reduce traffic congestion, greenhouse gas emissions, and commute travel time.

Policy CIRC-3.1: Support development and transportation improvements that help reduce per service population (or other efficiency metric) VMT [vehicle miles traveled].

Goal CIRC-4: Improve Menlo Park's overall health, wellness, and quality of life through transportation enhancements.

Policy CIRC-4.1: Encourage the safer and more widespread use of nearly zero-emission modes, such as walking and biking, and lower emission modes like transit, to reduce GHG emissions.

Policy CIRC-4.2: Promote non-motorized transportation to reduce exposure to local air pollution, thereby reducing risks of respiratory diseases, other chronic illnesses, and premature death.

Open Space/Conservation, Noise and Safety Element

Goal OSC 4: Promote Sustainability and Climate Action Planning.

Policy OSC 4.1: Encourage, to the extent feasible, (1) a balance and match between jobs and housing, (2) higher density residential and mixed-use development to be located adjacent to commercial centers and transit corridors, and (3) retail and office areas to be located within walking and biking distance of transit or existing and proposed residential developments.

Policy OSC 4.2: Promote and/or establish environmentally sustainable building practices or standards in new development that would conserve water and energy, prevent stormwater pollution, reduce landfilled waste, and reduce fossil fuel consumption from transportation and energy activities.

Policy OSC 4.3: Promote the installation of renewable energy technology, such as, on residences and businesses through education, social marketing methods, establishing standards and/or providing incentives.

Policy OSC 4.4: Explore the potential for installing infrastructure for vehicles that use alternative fuel, such as electric plug in recharging stations.

Policy OSC 4.5: Encourage projects to achieve a high level of energy conservation exceeding standards set forth in the California Energy Code for Residential and Commercial development.

Policy OSC 4.6: Strive to meet the California State Integrated Waste Management Board per person target of waste generation per person per day through their source reduction, reuse, and recycling programs.

Policy OSC 4.8: Develop and implement a zero waste policy, or implement standards, incentives, or other programs that would lead the community towards a zero waste goal.

Goal OSC 5: Enhance and preserve air quality in accord with State and regional standards, and encourage the coordination of total water quality management including both supply and wastewater treatment.

Policy OSC 5.3: Encourage water-conserving practices in businesses, homes and institutions.

City of Menlo Park Municipal Code

On September 24, 2019, the Menlo Park City Council approved a reach code ordinance, codified as Chapter 12.16 of the City's Municipal Code. The amendments require new buildings to be "all electric," which is defined in Municipal Code Section 12.16.100(b) as:

> ALL ELECTRIC BUILDING: is a building that has no natural gas or propane plumbing installed within the building, and that uses electricity as the source of energy for its space heating, water heating, cooking appliances, and clothes drying appliances. All Electric Buildings may include solar thermal pool heating.

Furthermore, new high-rise buildings (more than three stories) require a minimum of a 3-kilowatt photovoltaic system for buildings less than 10,000 square feet and a minimum of a 5-kilowatt photovoltaic system for buildings greater than or equal to 10,000 square feet (City of Menlo Park 2019). In addition, Section 16.45.130 of the City's Zoning Ordinance applies green building requirements to development projects within the R-MU zone district. This includes the following standards:

- 100 percent of the project's energy demand be met through on-site generation and/or renewable energy sources or be offset through the purchase of certified renewable energy credits;
- Projects that construct at least 100,001 square feet must meet LEED Gold standards;
- Projects that construct at least 100,001 square feet must enroll in the EPA Energy Star Building Portfolio Manager and submit documentation of compliance;
- Development projects must attain indoor and outdoor water use efficiency standards and be dual plumbed for the internal use of recycled water; and
- Development projects must prepare and implement a zero-waste management plan.

The City's Municipal Code Section 12.18.050 also imposes the following requirements on developments involving the construction of more than two multifamily dwelling units:

- Each townhome must be prewired for one EV charger; and
- EV charging stations must be installed in 15 percent of the required parking spaces.

In addition, Menlo Park Municipal Code Chapter 12.48 establishes landfill diversion requirements for solid waste generated during demolition and construction. Residential projects of 1,000 square feet or greater and commercial projects of 5,000 square feet or greater are required to divert 60 percent of total generated waste tonnage through recycling, reuse, salvage, and other diversion programs. As part of a building or demolition permit application, project applicants must submit estimated tonnage of Construction and Demolition debris and plans for diverting materials to the building division.

4.7.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to greenhouse gases/climate change are based on Appendix G and Section 15130 of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to greenhouse gas emissions would occur if the project would:

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

The CEQA Guidelines do not prescribe specific methodologies for performing an assessment, establish specific thresholds of significance, or mandate specific mitigation measures. Rather, the CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance that are consistent with the manner in which other impact areas are handled in CEQA (CNRA 2009). The analysis of climate change impacts is inherently cumulative.

BAAQMD

Regarding impacts from GHGs, both BAAQMD and the California Air Pollution Control Officers Association consider GHG impacts to be exclusively cumulative impacts (BAAQMD 2022; CAPCOA 2008); therefore, assessment of significance is based on a determination of whether the GHG emissions from a project represent a cumulatively considerable contribution to the global atmosphere.

The first significance criterion: "Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?" This analysis considers the updated BAAQMD Thresholds, which identifies operational measures that should be applied to all projects in order to not have cumulatively considerable GHG emissions. Projects are to comply with either option A) or option B) would result in a less than cumulatively considerable contribution and has no further action would be required (BAAQMD 2022).

A. Projects must include, at a minimum, the following project design elements:
    1. Buildings
        a. The project will not include natural gas appliances or natural gas plumbing (in both residential and nonresidential development).
        b. The project will not result in any wasteful, inefficient, or unnecessary electrical usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the state CEQA Guidelines.
    2. Transportation
        a. Achieve compliance with electric vehicle requirements in the most recently adopted version of CALGreen Tier 2.
        b. Achieve a reduction in project-generated VMT below the regional average consistent with the current version of the California Climate Change Scoping Plan (currently 15 percent) or meet a locally adopted Senate Bill 743 VMT target, reflecting the recommendations provided in the Governor's Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA:
            I. Residential projects: 15 percent below the existing VMT per capita
            II. Office projects: 15 percent below the existing VMT per employee
            III. Retail projects: no net increase in existing VMT
B. Be consistent with a local GHG Reduction Strategy that meets the criteria under the CEQA Guidelines section 15183.5(b).

Although the City's 3020 Climate Action Plan meets the requirements of Option B, this assessment uses the BAAQMD's Option A threshold to evaluate whether the project would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

4.7.4 Impacts and Mitigation Measures

Methodology

Construction Emissions

CalEEMod Version 2020.4.0 was used to estimate potential project-generated GHG emissions during construction. Construction of the project would result in GHG emissions primarily associated with use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. All details

for construction criteria air pollutants discussed in Section 4.2.4, are also applicable for the estimation of construction-related GHG emissions. As such, see Section 4.2.4 for a discussion of construction emissions calculation methodology and assumptions.

Operational Emissions

As with Air Quality (refer to Section 4.2 of this EIR), emissions from the operational phase of the project were estimated using CalEEMod Version 2020.4.0. Operational year 2029 was assumed consistent with completion of project construction. Emissions from the existing buildings were also estimated using CalEEMod to present the net change in criteria air pollutant emissions. Operational year 2020 was assumed for the existing land uses.

Area Sources

CalEEMod was used to estimate GHG emissions from the project's area sources, which include operation of gasoline-powered landscape maintenance equipment, which produce minimal GHG emissions. See Section 4.2.4, for a discussion of landscaping equipment emissions calculations.

Energy Sources

The estimation of operational energy emissions for both the project and the existing land uses were based on CalEEMod land use defaults and total area (i.e., square footage) of the project's land use.

Title 24 of the California Code of Regulations serves to enhance and regulate California's building standards. The current Title 24, Part 6 standards, referred to as the 2019 Title 24 Building Energy Efficiency Standards, became effective on January 1, 2020 which is assumed in CalEEMod. However, construction of the proposed project would be required to comply with the 2022 Title 24 Standards at a minimum and depending on timing of full project buildout, may be required to comply with future, more stringent energy codes. Nevertheless, to be conservative, the analysis herein assumes compliance with the 2019 Title 24 Standards. CalEEMod was used to estimate project emissions from electricity uses (see Appendix A for calculations). The existing land uses energy consumption was estimated by using default electricity generation rates from CalEEMod, based on the proposed land use and climate zone. According to these estimations, the existing land uses would consume approximately 899,487 kilowatt-hour (kWh) per year. The electricity consumption at the project site was provided by the project sponsor (The Sobrato Organization) at full buildout and is estimated to be approximately 4,451,000 kWh per year. Furthermore, on September 24, 2019, the City adopted changes to the Menlo Park Municipal Code, which would require electricity as the only fuel source for newly construction buildings (Municipal Code Chapter 12.16); therefore, it was assumed that per City requirements, the residential units would be all-electric. This is consistent with the BAAQMD Thresholds, which states "For the building sector to achieve carbon neutrality, natural gas usage will need to be phased out and replaced with electricity usage" and "new land use development projects must be built without any natural gas infrastructure in order to be consistent with achieving the 2045 carbon neutrality goal" (BAAQMD 2022).

CalEEMod default energy intensity factors (CO_2, CH_4, and N_2O mass emissions per kilowatt-hour) for Peninsula Clean Energy, which is one of California's Community Choice Aggregation organizations and serves San Mateo County, is based on 100 percent RPS by 2025. As explained in Section 3.2.2, SB X1 2 established a target of 33 percent from renewable energy sources for all electricity providers in California by 2020, and SB 100 calls for further development of renewable energy, with a target of 60 percent by 2030. The CO_2 emissions intensity factor for utility energy use was adjusted based on Peninsula Clean Energy's *Our Path to 24/7 Renewable Energy by 2025* report in which the delivered electricity had a GHG emissions intensity of 12 pounds CO_2e per megawatt-hour (MWh) (Peninsula Clean Energy 2021).

Mobile Sources

All details for criteria air pollutants discussed in Section 4.2.2 are also applicable for the estimation of operational mobile source GHG emissions.

Regulatory measures related to mobile sources include AB 1493 (Pavley), ACC Standards, and related federal standards. AB 1493 required that CARB establish GHG emission standards for automobiles, light-duty trucks, and other vehicles determined by CARB to be vehicles that are primarily used for noncommercial personal transportation in the state. The ACC I program is an emissions-control program for model years 2015 through 2025. The program combines the control of smog- and soot-causing pollutants and GHG emissions into a single coordinated package of regulations. Although not currently included in EMFAC's emission factor estimates and forecasts, in August 2022, CARB adopted the ACC II regulations which would rapidly scale down light-duty passenger car, truck and SUV emissions starting with the 2026 model year through 2035, with all new passenger cars, trucks and SUVs sold in California to be zero emissions by 2035. In addition, the NHTSA and EPA have established corporate fuel economy standards and GHG emission standards, respectively, for automobiles and light-, medium-, and heavy-duty vehicles. Implementation of these standards and fleet turnover (replacement of older vehicles with newer ones) will gradually reduce emissions from the project's motor vehicles. The effectiveness of fuel economy improvements was evaluated using the CalEEMod emission factors for motor vehicles in 2028 to the extent it was captured in EMFAC2017. The 2017 version of EMFAC was used because this version was used in CalEEMod 2020.4.0. The Pavley Clean Car Standards, ACC Standards, and fuel efficiency standards for medium- and heavy-duty vehicles are included in EMFAC2017's emission factor estimates and forecasts. The Low Carbon Fuel Standard was excluded in EMFAC forecasts because most of the emission benefits originate from upstream fuel production. For existing land uses, emission factors representing the vehicle mix and emissions for 2020 were used to estimate emissions.

Solid Waste

The project would generate solid waste, and therefore, result in CO_2e emissions associated with landfill off-gassing. CalEEMod default values for solid waste generation was updated for the project while default values were used to estimate GHG emissions associated with solid waste for the existing uses. The project's Zero Waste Management Plan (Appendix K2) shows that it is expected that individuals residing within the project site would generate 5 pounds per day of solid waste in the years 2023 through 2025, 4 pounds per day from 2026 to 2028, 3.5 pounds per day from 2029 to 2032, 2 pounds per day in 2033 and 2034, and 0.5 pounds per day in 2035 and beyond. Per information provided by the project sponsor (The Sobrato Organization), the CalEEMod modeling was based on the estimation that the project would result in a solid waste generation rate of approximately 281 tons per year. In initial operational years, the total annual solid waste generation would be somewhat higher, while in all years after 2034, the project site residents would generate 102.5 tons of solid waste per year, and the associated CO_2e emissions associated with landfill off-gassing would be less than what is reflected in this analysis.

Water and Wastewater

Supply, conveyance, treatment, and distribution of water for the project require the use of electricity, which would result in associated indirect GHG emissions. Similarly, wastewater generated by the project requires the use of electricity for conveyance and treatment, and GHG emissions would be generated during wastewater treatment. CalEEMod default values were adjusted based on the consumption and future forecast data provided by the sponsor (The Sobrato Organization) as shown in the 123 Independence Water Budget (Appendix J1). Total potable water use for the project at buildout would be 12,023,277 gallons per year for the apartments, 4,851,349 gallons per year for the townhomes, and 69,379 gallons per year for irrigation offsite. Default CalEEMod values were assumed for

the existing land uses. The electricity use for water supply, treatment, distribution, and wastewater treatment are based on the electricity intensity factors from CalEEMod for the County and the indoor and outdoor water use default values in CalEEMod. Regarding indoor water use, the project would install low-flow water fixtures including, low-flow bathroom and kitchen faucets, and low-flow toilets which would reduce the project's water consumption.

Project Impacts

Impact 4.7-1 Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

As stated in Section 4.7.3 above, the significance determination for GHGs are based on project consistency with the BAAQMD's Thresholds, which BAAQMD adopted in April 2022. The analysis presented in this Impact follows the BAAQMD Thresholds description of the approach to determining whether a project's GHG contribution would be cumulatively considerable. Specifically, this analysis evaluates whether the proposed project would be "designed and built to ensure that it will be consistent with the goal of carbon neutrality by 2045," which is the state's current "articulation of what will be required to achieve long-term climate stabilization at a sustainable level," as defined in EO B-55-18. The BAAQMD Thresholds conclude "if a land use project incorporates all of the design elements necessary for it to be carbon neutral by 2045, then it will contribute its portion of what is needed to achieve the state's climate goals and will help to solve the cumulative problem. It can therefore be found to make a less-than-cumulatively-considerable climate impact" (BAAQMD 2022).

In addition, the proposed project's GHG emissions have been quantified below for informational purposes.

Construction Emissions

Construction of the project would result in GHG emissions, which are primarily associated with use of off-road construction equipment, vendor trucks, and worker vehicles. Since the BAAQMD has not established construction-phase GHG thresholds, construction GHG emissions were amortized assuming a 30-year development life after completion of construction. A detailed depiction of the construction schedule—including information regarding phasing, equipment utilized during each phase, trucks, and worker vehicles—is included in Appendix C1. The estimated project-generated GHG emissions from construction activities are shown in Table 4.7-4.

In addition, this analysis includes a qualitative evaluation of the project's consistency with statewide GHG emission reduction goals. BAAQMD explains that a construction phase GHG emission threshold was not adopted because construction GHG emissions "represent a very small portion of a project's lifetime GHG emissions" (BAAQMD 2022). The Draft Environmental Analysis prepared in support of the 2022 Draft Scoping Plan Update, however, states that "Depending on project size, the generation of construction emissions are inherently short-term when compared to operational emissions which continue to emit until a project or facility has been decommissioned. Nevertheless, GHGs typically have a long atmospheric lifespan. Therefore, construction emissions must be considered in the overall context of a project" (CARB 2022).

Table 4.7-4. Estimated Annual Construction GHG Emissions

Year	CO_2	CH_4	N_2O	CO_2e
	Metric Tons			
2023	205.46	0.05	0.01	210.09
2024	463.17	0.11	0.02	473.13

Table 4.7-4. Estimated Annual Construction GHG Emissions

Year	CO_2	CH_4	N_2O	CO_2e
	Metric Tons			
2025	586.99	0.14	0.02	595.56
2026	1,725.92	0.21	0.02	1,736.61
2027	2,839.14	0.29	0.02	2,851.88
2028	379.41	0.06	0.01	382.49
			Total	**6,249.76**
			Amortized over 30 years	**208.33**

Source: Appendix C1.
Notes: CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent.

As shown in Table 4.7-4, the estimated total GHG emissions during construction would be approximately 6,250 MT CO_2e over the construction period. Estimated project-generated construction emissions amortized over 30 years would be approximately 208 MT CO_2e per year. As with project-generated construction criteria air pollutant emissions, GHG emissions generated during construction of the project would be short term in nature, lasting only for the duration of the construction period, and would not represent a long-term source of GHG emissions. Because there is no separate GHG threshold for construction, the evaluation of the significance of the estimated GHG emissions is discussed in the operational emissions analysis.

As noted above, consideration of the consistency of project construction emissions with statewide GHG emission reduction goals, the CARB Scoping Plan, BAAQMD Guidance, and the City's Climate Action Plan is approached qualitatively. These statewide, regional, and local planning documents and regulations do not contain specific mandates that are directly applicable to reduction of GHG emissions during project construction. Instead, they recommend use of best management practices to minimize construction GHG emissions. These recommendations are not requirements however, and not all recommendations or examples of best management practices will apply to and be feasible to implement for every construction project. Specifically, Appendix B to the 2017 Scoping Plan notes "[t]his appendix should be viewed as a general reference document. It should not be interpreted as official guidance or as dictating requirements" to regulate GHGs emissions for local projects.

Construction activities associated with the proposed project would be consistent with these planning documents and regulations as follows:

- Landfill waste would be reduced, consistent with the BAAQMD Guidelines and CARB Scoping Plan through compliance with Menlo Park Municipal Code Chapter 12.48, which establishes landfill diversion requirements for solid waste generated during demolition and construction,
- Fuel used in construction equipment would comply with statewide low-carbon fuel standards.
- Construction crews would be required to shut equipment off when not in use and/or reduce the maximum idling time to 5 minutes as required by the California Airborne Toxics Control Measure and Mitigation Measure 4.2a.
- Under Mitigation Measure 4.2b, construction vehicles of 50 horsepower or greater would be required to use Tier 4 engines to minimize diesel particulate matter emissions
- While the project cannot avoid removal of trees from the project site due to the requirement to raise the ground elevation in response to potential sea level rise, the project proposes to plant over 350 new trees and other landscaping, which would provide shading to reduce energy consumption and provide opportunities for carbon sequestration.

Operational Emissions

Operation of the project would generate GHG emissions through motor vehicle trips to and from the project site, landscape maintenance equipment operation, energy use (natural gas and generation of electricity consumed by the proposed project), natural gas-fueled emergency generator maintenance and testing, solid waste disposal, and generation of electricity associated with water supply, treatment, and distribution and wastewater treatment. CalEEMod was used to calculate the annual GHG emissions based on the operational assumptions described at the beginning of Section 4.7.4 under the 'Methodology' heading.

For informational purposes, the estimated operational project-generated GHG emissions from area sources, energy usage, motor vehicles, solid waste generation, and water usage and wastewater generation are shown in Table 4.7-5.

Table 4.7-5. Estimated Annual Operational GHG Emissions

Emission Source	CO_2	CH_4	N_2O	CO_2e
	Metric Tons			
Project				
Area	5.26	0.01	0.00	5.38
Energy	0.40	0.00	0.00	0.40
Mobile	1,220.58	0.08	0.05	1,238.67
Solid Waste	57.00	3.37	0.00	141.21
Water Supply and Wastewater	11.41	0.45	0.01	25.72
Emergency Generator	8.83	<0.01	0.00	8.87
			Total	**1,420.25**
			Amortized Construction Emissions	*208.33*
			Operation + Amortized Construction Total	**1,628.58**
Existing Land Uses				
Area	<0.01	0.00	0.00	<0.01
Energy	232.83	0.02	<0.01	234.54
Mobile	656.72	0.04	0.03	666.83
Solid Waste	10.89	0.64	0.00	26.98
Water Supply and Wastewater	33.45	1.34	0.03	76.34
			Total	**1,004.69**
Net Change in Emissions				
			Net Change (Project – Existing Land Uses)	**623.89**

Source: Appendix C1.
Notes: CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent; <0.01 = value less than reported 0.01.

As shown in Table 4.7-5, estimated annual project-generated GHG emissions would be approximately 1,420 MT CO_2e per year as a result of project operations only. After summing the amortized project construction emissions, total GHGs generated by the project would be approximately 1,629 MT CO_2e per year. Emissions from the existing land uses are estimated to be approximately 1,005 MT CO_2e per year. As such, implementation of the project would result in net annual operational GHG emissions of 624 MT CO_2e per year.

As stated above, significance of the project in the category of GHG emissions is determined based on the BAAQMD Option A threshold (BAAQMD 2022) rather than a quantitative threshold. Analysis of the project against the BAAQMD Option A threshold is in the Building Elements and Transportation Elements subsections below.

As previously discussed in Section 4.7.3, the BAAQMD Option A threshold includes building and transportation design elements that all projects are required to meet to have a less than cumulatively considerable contribution to climate change. Specifically, the building design elements must exclude natural gas appliances and natural gas plumbing and must not use energy in a wasteful, inefficient, or unnecessary manner. Transportation design elements includes complying with CALGreen electric vehicle charging requirements and, for residential projects, achieving a 15 percent reduction in project-generated per capita VMT below the existing VMT per capita or meeting a locally adopted SB 743 VMT target.

Building Elements

The project would comply with recent revisions to the Menlo Park Municipal Code, which would require electricity as the only fuel source for newly constructed residential buildings (Municipal Code Chapter 12.16). Because the project is all electric and does not propose a natural gas line, it is consistent with the first part of the building element threshold Regarding the second building element threshold, as discussed in Section 4.5, Energy, the project would not result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operations. Overall, the project would increase electricity and petroleum demand associated with the project site. The project would be built in accordance with the current Building Energy Efficiency Standards (Title 24) at the time of construction, which include robust requirements for energy efficiency and the buildings would be more energy efficient than the existing buildings. Also, the provisions of the CALGreen code apply to the planning, design, operation, construction, use and occupancy of every newly constructed building or structure. Furthermore, the energy demand calculations do not take into account all of the project's energy-saving design features that would result in exceedances of the code requirements. As such, the project's electricity use would be more efficient than what is required and would likely be even lower than the calculations presented above. In addition, the project would provide much-needed housing close to jobs, which results in more efficient commutes. The project's relationship to efficiency requirements and project-specific design features that would minimize electricity use are summarized below. The project's green building features would include compliance with Menlo Park Municipal Code Section 16.45.130 though installation of solar-power generation equipment and ensuring that 100 percent of the project's energy demand is met with renewable energy sources, attaining Leadership in Energy and Environmental Design Gold standard, enrolling in EPA Energy Star Building Portfolio Manager, attaining indoor and outdoor water use efficiency standards, and implementing project-specific zero waste management plans. Additional green building measures incorporated in the proposed project include consistency with Municipal Code Chapter 12.16 to provide all electric buildings, providing electric vehicle charging stations and parking spaces that are "EV Ready," and providing bicycle and pedestrian facilities.

Transportation Elements

In regard to the transportation criteria, due to the urban setting of the project site, which is served by passenger rail and bus services, it is expected that residents, visitors, and guests may use transit or non-vehicular modes of transportation to travel to and from the project site. The Caltrain commuter rail system serves the Menlo Park Station, located at 1120 Merrill Street, approximately 2 miles south of the project site. The study area is also served by the Menlo Park Shuttle Service and the SamTrans bus service, which collectively provide local and regional public transit within the project area. As discussed in detail in Section 4.14, Transportation, and Appendix J1, the proposed

project would implement a Transportation Demand Management Plan (Appendix J2) that is expected to achieve a 20.63 percent reduction in daily trips and total VMT per capita for the project. The project would thus meet the City's residential VMT threshold and BAAQMD's target of achieving a VMT that is at least 15 percent below the existing VMT per capita In addition, the project would include electric vehicle charging stations and EV Ready parking spaces, consistent with requirements under CALGreen and the Menlo Park Municipal Code.

Therefore, the proposed project's GHG contribution would be **less than significant** and would not be cumulatively considerable.

Mitigation Measures

No mitigation measures are required.

Impact 4.7-2 Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Project Consistency with the City of Menlo Park CAP

As discussed in Section 4.7.2, Regulatory Framework, the City of Menlo Park 2030 CAP identifies a variety of actions, which will help the City make progress towards achieving the CAP goals with respect to conservation of energy, reducing GHG emissions associated with transportation, and adapting to sea level rise. Notably, the six actions detailed below were selected from over 76 actions included in the City's prior Bold and Moderate Plans, because they offered the most benefit for reductions in GHG emissions per cost. The list of actions presented within the 2030 CAP are outlined in Table 4.7-6, along with analysis of the project's consistency with them.

Table 4.7-6. Project Consistency with the City of Menlo Park CAP

CAP Actions	Project Consistency
Action 1: Explore policy/program options to convert 95 percent of existing buildings to all-electric by 2030.	*Not Applicable.* The project consists of new residential development and would be built all-electric consistent with the Menlo Park Municipal Code.
Action 2: Set citywide goal for increasing EVs and decreasing gasoline sales.	*Consistent*. The project would provide EV charging in compliance with the Menlo Pak Municipal Code Section 12.18.050 and CALGreen requirements.
Action 3: Expand access to EV charging for multifamily and commercial properties.	*Consistent*. The project would provide EV charging in compliance with the Menlo Pak Municipal Code Section 12.18.050 and CALGreen requirements.
Action 4: Reduce VMT by 25 percent or an amount recommended by the Complete Streets Commission.	*Consistent.* The 25 percent VMT reduction goal is intended to be applied citywide, rather than as a mandate for each individual project to achieve a 25 percent reduction in VMT. This action is described in the CAP as being implemented with a two-pronged approach that includes encouraging higher density development, especially housing, near transit and making the city easier to navigate without a car by implementing the Transportation Master Plan. The project proposes higher density housing through bonus-level development, as permitted by the site's zoning designation. As discussed in Section 4.14, transit services are available proximate to and within walking distance of the

Table 4.7-6. Project Consistency with the City of Menlo Park CAP

CAP Actions	Project Consistency
	project site. The project also incorporates pedestrian and bicycle facilities to support non-motor vehicle mobility. The project also places housing in a job-rich area, which promotes the ability of workers to live near their jobs and reduce commute miles. Also as discussed in Section 4.14, the proposed project would implement a Transportation Demand Management Plan (Appendix J2) that would reduce the project-specific VMT per capita by 20.63 percent compared to the existing VMT per capita.
Action 5: Eliminate the use of fossil fuels from municipal operations.	*Not Applicable.* Applies to City facilities. However, until all municipal operations have eliminated use of fossil fuels, the project's water conservation measures would contribute to reduced fossil fuel consumption associated with operation of Menlo Park Municipal Water facilities.
Action 6: Develop a climate adaptation plan to protect the community from sea level rise and flooding.	*Not Applicable.* This Action describes a City initiative. However, as part of this Action, the City has adopted a requirement that all new residential units in areas subject to sea level rise must be raised 2 feet above the 5-foot FEMA floodplain. The proposed project design is consistent with this requirement.

Source: City of Menlo Park 2020.

Project Consistency with Plan Bay Area 2050

MTC and ABAG's Plan Bay Area 2050 is a regional growth-management strategic plan that focuses on reducing GHG emissions associated with transportation, pursuant to SB 375. Plan Bay Area 2050 incorporates local land use projections and circulation networks as identified in city and county general plans and presents 35 strategies across the elements of housing, the economy, transportation and the environment. These strategies identify public policies and investments that can be implemented in the Bay Area at the city, county, regional, and/or state level over the next 30 years.

Typically, a project would be consistent with the RTP/SCS if the project does not exceed the underlying growth assumptions within the RTP/SCS. As discussed in Section 4.12, Population and Housing, the project would provide a minor amount of growth, 1,110 residents (assuming 2.57 persons per household in the City) which is estimated at 9.3 percent of new residents contemplated by the ConnectMenlo General Plan Update and EIR.. Furthermore, the project is consistent with the bonus-level residential capacity permitted by the project site's General Plan land use designation and zoning and is within the housing unit demand projection for the City as determined by ABAG. As such, the project is within the population growth projections in the City and the ABAG region.

The project's consistency with Plan Bay Area 2050 is demonstrated via the project's land use characteristics and features that would reduce vehicular trips and VMT. As discussed in Section 4.2, Air Quality, the project site is designated as Mixed-Use Residential on the ConnectMenlo land use designation map and is within the City's Residential Mixed-Use Bonus (R-MU-B) zoning district. The project proposes to develop 116 for-sale townhomes and 316 rental apartments, consistent with these designations. Because the project would result in the development of uses and growth that are consistent with the City's General Plan and zoning designations it is concluded to have been anticipated in the MTC and ABAG's Plan Bay Area 2050 growth projections. In addition, as demonstrated in the VMT

analysis prepared for the project (refer to Section 4.14 and Appendix J1), the estimated per capita VMT for the project at buildout and with implementation of the proposed Transportation Demand Management Plan (Appendix J2) is estimated to be 20.63 percent less than the current per capita VMT for the transportation analysis zone in which the project site is located. Therefore, the project would not exceed the regional (City) VMT per service population estimates and the project is anticipated to be consistent with Plan Bay Area 2050 strategies.

Based on the analysis above, the project would not conflict with the strategies of Plan Bay Area 2050.

Project Consistency with CARB's Scoping Plan

The Scoping Plan (approved by CARB in 2008 and updated in 2014 and 2017) provides a framework for actions to reduce California's GHG emissions and requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. The Scoping Plan is not directly applicable to specific projects, nor is it intended to be used for project-level evaluations.[3] Under the Scoping Plan, however, there are several state regulatory measures aimed at the identification and reduction of GHG emissions. CARB and other state agencies have adopted many of the measures identified in the Scoping Plan. Most of these measures focus on area source emissions (e.g., energy usage, high-GWP GHGs in consumer products) and changes to the vehicle fleet (i.e., hybrid, electric, and more fuel-efficient vehicles) and associated fuels (e.g., Low Carbon Fuel Standard), among others.

The Scoping Plan recommends strategies for implementation at the statewide level to meet the goals of AB 32 and establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. Table 4.7-7 highlights measures that have been developed under the 2030 Scoping Plan and the project's consistency with those measures (these measures are denoted with a letter and number). Table 4.7-7 also includes measures recommended in the 2030 Scoping Plan (these measures are labeled as recommended and are contained in a list that lacks lettering and numbering). To the extent that these measures are applicable to the project, its inhabitants, or uses, the project would comply with all applicable measures adopted in furtherance of the Scoping Plan. The Scoping Plan includes five measures and one recommendation related to the Industry Sector, one measure related to the Forestry Sector, and one measure related to the Agricultural Sector. None of these measures are included in Table 4.7-7 because the proposed Project does not include any industrial, forestry, or agricultural uses.

Table 4.7-7. Project Consistency with Scoping Plan GHG Emission Reduction Strategies

Scoping Plan Measure	Measure Number	Project Consistency
Transportation Sector		
Advanced Clean Cars	T-1	*Consistent.* The project's residents and visitors would purchase vehicles in compliance with CARB vehicle standards that are in effect at the time of vehicle purchase.
Low Carbon Fuel Standard	T-2	*Consistent.* This is a statewide measure that cannot be implemented by a project applicant or lead agency. Nonetheless, this standard would be applicable to the fuel used by vehicles that would

[3] The Final Statement of Reasons for the amendments to the CEQA Guidelines reiterates the statement in the Initial Statement of Reasons that "[t]he Scoping Plan may not be appropriate for use in determining the significance of individual projects because it is conceptual at this stage and relies on the future development of regulations to implement the strategies identified in the Scoping Plan" (CNRA 2009).

Table 4.7-7. Project Consistency with Scoping Plan GHG Emission Reduction Strategies

Scoping Plan Measure	Measure Number	Project Consistency
		access the project site (i.e., motor vehicles driven by the project's residents and visitors would use compliant fuels).
Regional Transportation-Related GHG Targets	T-3	*Consistent*. At the time of construction, 15 percent of the parking stalls in the apartment garage would be equipped with an electric vehicle (EV) charging station and one parking stall per residential unit would be "EV Ready," meaning that conduits would be installed to facilitate adding a charging station in the future. The project would also designate parking for clean air/EV parking to encourage use of alternative forms of transportation.
Advanced Clean Transit	Recommended	*Not applicable.* The project would not prevent CARB from accelerating the use of advanced technologies in heavy-duty vehicles to meet air quality, climate, and public health goals.
Last-Mile Delivery	Recommended	*Not applicable.* The project would not prevent CARB from increasing the deployment of zero-emission trucks primarily in California.
Reduction in VMT	Recommended	*Consistent.* The project would be developed within proximity of existing transit infrastructure, which would help reduce the project's VMT. As assessed in Section 4.14, Transportation of this Draft EIR, Caltrain commuter rail system serves the Menlo Park Station, approximately 2 miles south of the project site. The study area is also served by the Menlo Park Shuttle Service and the SamTrans bus service, which collectively provide local and regional public transit within the project area
Vehicle Efficiency Measures 1. Tire Pressure 2. Fuel Efficiency Tire Program 3. Low-Friction Oil 4. Solar-Reflective Automotive Paint and Window Glazing	T-4	*Consistent.* These standards would be applicable to the light-duty vehicles that would access the project site. Motor vehicles driven by the project's residents and visitors would maintain proper tire pressure when their vehicles are serviced. It is anticipated that the project's residents and visitors would replace tires in compliance with CARB vehicle standards that are in effect at the time of vehicle purchase. Motor vehicles driven by the project's residents and visitors would use low-friction oils when their vehicles are serviced. In addition, the project would not prevent CARB from implementing this measure.
Ship Electrification at Ports (Shore Power)	T-5	*Not applicable.* The project would not prevent CARB from implementing this measure.
Goods Movement Efficiency Measures 1. Port Drayage Trucks	T-6	*Not applicable.* The project would not prevent CARB from implementing this measure.

Table 4.7-7. Project Consistency with Scoping Plan GHG Emission Reduction Strategies

Scoping Plan Measure	Measure Number	Project Consistency
2. Transport Refrigeration Units Cold Storage Prohibition 3. Cargo Handling Equipment, Anti-Idling, Hybrid, Electrification 4. Goods Movement Systemwide Efficiency Improvements 5. Commercial Harbor Craft Maintenance and Design Efficiency 6. Clean Ships 7. Vessel Speed Reduction		
Heavy-Duty Vehicle GHG Emission Reduction ▪ Tractor-Trailer GHG Regulation ▪ Heavy-Duty Greenhouse Gas Standards for New Vehicle and Engines (Phase I)	T-7	*Not applicable.* The project would not prevent CARB from implementing this measure. However, heavy-duty vehicles, such as those that may be used during project construction and for deliveries to project residents, would be required to comply with CARB GHG reduction measures.
Medium- and Heavy-Duty Vehicle Hybridization Voucher Incentive Proposed Project	T-8	*Not applicable.* The project would not prevent CARB from implementing this measure. However, all medium and heavy-duty vehicles that would access the project would be subject to this regulation.
Medium and Heavy-Duty GHG Phase 2	Recommended	*Not applicable.* The project would not prevent CARB from implementing this measure. However, all medium and heavy-duty vehicles that would access the project would be subject to this regulation.
High-Speed Rail	T-9	*Not applicable.* The project would not prevent CARB from implementing this measure.
Electricity and Natural Gas Sector		
Energy Efficiency Measures (Electricity)	E-1	*Consistent.* The project would comply with the Menlo Park Municipal Code and with current Title 24, Part 6, of the California Code of Regulations energy efficiency standards for electrical appliances and other devices at the time of building construction.
Energy Efficiency (Natural Gas)	CR-1	*Consistent.* The project would comply with the Menlo Park Municipal Code and would not include natural gas appliances.
Solar Water Heating (California Solar Initiative Thermal Program)	CR-2	*Consistent.* The apartment building would include solar water heating where feasible.
Combined Heat and Power	E-2	*Not applicable.* The project would not prevent CARB from implementing this measure.
Renewables Portfolio Standard (33 percent by 2020)	E-3	*Consistent*. The electricity used by the project would benefit from reduced GHG emissions resulting from increased use of renewable energy sources by electricity providers.

Table 4.7-7. Project Consistency with Scoping Plan GHG Emission Reduction Strategies

Scoping Plan Measure	Measure Number	Project Consistency
Renewables Portfolio Standard (50 percent by 2050)	Recommended	*Consistent*. The increased use of renewable energy sources would reduce GHG emissions due to the project's electricity use.
SB 1 Million Solar Roofs (California Solar Initiative, New Solar Home Partnership, Public Utility Programs) and Earlier Solar Programs	E-4	*Consistent*. The project would be required to meet at minimum, the applicable current Title 24 Building Energy Efficiency Standards regarding the installation rooftop solar systems. As set forth in 2019 Building Energy Efficiency Standards, low-rise residential buildings must include solar panels (subject to a few exceptions) and high-rise multi-family buildings must be solar ready. The City's Reach Code requires solar on high-rise multi-family buildings. as does 2022 Title 24, which takes effect on January 1, 2023.
Water Sector		
Water Use Efficiency	W-1	*Not applicable.* The project would not prevent CARB from implementing this measure.
Water Recycling	W-2	*Not applicable.* The project would not prevent CARB from implementing this measure.
Water System Energy Efficiency	W-3	*Not applicable.* This is applicable for the transmission and treatment of water, but it is not applicable for the project. The project would not prevent CARB from implementing this measure.
Reuse Urban Runoff	W-4	*Not applicable.* The project would not prevent CARB from implementing this measure.
Renewable Energy Production	W-5	*Not applicable.* Applicable for wastewater treatment systems. In addition, the project would not prevent CARB from implementing this measure.
Green Buildings		
State Green Building Initiative: Leading the Way with State Buildings (Greening New and Existing State Buildings)	GB-1	*Not Applicable.* This measure is specific to buildings constructed by the State of California. See Measure GB-2.
Green Building Standards Code (Greening New Public Schools, Residential and Commercial Buildings)	GB-2	*Consistent*. The project would be required to be constructed in compliance with the Menlo Park Municipal Code and CALGreen requirements in effect at the time of building construction.
Beyond Code: Voluntary Programs at the Local Level (Greening New Public Schools, Residential and Commercial Buildings)	GB-3	*Consistent*. The project would be required to be constructed in compliance with the Menlo Park Municipal Code, including its Reach Code, and CALGreen requirements in effect at the time of building construction.
Greening Existing Buildings (Greening Existing Homes and Commercial Buildings)	GB-4	*Not applicable.* This measure applies to existing buildings and therefore does not apply to the project. The project would not inhibit CARB from implementing this Measure.

Table 4.7-7. Project Consistency with Scoping Plan GHG Emission Reduction Strategies

Scoping Plan Measure	Measure Number	Project Consistency
Recycling and Waste Management Sector		
Landfill Methane Control Measure	RW-1	*Not applicable.* The project would not prevent CARB from implementing this measure.
Increasing the Efficiency of Landfill Methane Capture	RW-2	*Not applicable.* The project would not prevent CARB from implementing this measure.
Mandatory Commercial Recycling	RW-3	*Consistent.* During both construction and operation of the project, the project would comply with all state and local regulations related to solid waste generation, storage, and disposal, including the California Integrated Waste Management Act and the City's zero waste management plans, as amended.
Increase Production and Markets for Compost and Other Organics	RW-4	*Not applicable.* The project would not prevent CARB from implementing this measure.
Anaerobic/Aerobic Digestion	RW-5	*Not applicable.* The project would not prevent CARB from implementing this measure.
Extended Producer Responsibility	RW-6	*Not applicable.* The project would not prevent CARB from implementing this measure.
Environmentally Preferable Purchasing	RW-7	*Not applicable.* The project would not prevent CARB from implementing this measure.
High GWP Gases Sector		
Motor Vehicle Air Conditioning Systems: Reduction of Refrigerant Emissions from Non-Professional Servicing	H-1	*Consistent.* The project's leases and/or HOA rules, as applicable, would prohibit air conditioning repairs on motor vehicles on site.
SF6 Limits in Non-Utility and Non-Semiconductor Applications	H-2	*Not applicable.* The project does not include semiconductor manufacturing. The project would not prevent CARB from implementing this measure.
Reduction of Perfluorocarbons (PFCs) in Semiconductor Manufacturing	H-3	*Not applicable.* The project does not include semiconductor manufacturing. The project would not prevent CARB from implementing this measure.
Limit High GWP Use in Consumer Products	H-4	*Consistent.* The project's residents and visitors would use consumer products that would comply with the regulations that are in effect at the time of manufacture.
Air Conditioning Refrigerant Leak Test During Vehicle Smog Check	H-5	*Consistent*. Motor vehicles driven by the project's residents and visitors would comply with the leak test requirements during smog checks.
Stationary Equipment Refrigerant Management Program – Refrigerant Tracking/Reporting/Repair Program	H-6	*Not applicable.* The does not include stationary equipment that uses refrigerant. The project would not prevent CARB from implementing this measure.
Stationary Equipment Refrigerant Management Program – Specifications for Commercial and Industrial Refrigeration	H-6	*Not applicable.* The project does not include stationary equipment for commercial or industrial refrigeration. The project would not prevent CARB from implementing this measure.

Table 4.7-7. Project Consistency with Scoping Plan GHG Emission Reduction Strategies

Scoping Plan Measure	Measure Number	Project Consistency
SF6 Leak Reduction Gas Insulated Switchgear	H-6	*Not applicable.* The project does not include development of a switchgear. The project would not prevent CARB from implementing this measure.
40 percent Reduction in Methane and Hydrofluorocarbon (HFC) Emissions	Recommended	*Not applicable.* The project would emit methane or HFC. The project would not prevent CARB from implementing this measure.
50 percent Reduction in Black Carbon Emissions	Recommended	*Not applicable.* The project would emit black carbon. The project would not prevent CARB from implementing this measure. However, on-road vehicles accessing the project would be subject to this regulation.

Source: CARB 2008, 2017.
Notes: GHG = greenhouse gas; CARB = California Air Resources Board; EV = electric vehicle; VMT = vehicle miles traveled; SB = Senate Bill; N/A = not applicable; SF_6 = sulfur hexafluoride.

Based on the analysis in Table 4.7-7, the project would be consistent with the applicable strategies and measures in the Scoping Plan.

The 2022 Draft Scoping Plan Update reflects the 2030 target of a 40 percent reduction below 1990 levels codified by SB 32, and the 2045 target of carbon neutrality established by EO B-55-18. Appendix D to the Draft Scoping Plan Update recommends three potential ways for determining whether a local project would be in alignment with state climate goals.

First, Appendix D "strongly recommends" that local governments adopt a local CAP that complies with CEQA requirements. Consistency with a locally adopted CAP would be evidence of consistency with state-wide goals to reduce GHG emissions. Table 4.7-6 contains the analysis of the project's consistency with the City's CAP, concluding that the project would be consistent. Accordingly, the project also would be in alignment with the Scoping Plan.

Second, CARB also identified residential and mixed-use project attributes that would "clearly" cause the project to be consistent with the state's climate strategy (CARB 2022). Per the Scoping Plan, empirical evidence shows that residential development projects that are consistent with these project attributes to reduce GHG emissions will accommodate growth in a manner that aligns with the GHG and equity goals of SB 32. Additionally, consistency with the project attributes will ensure that projects are: (1) addressing the largest sources of their operational emissions, (2) are in alignment with the priority areas defined for Local Climate Action (see Table 4.7-8), and (3) are in alignment with the state's climate goals. The attributes and analysis of the project's consistency with them are presented in Table 4.7-8. As shown in Table 4.7-8, the project is consistent with most, but not all, of the project attributes identified by the Draft 2022 Scoping Plan that would clearly cause a project to be consistent with state climate goals. According to the Draft Plan, these attributes are a guide to determine residential projects that are clearly consistent with the state's climate strategy for CEQA purposes and consistency with each attribute is not necessarily required. The Scoping Plan notes that even projects with some (but not all) of these attributes may well be consistent with the state's climate strategy, though they will likely need to provide further evidence to demonstrate consistency. The project has demonstrated such consistency by showing it is consistent with the City's 2030 CAP and BAAQMD's thresholds.

Third, the 2022 Draft Scoping Plan Appendix D states that a project can show alignment with state climate goals by showing that it would meet a local air quality management agency's adopted GHG threshold. As discussed above, the project is consistent with the BAAQMD's GHG threshold.

Table 4.7-8. Project Consistency with Draft 2022 Scoping Plan Climate Change Guidance Prior to Mitigation

Project Attributes	Project Consistency
At least 20 percent of the units are affordable to lower-income residents [a, b]	*Potential conflict.* The project proposes 432 homes, 74 Below Market Rate (BMR) units consisting of 18 BMR townhomes and 56 BMR apartments. These 74 units comprise approximately 17 percent of the total units and therefore do not meet the 20 percent or greater recommendation. However, the project has demonstrated consistency with the Scoping Plan by showing that it is consistent with the City's 2030 CAP and BAAQMD's GHG threshold.
Result in no net loss of existing affordable units	*Consistent.* The proposed project would include demolition of five existing office and industrial buildings. There are no affordable housing units currently within the project site and no affordable housing units would be lost as a result of the project.
Utilize existing infill sites that are surrounded by urban uses, and reuse or redevelop previously developed, underutilized land presently served by existing utilities and essential public services (e.g., transit, streets, water, sewer)[c]	*Consistent.* The project involves redevelopment of an existing urban, developed area. Furthermore, the Caltrain commuter rail system serves the Menlo Park Station, approximately 2 miles south of the project site. The study area is also served by the Menlo Park Shuttle Service and the SamTrans bus service, which collectively provide local and regional public transit within the project area
Include transit-supportive densities (minimum of 20 residential dwelling units/acre), or are in proximity to existing transit (within ½ mile), or satisfy more detailed and stringent criteria specified in the region's SCS to achieve further emission reductions through consistency with the SCS	*Consistent.* The project site is within the Residential Mixed-Use Bonus (R-MU-B) zoning district which is subject to the requirements of the Menlo Park Municipal Code Chapter 16.45, R-MU Residential Mixed-Use District. The project site comprises approximately 8.15 acres, with 432 residential units, for a density of 53 dwelling units per acre. Furthermore, the study area is also served by the Menlo Park Shuttle Service and the SamTrans bus service, which collectively provide local and regional public transit within the project area
Do not result in the loss or conversion of the state's natural and working lands	*Consistent.* The project involves redevelopment of an existing urban, developed area and implementation of project would not result in land use conversion that would reduce the state's natural and working lands.
Use all electric appliances, without any natural gas connections, and would not use propane or other fossil fuels for space heating, water heating, or indoor cooking [f,g]	*Consistent.* The project consists of new residential development and would be built all-electric consistent with the Menlo Park Municipal Code.
Provide EV charging infrastructure at least in accordance with CalGreen Tier 2 standards[h]	*Consistent.* The project would provide EV charging in compliance with the Menlo Pak Municipal Code and CALGreen requirements.

Table 4.7-8. Project Consistency with Draft 2022 Scoping Plan Climate Change Guidance Prior to Mitigation

Project Attributes	Project Consistency
Relax parking requirements[i] by: ▪ Eliminating parking requirements or including maximum allowable parking ratios. ▪ Providing residential parking supply at a ratio of <1 parking space per unit. ▪ Unbundling residential parking costs from costs to rent or lease.	*Not Applicable.* This Project Attribute requires the City to make changes in development standards to relax parking requirements. The proposed project would not impede the City's ability to make such changes. Further, the project proposes to provide an average of 1.3 parking spaces per dwelling unit, which is within the City's currently required range of providing between 1.0 and 1.5 parking spaces per unit (Municipal Code Section 16.45.080. The project is proposed under the Housing Crisis Act of 2019 which requires the City to evaluate the project under the objective standards that existed at the time the project's Preliminary Application was submitted. Applying a reduced parking standard to the project would require the project to obtain a variance from the existing Municipal Code, which is not permitted under the Housing Crisis Act of 2019. Further, as noted above, the project has demonstrated consistency with the Scoping Plan by showing that it is consistent with the City's 2030 CAP and BAAQMD's GHG threshold.

Source: CARB 2022.
Notes: MMT CO_2e = million metric tons of carbon dioxide equivalent.
[a] Newmark and Haas 2015.
[b] California Housing Partnership Corporation and TransForm 2014.
[c] California Government Code §§ 65041.1.
[d] Federal Transit Administration. 2014.
[e] Washington Department of Transportation. 2013.
[f] Energy and Environmental Economics. 2019.
[g] Energy and Environmental Economics. 2021.
[h] Cal. Code of Regs., tit. 24, Part 11.
[i] CAPCOA 2021.

Project Consistency with SB 32 and EO S-3-05

For informational purposes, the EIR discusses SB 32 and EO S-3-05. The project would not impede the attainment of the GHG reduction goals for 2030 or 2050 identified in EO S-3-05 and SB 32. As discussed in Section 4.7.2, EO S-3-05 establishes the following goals: GHG emissions should be reduced to 2000 levels by 2010, to 1990 levels by 2020, and to 80 percent below 1990 levels by 2050. SB 32 establishes a statewide GHG emissions reduction target whereby CARB, in adopting rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions, shall ensure that statewide GHG emissions are reduced to at least 40 percent below 1990 levels by December 31, 2030; the measures to reach this target are in the 2017 Scoping Plan and the project's consistency with that Scoping Plan is discussed above. While there are no established protocols or thresholds of significance for that future year analysis, CARB forecasts that compliance with the current Scoping Plan puts the state on a trajectory of meeting these long-term GHG goals, although the specific path to compliance is unknown (CARB 2014).

CARB has expressed optimism with regard to both the 2030 and 2050 goals. In the First Update to the Climate Change Scoping Plan, CARB recognized that California was on track to meet the near-term 2020 GHG emissions limit. Achievement of this standard was confirmed in the 2017 Scoping Plan (CARB 2017). The First Update to the Climate Change Scoping Plan indicated that policy goals that existed at that time, "such as 12,000 megawatts of

renewable distributed generation by 2020, net zero energy homes after 2020, existing building retrofits under AB 758, and others" would further contribute to the state's ability to realize additional GHG reductions and "stay on track to reduce emissions to 80 percent below 1990 levels by 2050."

The 2030 Scoping Plan reaffirmed CARB's expectation that the state is on a trajectory to meet the 2030 and 2050 GHG reduction targets set forth in AB 32, SB 32, and EO S-3-05, which states (CARB 2017):

> The Scoping Plan builds upon the successful framework established by the Initial Scoping Plan and First Update, while identifying new, technologically feasible, and cost-effective strategies to ensure that California meets its GHG reduction targets in a way that promotes and rewards innovation, continues to foster economic growth, and delivers improvements to the environment and public health, including in disadvantaged communities.

The project would not interfere with implementation of any of the previously described GHG reduction goals for 2030 or 2050 because the project would comply with the BAAQMD's significance threshold for land use projects. Because the project would meet the threshold, this analysis provides support for the conclusion that the project would not impede the state's trajectory toward the previously described statewide GHG reduction goals for 2030 or 2050. In September 2018, EO B-55-18 was signed, which commits the state to total carbon neutrality by 2045. As demonstrated in Table 4.7-8, the project is consistent with most of the project attributes identified by the Draft 2022 Scoping Plan which were developed in order for new projects to be consistent with the state climate goals.

Conclusion

The project is consistent with the current Scoping Plan which promotes growth while achieving greater energy efficiency. The project also would be consistent with the Menlo Park 2030 CAP, Plan Bay Area 2050, SB 32, and EO S-3-05 by being consistent with VMT reduction strategies and policies, increasing the use of alternative fueled vehicles, and implementing energy efficiency strategies. The project would not conflict with any plans adopted with the purpose of reducing GHG emissions; therefore, the project's impacts with respect to GHG emissions would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

Cumulative Impacts

Impact 4.7-3 Would the project result in cumulatively considerable impacts with regard to greenhouse gas emissions?

As previously discussed in Section 4.7.1, Environmental Setting, GHG emissions inherently contribute to cumulative impacts. As shown in Section 4.74, the project would comply with the BAAQMD Thresholds and would be consistent with the Scoping Plan, Menlo Park 2030 CAP, Plan Bay Area 2050, SB 32, and EO S-3-05. Therefore, the proposed project's GHG emissions would not make a cumulatively considerable contribution to global climate change.

Mitigation Measures

No mitigation measures are required.

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