

4.5 Greenhouse Gas Emissions

This section discusses the proposed project's potential impacts related to greenhouse gas (GHG) emissions and climate change. The following discussion focuses on the GHG emissions generated by construction and operation of the proposed project, as well as the project's consistency with applicable plans, policies, and regulations adopted for the purposes of reducing GHG emissions.

4.5.1 Environmental Setting

Global climate change refers to changes in average climatic conditions on Earth as a whole, including changes in temperature, wind patterns, precipitation, and severe weather events. Global warming, a related concept, is the observed increase in average temperature of Earth's surface and atmosphere. One identified cause of global warming is an increase of GHGs in the atmosphere. GHGs are those compounds in Earth's atmosphere that play a critical role in determining Earth's surface temperature.

Earth's natural warming process is known as the "greenhouse effect." It is called the greenhouse effect because Earth and the atmosphere surrounding it are similar to a greenhouse with glass panes in that the glass allows solar radiation (sunlight) into Earth's atmosphere but prevents radiative heat from escaping, thus warming Earth's atmosphere. Some levels of GHGs keep the average surface temperature of Earth close to a hospitable 60 degrees Fahrenheit (°F). However, as GHGs from human activities increase, they build up in the atmosphere and warm the climate, leading to many other changes around the world – in the atmosphere, on land, and in the oceans, with associated adverse climatic and ecological consequences (United States Environmental Protection Agency [U.S. EPA] 2022a).

Scientists studying the particularly rapid rise in global temperatures have determined that human activity has resulted in increased emissions of GHGs, primarily from the burning of fossil fuels (from motor vehicle travel, electricity generation, consumption of natural gas, industrial activity, manufacturing, etc.), deforestation, agricultural activity, and the decomposition of solid waste. Scientists refer to the global warming context of the past century as the "enhanced greenhouse effect" to distinguish it from the natural greenhouse effect (Pew Research Center 2006).

Global GHG emissions due to human activities have grown since pre-industrial times. As reported by the U.S. EPA, global carbon emissions from fossil fuels increased by over 16 times between 1900 and 2008 and by about 43 percent between 1990 and 2015. In addition, in the Global Carbon Budget 2021 report, published in April 2022, atmospheric carbon dioxide (CO₂) concentrations in 2021 were found to be 50 percent above the concentration at the start of the Industrial Revolution (Friedlingstein et al. 2022). Global increases in CO₂ concentrations are due primarily to fossil fuel use, with land use change providing another significant but smaller contribution. Regarding emissions of non-CO₂ GHGs, these have also increased substantially since 1990 (U.S. EPA 2022b). In particular, studies have concluded that it is very likely that the observed increase in methane (CH₄) concentration is predominantly due to agriculture and fossil fuel use (U.S. EPA 2022c).

In August 2007, international climate talks held under the auspices of the United Nations Framework Convention on Climate Change led to the official recognition by the participating nations that global emissions of GHG must be reduced. According to the "Ad Hoc Working Group on Further Commitments of Annex I Parties under the Kyoto Protocol," avoiding the most catastrophic events forecast by the United Nations Intergovernmental Panel on Climate Change (IPCC) would entail emissions reductions by industrialized countries in the range of 25 to 40 percent below 1990 levels. Because of the Kyoto Protocol's Clean Development Mechanism, which gives industrialized countries

credit for financing emission-reducing projects in developing countries, such an emissions goal in industrialized countries could ultimately spur efforts to cut emissions in developing countries as well (United Nations Framework Convention on Climate Change 2007).

In December 2015, the United States entered into the Paris Agreement, which has a goal of keeping a global temperature rise this century below two degrees Celsius (°C) above pre-industrial levels and limit the temperature increase further to 1.5°C. This agreement requires that all parties report regularly on emissions and implementation efforts to achieve these goals.

Regarding the adverse effects of global warming, as reported by the Southern California Association of Governments (SCAG):

Global warming poses a serious threat to the economic well-being, public health and natural environment in Southern California and beyond. The potential adverse impacts of global warming include, among others, a reduction in the quantity and quality of water supply, a rise in sea level, damage to marine and other ecosystems, and an increase in the incidences of infectious diseases. Over the past few decades, energy intensity of the national and state economy has been declining due to the shift to a more service-oriented economy. California ranked fifth lowest among the states in CO₂ emissions from fossil fuel consumption per unit of Gross State Product. However, in terms of total CO₂ emissions, California is second only to Texas in the nation and is the 12th largest source of climate change emissions in the world, exceeding most nations. The SCAG region, with close to half of the state's population and economic activities, is also a major contributor to the global warming problem (SCAG 2006).

a. Greenhouse Gas Fundamentals

GHGs are those compounds in Earth's atmosphere that play a critical role in determining temperature near Earth's surface. GHGs include CO₂, CH₄, nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), and nitrogen trifluoride (NF₃)¹. More specifically, these gases allow high-frequency shortwave solar radiation to enter Earth's atmosphere but retain some of the low frequency infrared energy, which is radiated back from Earth towards space, resulting in a warming of the atmosphere. Compounds that are regulated as GHGs are discussed in Table 4.5-1.

¹ As defined by California Assembly Bill (AB) 32 and Senate Bill (SB) 104.

Table 4.5-1 Description of Greenhouse Gases

Greenhouse Gas	General Description
Carbon Dioxide (CO ₂)	An odorless, colorless GHG, which has both natural and anthropocentric sources. Natural sources include the following: decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic (human-caused) sources of CO ₂ are burning coal, oil, natural gas, and wood.
Methane (CH ₄)	A flammable gas and the main component of natural gas. When one molecule of CH ₄ is burned in the presence of oxygen, one molecule of CO ₂ and two molecules of water are released. A natural source of CH ₄ is the anaerobic decay of organic matter. Geological deposits, known as natural gas fields, also contain CH ₄ , which is extracted for fuel. Other sources are from landfills, fermentation of manure, and cattle.
Nitrous Oxide (N ₂ O)	A colorless GHG. High concentrations can cause dizziness, euphoria, and sometimes slight hallucinations. N ₂ O is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used in rocket engines and race cars, and as an aerosol spray propellant.
Hydrofluorocarbons (HFCs)	Chlorofluorocarbons (CFCs) are gases formed synthetically by replacing all hydrogen atoms in CH ₄ or ethane (C ₂ H ₆) with chlorine and/or fluorine atoms. CFCs are non-toxic, non-flammable, insoluble, and chemically unreactive in the troposphere (the level of air at Earth's surface). CFCs were first synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. Because they destroy stratospheric ozone, the production of CFCs was stopped as required by the Montreal Protocol in 1987. HFCs are synthetic, human-made chemicals that are used as a substitute for CFCs as refrigerants. HFCs deplete stratospheric ozone but to a much lesser extent than CFCs.
Perfluorocarbons (PFCs)	PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above Earth's surface are able to destroy the compounds. PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane and hexafluoroethane. The two main sources of PFCs are primary aluminum production and semi-conductor manufacturing.
Sulfur Hexafluoride (SF ₆)	An inorganic, odorless, colorless, non-toxic, non-flammable gas. SF ₆ is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semi-conductor manufacturing, and as a tracer gas for leak detection.
Nitrogen Trifluoride (NF ₃)	An inorganic, non-toxic, odorless, non-flammable gas. NF ₃ is used in the manufacture of semi-conductors, as an oxidizer of high energy fuels, for the preparation of tetrafluorohydrazine, as an etchant gas in the electronic industry, and as a fluorine source in high power chemical lasers.

Note: The GHGs identified in this table are those identified in the Kyoto Protocol and other synthetic gases recently added to the IPCC's Fifth Assessment Report.

Source: Association of Environmental Professionals 2007, U.S. EPA 2009

Not all GHGs possess the same ability to induce climate change. CO₂ is the most abundant GHG in Earth's atmosphere. Other GHGs are less abundant but have higher global warming potential (GWP) than CO₂. Thus, emissions of other GHGs are commonly quantified in the units of equivalent mass of carbon dioxide (CO₂e). GWP is based on several factors, including the radiative efficiency (heat-absorbing ability) of each gas relative to that of CO₂, as well as the decay rate of each gas (the amount removed from the atmosphere over a given number of years, otherwise referred to as atmospheric lifetime) relative to that of CO₂.

The larger the GWP, the more that a given gas warms Earth compared to CO₂ over that time². These GWP ratios are available from the IPCC. Historically, GHG emission inventories have been calculated using the GWPs from the IPCC’s Second Assessment Report. The IPCC updated the GWP values in its Fourth Assessment Report (AR4). The GWPs in the IPCC AR4 are used by the California Air Resources Board (CARB) for reporting Statewide GHG emissions inventories, consistent with international reporting standards. By applying the GWP ratios, project related CO₂e emissions can be tabulated in metric tons per year. Typically, the GWP ratio corresponding to the warming potential of CO₂ over a 100-year period is used as a baseline.

The IPCC has issued an updated Fifth Assessment Report (AR5), which has revised down the majority of the GWP for key regulated pollutants. As CARB still uses AR4 values and the modeling software CalEEMod is built on these assumptions, AR4 GWP values are used for the proposed project. Generally, the changes from AR4 to AR5 are reductions in warming potential for the GHG most associated with construction and operation of typical development projects. The GWP from AR4 and AR5 and atmospheric lifetimes for key regulated GHGs are provided in Table 4.5-2.

Table 4.5-2 Atmospheric Lifetimes and Global Warming Potentials

Gas	Atmospheric Lifetime (years)	Global Warming Potential (100-Year Time Horizon; AR4 Assessment)	Global Warming Potential (100-Year Time Horizon; AR5 Assessment)
CO ₂	50-200	1	1
CH ₄	12 (+/-3)	25	28
N ₂ O	114	298	265
HFC-23: Fluoroform (CHF ₃)	270	14,800	12,400
HFC-134a: 1,1,1,2-Tetrafluoroethane (CH ₂ FCF ₃)	14	1,430	1,300
HFC-152a: 1,1-Difluoroethane (C ₂ H ₄ F ₂)	1.4	124	138
PFC-14: Tetrafluoromethane (CF ₄)	50,000	7,390	6,630
PFC-116: Hexafluoroethane (C ₂ F ₆)	10,000	12,200	11,100
SF ₆	3,200	22,800	23,500
NF ₃	740	17,200	16,100

Source: IPCC 2007

b. Projected Impacts of Global Warming in California

In 2009, California adopted a Statewide Climate Adaptation Strategy (CAS) that summarizes climate change impacts and recommends adaptation strategies across seven sectors: Public Health, Biodiversity and Habitat, Oceans and Coastal Resources, Water, Agriculture, Forestry, and Transportation and Energy. The California Natural Resources Agency will be updating the CAS and is responsible for preparing reports to the Governor on the status of the CAS. The Natural Resources Agency has produced climate change assessments which detail impacts of global warming in California. These assessments include:

² GWPs and associated CO₂e values were developed by the IPCC and published in its Second Assessment Report in 1996. Historically, GHG emission inventories have been calculated using the GWPs from the IPCC’s Second Assessment Report. The IPCC updated the GWP values based on the latest science in its AR4. CARB has begun reporting GHG emission inventories for California using the GWP values from the IPCC AR4.

- Sea level rise, coastal flooding, and erosion of California’s coastlines would increase, as well as sea water intrusion.
- The Sierra snowpack would decline between 70 and 90 percent, threatening California’s water supply.
- Higher risk of forest fires resulting from increasing temperatures and making forests and brush drier. Climate change will affect tree survival and growth.
- Attainment of air quality standards would be impeded by increasing emissions, accelerating chemical processes, and raising inversion temperatures during stagnation episodes resulting in public health impacts.
- Habitat destruction and loss of ecosystems due to climate change affecting plant and wildlife habitats.
- Global warming can cause drought, warmer temperatures, and saltwater contamination resulting in impacts to California’s agricultural industry (State of California 2022).

With regard to public health, as reported by the Center for Climate, Health, and the Global Environment at the Harvard Medical School, the following are examples of how climate change can affect cardio-respiratory disease: (1) pollen is increased by higher levels of atmospheric CO₂; (2) heat waves can result in temperature inversions, leading to trapped masses or unhealthy air contaminants by smog, particulates, and other pollutants; and (3) the incidence of forest fires is increased by drought secondary to climate change and to the lack of spring runoff from reduced winter snows. These fires can create smoke and haze, which can settle over urban populations causing acute and exacerbating chronic respiratory illness (Epstein et al. 2003).

4.5.2 Regulatory Setting

The following federal, State, and local laws and regulations address climate change and GHG emissions.

a. Federal Laws and Regulations

Federal Clean Air Act

The U.S. EPA is responsible for implementing federal policy to address GHGs. The United States Supreme Court ruled in *Massachusetts v. Environmental Protection Agency*, 127 S.Ct. 1438 (2007), that CO₂ and other GHGs are pollutants under the federal Clean Air Act (CAA), which the U.S. EPA must regulate if it determines they pose an endangerment to public health or welfare. In December 2009, U.S. EPA issued an endangerment finding for GHGs under the CAA, setting the stage for future regulation.

The federal government administers a wide array of public-private partnerships to reduce the GHG intensity generated in the United States. These programs focus on energy efficiency, renewable energy, CH₄, and other non-CO₂ gases, agricultural practices, and implementation of technologies to achieve GHG reductions. U.S. EPA implements numerous voluntary programs that contribute to the reduction of GHG emissions. These programs (e.g., the ENERGY STAR labeling system for energy-efficient products) play a significant role in encouraging voluntary reductions from large corporations, consumers, industrial, and commercial buildings, and many major industrial sectors.

Corporate Average Fuel Economy Standards and Safer Affordable Fuel-Efficient Vehicles Rule

In response to the *Massachusetts v. Environmental Protection Agency* ruling, President George W. Bush issued Executive Order 13432 in 2007, directing the U.S. EPA, the United States Department of Transportation, and the United States Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. The National Highway Traffic Safety Administration (NHTSA) subsequently issued multiple final rules regulating fuel efficiency for and GHG emissions from cars and light-duty trucks for model year 2011 and later for model years 2012-2016 and 2017-2021. In March 2020, the United States Department of Transportation and the U.S. EPA issued the final Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule, which amends existing Corporate Average Fuel Economy Standards and tailpipe CO₂ emissions standards for passenger cars and light trucks and establishes new standards covering model years 2021 through 2026 (U.S. EPA 2020). These standards set a combined fleet-wide average of 36.9 to 37 for the model years affected. In February 2022, the U.S. EPA issued the Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emission Standards. This final rule revises current GHG standards for vehicles in model year 2023 through model year 2026 and establishes the most stringent GHG standards ever set for the light-duty vehicle sector. The GHG standards are expected to result in average fuel economy label values of 40 miles per gallon, while the standards they replace (i.e., the SAFE rule standards) would achieve only 32 miles per gallon in model year 2026 vehicles (U.S. EPA 2021).

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011, the U.S. EPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018. The standards for CO₂ 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 U.S. EPA, this regulatory program would reduce GHG emissions and fuel consumption for the affected vehicles by 6 to 23 percent over the 2010 baselines. Building on the first phase of standards, in August 2016, the U.S. EPA and NHTSA finalized Phase 2 standards for medium- and heavy-duty vehicles through model year 2027 that will improve fuel efficiency and cut carbon pollution. The Phase 2 standards are expected to lower CO₂ emissions by approximately 1.1 billion metric tons (U.S. EPA 2016).

Energy Independence and Security Act

The Energy Independence and Security Act of 2007 facilitates the reduction of national GHG emissions by requiring the following:

- Increasing the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard that requires fuel producers to use at least 36 billion gallons of biofuel in 2022;
- Prescribing or revising standards affecting regional efficiency for heating and cooling products, procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances;
- Requiring approximately 25 percent greater efficiency for light bulbs by phasing out incandescent light bulbs between 2012 and 2014;
- Requiring approximately 200 percent greater efficiency for light bulbs, or similar energy savings, by 2020; and

- While superseded by the U.S. EPA and NHTSA actions described above, (i) establishing miles per gallon targets for cars and light-duty trucks and (ii) directing the NHTSA to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for trucks.

Additional provisions of the Energy Independence and Security Act address energy savings in government and public institutions, promote research for alternative energy, additional research in carbon capture, international energy programs, and the creation of “green jobs”³.

b. State Laws and Regulations

California Air Resources Board

CARB, a part of the California Environmental Protection Agency (CalEPA), is responsible for the coordination and administration of both federal and State air pollution control programs within California. In this capacity, CARB conducts research, sets the California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB has primary responsibility for the development of California’s State Implementation Plan (SIP), for which it works closely with the federal government and the local air districts. The SIP is required for the State to take over implementation of the federal CAA. CARB also has primary responsibility for adopting regulations to meet the State’s goal of reducing GHG emissions. The State has met its goals to reduce GHG emissions to 1990 levels by 2020. Subsequent State goals include reducing GHG emissions to 40 percent below 1990 levels by 2030 and to 80 percent below 1990 levels by 2050.

California Greenhouse Gas Reduction Targets

Executive Order S-3-05

Governor Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following GHG emission reduction targets:

- By 2010, California shall reduce GHG emissions to 2000 levels;
- By 2020, California shall reduce GHG emissions to 1990 levels; and
- By 2050, California shall reduce GHG emissions to 80 percent below 1990 levels.

In accordance with Executive Order S-3-05, the Secretary of CalEPA is required to coordinate efforts of various agencies, which comprise the California Climate Action Team (CAT), to collectively and efficiently reduce GHGs. The CAT provides periodic reports to the Governor and Legislature on the state of GHG reductions in the State, as well as strategies for mitigating and adapting to climate change.

The CAT stated that smart land use is an umbrella term for strategies that integrate transportation and land-use decisions. Such strategies generally encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density residential/commercial development along

³ A “green job,” as defined by the United States Department of Labor, is a job in business that produces goods or provides services that benefit the environment or conserve natural resources.

transit corridors. These strategies develop more efficient land-use patterns within each jurisdiction or region to match population increases, workforce, and socioeconomic needs for the full spectrum of the population.

Executive Order B-30-15

On April 29, 2015, Governor Brown issued Executive Order B-30-15. Therein, the Governor directed the following:

- Established a new interim statewide reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030.
- Ordered all State agencies with jurisdiction over sources of GHG emissions to implement measures to achieve reductions of GHG emissions to meet the 2030 and 2050 reduction targets.
- Directed CARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons (MMT) of CO₂e.

Executive Order B-55-18

Executive Order B-55-18, issued by Governor Brown in September 2018, establishes a new statewide goal to achieve carbon neutrality as soon as possible, but no later than 2045, and achieve and maintain net negative emissions thereafter. Based on this executive order, CARB would work with relevant State agencies to develop a framework for implementation and accounting that tracks progress towards this goal, as well as ensuring future scoping plans identify and recommend measures to achieve the carbon neutrality goal.

In October 2020, CARB released a study that evaluated three scenarios to achieve carbon neutrality in California by 2045. The study was used by CARB in development of the 2022 Scoping Plan update. More ambitious carbon reduction scenarios that achieve carbon neutrality prior to 2045 may be considered as part of future analyses by the State.

The scenarios analyzed to achieve carbon neutrality include a High Carbon Dioxide Removal scenario, Zero Carbon Energy scenario, and a Balanced scenario. The High Carbon Dioxide Removal scenario achieves GHG reductions by relying on CO₂ removal strategies. The Zero Carbon Energy scenario is based on the assumption of zero-fossil fuel emissions by 2045. The Balanced scenario represents a middle point between the High Carbon Dioxide Removal scenario and the Zero Carbon Energy scenario. The scenarios would achieve at least an 80-percent reduction in GHG by 2045, relative to 1990 levels. Remaining CO₂ would be reduced to zero by applying CO₂ removal strategies, including sinks from natural and working lands and negative emissions technologies, such as direct air capture.

Under each of these scenarios, CARB proposed reduction strategies for various sectors that contribute GHG emissions throughout the state. Although specific details are not yet available for the GHG reduction measures discussed above, implementation of these measures would require regulations to be enforced by the State (Energy + Environmental Economics 2020).

California Global Warming Solutions Act of 2006

In 2006, the California State Legislature adopted Assembly Bill (AB) 32 (codified in the California Health and Safety Code [HSC] Division 25.5 – California Global Warming Solutions Act of 2006), which focuses on reducing GHG emissions in California to 1990 levels by 2020. HSC Division 25.5 defines regulated GHGs as CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆ and represents the first enforceable Statewide program to limit emissions of these GHGs from all major industries, with penalties for non-

compliance. The law further requires that reduction measures be technologically feasible and cost effective. Under HSC Division 25.5, CARB has the primary responsibility for reducing GHG emissions. CARB is required to adopt rules and regulations directing State actions that would achieve GHG emissions reductions.

To achieve these goals, AB 32 mandates that CARB establish a quantified emissions cap, institute a schedule to meet the cap, implement regulations to reduce statewide GHG emissions from stationary sources consistent with the CAT strategies, and develop tracking, reporting, and enforcement mechanisms to ensure that reductions are achieved. To achieve the reduction targets, AB 32 requires CARB to adopt rules and regulations in an open public process that achieve the maximum technologically feasible and cost-effective GHG reductions⁴.

In 2016, the California State Legislature adopted Senate Bill (SB) 32 and its companion bill, AB 197, and both were signed by Governor Brown. SB 32 and AB 197 amend HSC Division 25.5, establish a new climate pollution reduction target of 40 percent below 1990 levels by 2030, and include provisions to ensure that the benefits of State climate policies reach disadvantaged communities. The new goals outlined in SB 32 update the scoping plan requirement of AB 32 and involve increasing renewable energy use, imposing tighter limits on the carbon content of gasoline and diesel fuel, putting more electric cars on the road, improving energy efficiency, and curbing emissions from key industries.

AB 197, signed September 8, 2016, is a bill associated with SB 32 which prioritizes efforts to cut GHG emissions in low-income or minority communities. AB 197 requires CARB to make available, and update at least annually, on its website the emissions of GHGs, criteria pollutants, and toxic air contaminants for each facility that reports to CARB and air districts. In addition, AB 197 adds two members of the Legislature to the CARB board as ex officio, non-voting members and creates the Joint Legislative Committee on Climate Change Policies to ascertain facts and make recommendations to the Legislature and the houses of the Legislature concerning the State's programs, policies, and investments related to climate change.

Climate Change Scoping Plan

AB 32 required CARB to prepare a Climate Change Scoping Plan for achieving the maximum technologically feasible and cost-effective GHG emission reduction by 2020 (HSC Section 38561[h]). The 2008 Climate Change Scoping Plan proposed a "comprehensive set of actions designed to reduce overall carbon GHG emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health." The 2008 Climate Change Scoping Plan had a range of GHG reduction actions, which included direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms, such as a Cap-and-Trade Program, and an AB 32 implementation fee to fund the program.

The 2008 Climate Change Scoping Plan called for a "coordinated set of solutions" to address all major categories of GHG emissions. Transportation emissions were addressed through a combination of higher standards for vehicle fuel economy, implementation of the Low Carbon Fuel Standard (LCFS), and greater consideration to reducing trip length and generation through land use planning and transit-oriented development. Buildings, land use, and industrial operations were encouraged and,

⁴ CARB's list of discrete early action measures that could be adopted and implemented before January 1, 2010 was approved on June 21, 2007. The three adopted discrete early action measures are: (1) a low-carbon fuel standard, which reduces carbon intensity in fuels statewide; (2) reduction of refrigerant losses from motor vehicle air conditioning system maintenance; and (3) increased methane capture from landfills, which includes requiring the use of state-of-the-art capture technologies.

sometimes, required to use energy more efficiently. Utility energy providers were required to include more renewable energy sources through implementation of the Renewables Portfolio Standard (RPS)⁵. Additionally, the 2008 Climate Change Scoping Plan emphasized opportunities for households and businesses to save energy and money through increasing energy efficiency. It indicates that substantial savings of electricity and natural gas will be accomplished through “improving energy efficiency by 25 percent.”

The 2008 Climate Change Scoping Plan identified several specific issues relevant to the development projects, including:

- The potential of using the green building framework as a mechanism, which could enable GHG emissions reductions in other sectors (i.e., electricity, natural gas), noting that:

A Green Building strategy will produce GHG savings through buildings that exceed minimum energy efficiency standards, decrease consumption of potable water, reduce solid waste during construction and operation, and incorporate sustainable materials. Combined, these measures can also contribute to healthy indoor air quality, protect human health, and minimize impacts to the environment.

- The importance of supporting the California Department of Water Resources’ work to implement the Governor’s objective to reduce per capita water use by 20 percent by 2020. Specific measures to achieve this goal include water use efficiency, water recycling, and reuse of urban runoff. The *Climate Change Scoping Plan* notes that water use requires significant amounts of energy, including approximately one-fifth of statewide electricity.
- Encouraging local governments to set quantifiable emission reduction targets for their jurisdictions and use their influence and authority to encourage reductions in emissions caused by energy use, waste and recycling, water and wastewater systems, transportation, and community design.

As required by HSC Division 25.5, CARB approved the 1990 GHG emissions inventory, thereby establishing the emissions reduction target for 2020. The 2020 emissions reduction target was originally set at 427 MMT of CO₂e using the GWP values from the IPCC Second Assessment Report. Forecasting the amount of emissions that would occur in 2020 if no actions are taken was necessary to assess the scope of the reductions California must make to return to the 1990 emissions level by 2020 as required by AB 32. CARB originally defined the “business-as-usual,” or BAU, scenario as emissions in the absence of any GHG emission reduction measures discussed in the 2008 Climate Change Scoping Plan, as approximately 596 MMT of CO₂e (using GWP values from the IPCC Second Assessment Report). For example, in further explaining CARB’s BAU methodology, CARB assumed that all new electricity generation would be supplied by natural gas plants, no further regulatory action would impact vehicle fuel efficiency, and building energy efficiency codes would be held at 2005 standards. Therefore, under these original projections, the State would have had to reduce its 2020 BAU emissions by 28.4 percent to meet the 1990 target of 427 MMT of CO₂e.

2014 Update to the Climate Change Scoping Plan

The First Update to the Scoping Plan was approved by CARB in May 2014 and built upon the initial Scoping Plan with new strategies and recommendations (CARB 2014a). In 2014, CARB revised the target using the GWP values from the IPCC AR4 and determined the 1990 GHG emissions inventory and 2020 GHG emissions limit to be increased to 431 MMT of CO₂e. CARB also updated the State’s

⁵ For a discussion of Renewables Portfolio Standard, refer to subsection “California Renewables Portfolio Standard.”

2020 BAU emissions estimate to account for the effect of the 2007–2009 economic recession, new estimates for future fuel and energy demand, and the reductions required by regulation that had recently been adopted for motor vehicles and renewable energy. CARB’s projected statewide 2020 emissions estimate using the GWP values from the IPCC AR4 was 509.4 MMT of CO₂e. Therefore, under the First Update to the Scoping Plan, the emission reductions necessary to achieve the 2020 emissions target of 431 MMT of CO₂e would have been 78.4 MMT of CO₂e, or a reduction of GHG emissions by approximately 15.4 percent (down from 28.4 percent).

The First Update “highlights California’s success to date in reducing its GHG emissions and lays the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050” (CARB 2014a). The First Update found that California was on track to meet the 2020 emissions reduction mandate established by AB 32 and noted that California could reduce emissions further by 2030 to levels squarely in line with those needed to stay on track to reduce emissions to 80 percent below 1990 levels by 2050 if the State realizes the expected benefits of existing policy goals.

In conjunction with the First Update, CARB identified “six key focus areas comprising major components of the State’s economy to evaluate and describe the larger transformative actions that will be needed to meet the State’s more expansive emission reduction needs by 2050” (CARB 2014a). Those six areas are: (1) energy; (2) transportation (vehicles/equipment, sustainable communities, housing, fuels, and infrastructure); (3) agriculture; (4) water; (5) waste management; and (6) natural and working lands (NWL). The First Update identified key recommended actions for each sector that will facilitate achievement of the 2050 reduction target.

Based on CARB’s research efforts, it has a “strong sense of the mix of technologies needed to reduce emissions through 2050” (CARB 2014a). Those technologies include 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.

The First Update discussed new residential and commercial building energy efficiency improvements, specifically identifying progress towards zero net energy buildings as an element of meeting mid-term and long-term GHG reduction goals. The First Update expressed CARB’s commitment to working with the California Public Utilities Commission (CPUC) and California Energy Commission (CEC) to facilitate further achievements in building energy efficiency.

2017 Update to the Climate Change Scoping Plan

In response to the passage of SB 32 and the identification of the 2030 GHG reduction target, CARB adopted the 2017 Climate Change Scoping Plan in December 2017 (CARB 2017a). The 2017 Update built upon the framework established by the 2008 Climate Change Scoping Plan and the 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. The 2017 Update included policies to require direct GHG reductions at some of the State’s largest stationary sources and mobile sources. These policies addressed the use of lower GHG fuels, efficiency regulations, and the Cap-and-Trade program, which constrains and reduces emissions at covered sources.

CARB’s projected Statewide 2030 emissions account for 2020 GHG reduction policies and programs. The 2017 Update also addressed GHG emissions from NWL of California, including the agriculture and forestry sectors. Under the Scoping Plan Scenario, the majority of the reductions would result from

the continuation of the Cap-and-Trade regulation. Additional reductions would be achieved from electricity sector standards (i.e., utility providers to supply 50 percent renewable electricity by 2030), doubling the energy efficiency savings at end uses, additional reductions from the LCFS, implementing the short-lived GHG strategy (e.g., hydrofluorocarbons), and implementing the mobile source strategy and sustainable freight action plan. Implementation of mobile source strategies (cleaner technology and fuels) include the following:

- At least 1.5 million zero emission and plug-in hybrid light-duty electric vehicles by 2025;
- At least 4.2 million zero emission and plug-in hybrid light-duty electric vehicles by 2030;
- Further increase GHG stringency on all light-duty vehicles beyond existing Advanced Clean Cars regulations;
- Medium- and heavy-duty GHG Phase 2;
- Innovative Clean Transit: Transition to a suite of to-be-determined innovative clean transit options. Assumed 20 percent of new urban buses purchased beginning in 2018 will be zero emission buses with the penetration of zero-emission technology ramped up to 100 percent of new sales in 2030. Also, new natural gas buses, starting in 2018, and diesel buses, starting in 2020, meet the optional heavy-duty low-NO_x standard;
- Last Mile Delivery: New regulation that would result in the use of low NO_x or cleaner engines and the deployment of increasing numbers of zero-emission trucks primarily for Class 3–7 last mile delivery trucks in California. This measure assumes zero emissions vehicles (ZEVs) comprise 2.5 percent of new Class 3–7 truck sales in local fleets starting in 2020, increasing to 10 percent in 2025 and remaining flat through 2030; and
- Further reduce vehicles miles traveled (VMT) through continued implementation of SB 375 and regional (Sustainable Community Strategies [SCS]); forthcoming Statewide implementation of SB 743; and potential additional VMT reduction strategies not specified in the Mobile Source Strategy but included in the document “Potential VMT Reduction Strategies for Discussion.”

The alternatives in the Scoping Plan were designed to consider various combinations of these programs, as well as consideration of a carbon tax in the event the Cap-and-Trade regulation is not continued. However, in July 2017, the California Legislature voted to extend the Cap-and-Trade regulation to 2030. A summary of the GHG emissions reductions required under HSC Division 25.5 is provided in Table 4.5-3.

Table 4.5-3 Estimated Statewide GHG Emissions Reductions Required by HSC Division 25.5

Emissions Scenario	GHG Emissions (MMT of CO ₂ e)
2008 Scoping Plan (IPCC Second Assessment Report)	
2020 BAU Forecast	596
2020 Emissions Target Set by AB 32 (i.e., 1990 level)	427
Reduction Below BAU Necessary to Achieve 1990 Levels by 2020	169 (28.4%) ¹
2014 Scoping Plan Update (IPCC AR4)	
2020 BAU Forecast	509.4
2020 Emissions Target Set by AB 32 (i.e., 1990 level)	431
Reduction Below BAU Necessary to Achieve 1990 Levels by 2020	78.4 (15.4%) ²
2017 Scoping Plan Update	
2030 BAU Forecast (“Reference Scenario” which includes 2020 GHG Reduction Policies and Programs)	389
2030 Emissions Target Set by AB 32 (i.e., 1990 level)	260
Reduction Below BAU Necessary to Achieve 40% Below 1990 Levels by 2030	129 (33.2%) ³
MMT of CO ₂ e = million metric tons of carbon dioxide equivalent	
¹ 596 – 427 = 169 / 596 = 28.4%	
² 509.4 – 431 = 78.4 / 509.4 = 15.4%	
³ 389 – 260 = 129 / 389 = 33.2% Sources: CARB 2011, 2014b, 2017a	

Under the Scoping Plan Scenario, continuation of the Cap-and-Trade regulation (or carbon tax) is expected to cover approximately 34 to 79 MMT of CO₂e of the 2030 reduction obligation. The State’s short-lived climate pollutants strategy, which is for GHGs that remain in the atmosphere for shorter periods of time compared to longer-lived GHGs such as CO₂, is expected to cover approximately 17 to 35 MMT of CO₂e. The RPS with 50 percent renewable electricity by 2030 is expected to cover approximately 3 MMT of CO₂e. The mobile source strategy and sustainable freight action plan includes maintaining the existing vehicle GHG emissions standards, increasing the number of ZEVs, and improving the freight system efficiency, and is expected to cover approximately 11 to 13 MMT of CO₂e. Under the Scoping Plan Scenario, CARB expects that the reduction in GHGs from doubling of the energy efficiency savings in natural gas and electricity end uses in the CEC 2015 Integrated Energy Policy Report by 2030 would cover approximately seven to nine MMT of CO₂e of the 2030 reduction obligation. The other strategies would be expected to cover the remaining 2030 reduction obligations.

2022 Update to the Climate Change Scoping Plan

The Scoping Plan is a GHG reduction roadmap developed and updated by the California Air Resources Board (CARB) at least once every five years, as required by AB 32. It lays out the transformations needed across various sectors to reduce GHG emissions and reach the State’s climate targets. CARB published the Final 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan Update) in November 2022, as the third update to the initial plan that was adopted in 2008. The initial 2008 Scoping Plan laid out a path to achieve the AB 32 target of returning to 1990 levels of GHG emissions by 2020, a reduction of approximately 15 percent below business-as-usual activities (CARB 2008). The 2008 Scoping Plan included a mix of incentives, regulations, and carbon pricing, laying out the portfolio approach to addressing climate change and clearly making the case for using multiple tools to meet California’s GHG targets. The 2013 Scoping Plan Update (adopted in 2014) assessed progress

toward achieving the 2020 target and made the case for addressing short-lived climate pollutants (CARB 2014a). The 2017 Scoping Plan Update shifted focus to the newer SB 32 goal of a 40-percent reduction below 1990 levels by 2030 by laying out a detailed cost-effective and technologically feasible path to this target, and also assessed progress towards achieving the AB 32 goal of returning to 1990 GHG levels by 2020 (CARB 2017a). The 2020 goal was ultimately reached in 2016, four years ahead of the schedule called for under AB 32.

The 2022 Scoping Plan Update is the most comprehensive and far-reaching Scoping Plan developed to date. It identifies a technologically feasible, cost-effective, and equity-focused path to achieve new targets for carbon neutrality by 2045 and to reduce anthropogenic GHG emissions to at least 85 percent below 1990 levels, while also assessing the progress California is making toward reducing its GHG emissions by at least 40 percent below 1990 levels by 2030, as called for in SB 32 and laid out in the 2017 Scoping Plan (CARB 2017a). The 2030 target is an interim but important stepping-stone along the critical path to the broader goal of deep decarbonization by 2045. The relatively longer path assessed in the 2022 Scoping Plan Update incorporates, coordinates, and leverages many existing and ongoing efforts to reduce GHGs and air pollution, while identifying new clean technologies and energy. Given the focus on carbon neutrality, the 2022 Scoping Plan Update also includes discussion for the first time of the natural and working lands sectors as sources for both sequestration and carbon storage, and as sources of emissions as a result of wildfires. Table 4.5-4 identifies the estimated Statewide GHG emissions reductions identified in the 2022 Scoping Plan.

Table 4.5-4 Estimated Statewide GHG Emissions Reductions in the 2022 Scoping Plan

Emissions Scenario	GHG Emissions (MMT of CO₂e)
2019	
2019 State GHG Emissions	404
2030	
2030 BAU Forecast	312
2030 GHG Emissions without Carbon Removal and Capture	233
2030 GHG Emissions with Carbon Removal and Capture	226
2030 Emissions Target Set by AB 32 (i.e., 1990 level by 2030)	260
Reduction below BAU necessary to achieve 1990 levels by 2030	52 or 16.7% ¹
2045	
2045 BAU Forecast	266
2045 GHG Emissions without Carbon Removal and Capture	72
2045 GHG Emissions with Carbon Removal and Capture	(3)

MMT of CO₂e = million metric tons of carbon dioxide equivalents; BAU = Business as Usual; () = negative values.
¹ 312 – 260 = 52 / 312 = 16.7%
 Source: CARB 2022a

The 2022 Scoping Plan Update reflects existing and recent direction in the Governor’s Executive Orders and State Statutes, which identify policies, strategies, and regulations in support of and implementation of the Scoping Plan. Among these include Executive Order B-55-18 and AB 1279 (the California Climate Crisis Act), which identify the carbon neutrality and GHG reduction targets for 2045 incorporated into the Scoping Plan. Table 4.5-5 below provides a summary of major climate legislation and executive orders issued since the adoption of the 2017 Scoping Plan.

Table 4.5-5 Major Climate Legislation and Executive Orders Enacted Since the 2017 Scoping Plan

Bill/Executive Order	Summary
<p>Assembly Bill 1279 (AB 1279) (Muratsuchi, Chapter 337, Statutes of 2022) <i>The California Climate Crisis Act</i></p>	<p>AB 1279 establishes the policy of the State to achieve carbon neutrality as soon as possible, but no later than 2045, to maintain net negative GHG emissions thereafter, and to ensure that by 2045 Statewide anthropogenic GHG emissions are reduced at least 85 percent below 1990 levels. AB 1279 requires CARB to ensure that Scoping Plan updates identify and recommend measures to achieve carbon neutrality, and to identify and implement policies and strategies that enable CO₂ removal solutions and carbon capture, utilization, and storage (CCUS) technologies. AB 1279 is reflected directly in the 2022 Scoping Plan Update.</p>
<p>Senate Bill 905 (SB 905) (Caballero, Chapter 359, Statutes of 2022) <i>Carbon Capture, Removal, Utilization, and Storage Program</i></p>	<p>SB 905 requires CARB to create the Carbon Capture, Removal, Utilization, and Storage Program to evaluate, demonstrate, and regulate CCUS and carbon dioxide removal (CDR) projects and technology.</p> <p>SB 905 requires CARB, on or before January 1, 2025, to adopt regulations creating a unified State permitting application for approval of CCUS and CDR projects. SB 905 also requires the Secretary of the Natural Resources Agency to publish a framework for governing agreements for two or more tracts of land overlying the same geologic storage reservoir for the purposes of a carbon sequestration project. The 2022 Scoping Plan Update modeling reflects both CCUS and CDR contributions to achieve carbon neutrality.</p>
<p>Senate Bill 846 (SB 846) (Dodd, Chapter 239, Statutes of 2022) <i>Diablo Canyon Powerplant: Extension of Operations</i></p>	<p>SB 846 extends the Diablo Canyon Power Plant’s sunset date by up to five additional years for each of its two units and seeks to make the nuclear power plant eligible for federal loans. SB 846 requires that the CPUC not include and disallow a load-serving entity from including in their adopted resource plan, the energy, capacity, or any attribute from the Diablo Canyon power plant.</p> <p>The 2022 Scoping Plan Update explains the emissions impact of this legislation.</p>
<p>Senate Bill 1020 (SB 1020) (Laird, Chapter 361, Statutes of 2022) <i>Clean Energy, Jobs, and Affordability Act of 2022</i></p>	<p>SB 1020 adds interim renewable energy and zero carbon energy retail sales of electricity targets to California end-use customers set at 90 percent in 2035 and 95 percent in 2040. SB 1020 accelerates the timeline required to have 100 percent renewable energy and zero carbon energy procured to serve State agencies from the original target year of 2045 to 2035. SB 1020 requires each State agency to individually achieve the 100 percent goal by 2035 with specified requirements. SB 1020 requires the CPUC, CEC, and CARB, on or before December 1, 2023, and annually thereafter, to issue a joint reliability progress report that reviews system and local reliability.</p> <p>SB 1020 also modifies the requirement for CARB to hold a portion of its Scoping Plan workshops in regions of the State with the most significant exposure to air pollutants by further specifying that this includes communities with minority populations or low-income communities in areas designated as being in extreme federal non-attainment.</p> <p>The 2022 Scoping Plan Update describes the implications of this legislation on emissions.</p>
<p>Senate Bill 1137 (SB 1137) (Gonzales, Chapter 365, Statutes of 2022) <i>Oil & Gas Operations: Location Restrictions: Notice of Intention: Health protection zone: Sensitive receptors</i></p>	<p>SB 1137 prohibits the development of new oil and gas wells or infrastructure in health protection zones, as defined, except for purposes of public health and safety or other limited exceptions. SB 1137 requires operators of existing oil and gas wells or infrastructure within health protection zones to undertake specified monitoring, public notice, and nuisance requirements. SB 1137 requires CARB to consult and concur with the California Geologic Energy Management Division on leak detection and repair plans for these facilities, adopt regulations as necessary to implement emission detection system standards, and collaborate with the California Geologic Energy Management Division on public access to emissions detection data.</p>

Bill/Executive Order	Summary
<p>Senate Bill 1075 (SB 1075) (Skinner, Chapter 363, Statutes of 2022) <i>Hydrogen: Green Hydrogen: Emissions of Greenhouse Gases</i></p>	<p>SB 1075 requires CARB, by June 1, 2024, to prepare an evaluation that includes: policy recommendations regarding the use of hydrogen, and specifically the use of green hydrogen, in California; a description of strategies supporting hydrogen infrastructure, including identifying policies that promote the reduction of GHGs and short-lived climate pollutants; a description of other forms of hydrogen to achieve emission reductions; an analysis of curtailed electricity; an estimate of GHG and emission reductions that could be achieved through deployment of green hydrogen through a variety of scenarios; an analysis of the potential for opportunities to integrate hydrogen production and applications with drinking water supply treatment needs; policy recommendations for regulatory and permitting processes associated with transmitting and distributing hydrogen from production sites to end uses; an analysis of the life-cycle GHG emissions from various forms of hydrogen production; and an analysis of air pollution and other environmental impacts from hydrogen distribution and end uses.</p> <p>SB 1075 would inform the production of hydrogen at the scale called for in the 2022 Scoping Plan Update.</p>
<p>Assembly Bill 1757 (AB 1757) (Garcia, Chapter 341, Statutes of 2022) <i>California Global Warming Solutions Act of 2006: Climate Goal: Natural and Working Lands</i></p>	<p>AB 1757 requires the California Natural Resources Agency (CNRA), in collaboration with CARB, other State agencies, and an expert advisory committee, to determine a range of targets for natural carbon sequestration, and for nature-based climate solutions, that reduce GHG emissions in 2030, 2038, and 2045 by January 1, 2024. These targets must support State goals to achieve carbon neutrality and foster climate adaptation and resilience.</p> <p>AB 1757 also requires CARB to develop standard methods for state agencies to consistently track GHG emissions and reductions, carbon sequestration, and additional benefits from natural and working lands over time. These methods will account for GHG emissions reductions of CO₂, methane, and nitrous oxide related to natural and working lands and the potential impacts of climate change on the ability to reduce GHG emissions and sequester carbon from natural and working lands, where feasible.</p> <p>This 2022 Scoping Plan Update describes the next steps and implications of this legislation for the natural and working lands sector.</p>
<p>Senate Bill 1206 (SB 1206) (Skinner, Chapter 884, Statutes of 2022) <i>Hydrofluorocarbon gases: sale or distribution</i></p>	<p>SB 1206 mandates a stepped sales prohibition on newly produced high GWP HFCs to transition California’s economy toward recycled and reclaimed HFCs for servicing existing HFC-based equipment. Additionally, SB 1206 also requires CARB to develop regulations to increase the adoption of very low GWP (i.e., GWP less than 10) and no GWP technologies in sectors that currently rely on higher GWP HFCs.</p>
<p>Senate Bill 27 (SB 27) (Skinner, Chapter 237, Statutes of 2021) <i>Carbon Sequestration: State Goals: Natural and Working Lands: Registry of Projects</i></p>	<p>SB 27 requires CNRA, in coordination with other state agencies, to establish the Natural and Working Lands Climate Smart Strategy by July 1, 2023. SB 27 also requires CARB to establish specified CO₂ removal targets for 2030 and beyond as part of its Scoping Plan. Under SB 27, CNRA is to establish and maintain a registry to identify projects in the State that drive climate action on natural and working lands and are seeking funding.</p> <p>CNRA also must track carbon removal and GHG emission reduction benefits derived from projects funded through the registry.</p> <p>SB 27 is reflected directly in the 2022 Scoping Plan Update as CO₂ removal targets for 2030 and 2045 in support of carbon neutrality.</p>
<p>Senate Bill 596 (SB 596) (Becker, Chapter 246, Statutes of 2021) <i>Greenhouse Gases: Cement Sector: Net-Zero Emissions Strategy</i></p>	<p>SB 596 requires CARB, by July 1, 2023, to develop a comprehensive strategy for the State’s cement sector to achieve net-zero emissions of GHGs associated with cement used within the State as soon as possible, but no later than December 31, 2045. SB 596 establishes an interim target of 40 percent below the 2019 average GHG intensity of cement by December 31, 2035. Under SB 596, CARB must:</p> <ul style="list-style-type: none"> ▪ Define a metric for GHG intensity and establish a baseline from which to measure GHG intensity reductions.

Bill/Executive Order	Summary
	<ul style="list-style-type: none"> ▪ Evaluate the feasibility of the 2035 interim target (40 percent reduction in GHG intensity) by July 1, 2028. ▪ Coordinate and consult with other State agencies. ▪ Prioritize actions that leverage State and federal incentives. ▪ Evaluate measures to support market demand and financial incentives to encourage the production and use of cement with low GHG intensity. <p>The 2022 Scoping Plan Update modeling is designed to achieve these outcomes.</p>
<p>Executive Order N-82-20</p>	<p>Governor Newsom signed Executive Order N-82-20 in October 2020 to combat the climate and biodiversity crises by setting a statewide goal to conserve at least 30 percent of California’s land and coastal waters by 2030. The Executive Order also instructed the CNRA, in consultation with other State agencies, to develop a Natural and Working Lands Climate Smart Strategy that serves as a framework to advance the State’s carbon neutrality goal and build climate resilience. In addition to setting a Statewide conservation goal, the Executive Order directed CARB to update the target for natural and working lands in support of carbon neutrality as part of this Scoping Plan, and to take into consideration the NWL Climate Smart Strategy.</p> <p>CO₂ Executive Order N-82-20 also calls on the CNRA, in consultation with other State agencies, to establish the California Biodiversity Collaborative (Collaborative). The Collaborative shall be made up of governmental partners, California Native American tribes, experts, business and community leaders, and other stakeholders from across the State. State agencies will consult the Collaborative on efforts to:</p> <ul style="list-style-type: none"> ▪ Establish a baseline assessment of California’s biodiversity that builds upon existing data and can be updated over time. ▪ Analyze and project the impact of climate change and other stressors in California’s biodiversity. ▪ Inventory current biodiversity efforts across all sectors and highlight opportunities for additional action to preserve and enhance biodiversity. <p>CNRA also is tasked with advancing efforts to conserve biodiversity through various actions, such as streamlining the State’s process to approve and facilitate projects related to environmental restoration and land management. The California Department of Food and Agriculture is directed to advance efforts to conserve biodiversity through measures such as reinvigorating populations of pollinator insects, which restore biodiversity and improve agricultural production.</p> <p>The NWL Climate Smart Strategy informs 2022 Scoping Plan Update.</p>
<p>Executive Order N-79-20</p>	<p>Governor Newsom signed Executive Order N-79-20 in September 2020 to establish targets for the transportation sector to support the State in its goal to achieve carbon neutrality by 2045. The targets established in this Executive Order are:</p> <ul style="list-style-type: none"> ▪ 100 percent of in-State sales of new passenger cars and trucks will be zero-emission by 2035. ▪ 100 percent of medium- and heavy-duty vehicles will be zero-emission by 2045 for all operations where feasible, and by 2035 for drayage trucks. ▪ 100 percent of off-road vehicles and equipment will be zero-emission by 2035 where feasible. <p>The Executive Order also tasked CARB to develop and propose regulations that require increasing volumes of ZEV electric passenger vehicles, medium- and heavy-duty vehicles, drayage trucks, and off-road vehicles toward their corresponding targets of 100 percent zero-emission by 2035 or 2045, as listed above.</p> <p>The 2022 Scoping Plan Update modeling reflects achieving these targets.</p>

Bill/Executive Order	Summary
<p>Executive Order N-19-19</p>	<p>Governor Newsom signed Executive Order N-19-19 in September 2019 to direct State government to redouble its efforts to reduce GHG emissions and mitigate the impacts of climate change while building a sustainable, inclusive economy. This Executive Order instructs the California Department of Finance to create a Climate Investment Framework that:</p> <ul style="list-style-type: none"> ▪ Includes a proactive strategy for the State’s pension funds that reflects the increased risks to the economy and physical environment due to climate change. ▪ Provides a timeline and criteria to shift investments to companies and industry sectors with greater growth potential based on their focus of reducing carbon emissions and adapting to the impacts of climate change. ▪ Aligns with the fiduciary responsibilities of the California Public Employees’ Retirement System, California State Teachers’ Retirement System, and the University of California Retirement Program. <p>Executive Order N-19-19 directs the State Transportation Agency to leverage more than \$5 billion in annual State transportation spending to help reverse the trend of increased fuel consumption and reduce GHG emissions associated with the transportation sector. It also calls on the Department of General Services to leverage its management and ownership of the State’s 19 million sf in managed buildings, 51,000 vehicles, and other physical assets and goods to minimize the State government’s carbon footprint. Finally, it tasks CARB with accelerating progress toward California’s goal of five million ZEV sales by 2030 by:</p> <ul style="list-style-type: none"> ▪ Developing new criteria for clean vehicle incentive programs to encourage manufacturers to produce clean, affordable cars. ▪ Proposing new strategies to increase demand in the primary and secondary markets for ZEVs. ▪ Considering strengthening existing regulations or adopting new ones to achieve the necessary GHG reductions from within the transportation sector. <p>The 2022 Scoping Plan Update modeling reflects efforts to accelerate ZEV deployment.</p>
<p>Senate Bill 576 (SB 576) (Umberg, Chapter 374, Statutes of 2019) <i>Coastal Resources: Climate Ready Program and Coastal Climate Change Adaptation, Infrastructure and Readiness Program</i></p>	<p>Sea level rise, combined with storm-driven waves, poses a direct risk to the State’s coastal resources, including public and private real property and infrastructure. Rising marine waters threaten sensitive coastal areas, habitats, the survival of threatened and endangered species, beaches, other recreation areas, and urban waterfronts. SB 576 mandates that the Ocean Protection Council develop and implement a coastal climate adaptation, infrastructure, and readiness program to improve the climate change resiliency of California’s coastal communities, infrastructure, and habitat. This bill also instructs the California Coastal Conservancy to administer the Climate Ready Program, which addresses the impacts and potential impacts of climate change on resources within the Conservancy’s jurisdiction.</p>
<p>Assembly Bill 65 (AB 65) (Petrie-Norris, Chapter 347, Statutes of 2019) <i>Coastal Protection: Climate Adaption: Project Prioritization: Natural Infrastructure: Local General Plans</i></p>	<p>AB 65 requires the California Coastal Conservancy, when it allocates any funding appropriated pursuant to the California Drought, Water, Parks, Climate, Coastal Protection, and Outdoor Access For All Act of 2018, to prioritize projects that use natural infrastructure in coastal communities to help adapt to climate change. AB 65 requires the Conservancy to provide information to the Office of Planning and Research on any projects funded pursuant to the above provision to be considered for inclusion into the State Clearinghouse for climate adaptation information. AB 65 authorizes the conservancy to provide technical assistance to coastal communities to better assist them with their projects that use natural infrastructure.</p>

Bill/Executive Order	Summary
<p>Executive Order B-55-18</p>	<p>Governor Brown signed Executive Order B-55-18 in September 2018 to establish a Statewide goal to achieve carbon neutrality as soon as possible, and no later than 2045, and to achieve and maintain net negative emissions thereafter. Policies and programs undertaken to achieve this goal shall:</p> <ul style="list-style-type: none"> ▪ Seek to improve air quality and support the health and economic resiliency of urban and rural communities, particularly low-income and disadvantaged communities. ▪ Be implemented in a manner that supports climate adaptation and biodiversity, including protection of the State’s water supply, water quality, and native plants and animals. <p>This Executive Order also calls for CARB to:</p> <ul style="list-style-type: none"> ▪ Develop a framework for implementation and accounting that tracks progress toward this goal. ▪ Ensure future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal. <p>The 2022 Scoping Plan Update is designed to achieve carbon neutrality no later than 2045 and the modeling includes technology and fuel transitions to achieve that outcome.</p>
<p>Senate Bill 100 (SB 100) (De León, Chapter 312, Statutes of 2018) <i>California Renewables Portfolio Standard Program: Emissions of Greenhouse Gases</i></p>	<p>Under SB 100, the CPUC, CEC, and CARB shall use programs under existing laws to achieve 100 percent clean electricity. The statute requires these agencies to issue a joint policy report on SB 100 every four years. The first of these reports was issued in 2021.</p> <p>The 2022 Scoping Plan Update reflects the SB 100 Core Scenario resource mix with a few minor updates.</p>
<p>Assembly Bill 2127 (AB 2127) (Ting, Chapter 365, Statutes of 2018) <i>Electric Vehicle Charging Infrastructure: Assessment</i></p>	<p>AB 2127 requires the CEC, working with CARB and the CPUC, to prepare and biennially update a Statewide assessment of the electric vehicle charging infrastructure needed to support the levels of electric vehicle adoption required for the State to meet its goals of putting at least 5 million ZEVs on California roads by 2030 and of reducing emissions of GHGs to 40 percent below 1990 levels by 2030. AB 2127 requires the CEC to regularly seek data and input from stakeholders relating to electric vehicle charging infrastructure.</p> <p>AB 2127 supports the deployment of ZEVs as modeled in the 2022 Scoping Plan Update.</p>
<p>Senate Bill 30 (SB 30) (Lara, Chapter 614, Statutes of 2018) <i>Insurance: Climate Change</i></p>	<p>SB 30 requires the Insurance Commissioner to convene a working group to identify, assess, and recommend risk transfer market mechanisms that, among other things, promote investment in natural infrastructure to reduce the risks of climate change related to catastrophic events, create incentives for investment in natural infrastructure to reduce risks to communities, and provide mitigation incentives for private investment in natural lands to lessen exposure and reduce climate risks to public safety, property, utilities, and infrastructure. SB 30 requires the policies recommended to address specified questions.</p>
<p>Assembly Bill 2061 (AB 2061) (Frazier, Chapter 580, Statutes of 2018) <i>Near-zero-emission and Zero-emission Vehicles</i></p>	<p>Existing State and federal law sets specified limits on the total gross weight imposed on the highway by a vehicle with any group of two or more consecutive axles. Under existing federal law, the maximum gross vehicle weight of that vehicle may not exceed 82,000 pounds. AB 2061 authorizes a near-ZEV or a ZEV to exceed the weight limits on the power unit by up to 2,000 pounds.</p> <p>AB 2061 supports the deployment of cleaner trucks as modeled in this 2022 Scoping Plan Update.</p>

Bill/Executive Order	Summary
<p>Assembly Bill 1279 (AB 1279) (Muratsuchi, Chapter 337, Statutes of 2022) <i>The California Climate Crisis Act</i></p>	<p>AB 1279 establishes the policy of the State to achieve carbon neutrality as soon as possible, but no later than 2045, to maintain net negative GHG emissions thereafter, and to ensure that by 2045 Statewide anthropogenic GHG emissions are reduced at least 85 percent below 1990 levels. AB 1279 requires CARB to ensure that Scoping Plan updates identify and recommend measures to achieve carbon neutrality, and to identify and implement policies and strategies that enable CO₂ removal solutions and CCUS technologies.</p> <p>AB 1279 is reflected directly in the 2022 Scoping Plan Update.</p>
<p>Senate Bill 905 (SB 905) (Caballero, Chapter 359, Statutes of 2022) <i>Carbon Capture, Removal, Utilization, and Storage Program</i></p>	<p>SB 905 requires CARB to create the Carbon Capture, Removal, Utilization, and Storage Program to evaluate, demonstrate, and regulate CCUS and CDR projects and technology.</p> <p>SB 905 requires CARB, on or before January 1, 2025, to adopt regulations creating a unified State permitting application for approval of CCUS and CDR projects. SB 905 also requires the Secretary of the Natural Resources Agency to publish a framework for governing agreements for two or more tracts of land overlying the same geologic storage reservoir for the purposes of a carbon sequestration project.</p> <p>The 2022 Scoping Plan Update modeling reflects both CCUS and CDR contributions to achieve carbon neutrality.</p>

¹ Taken from Table 3 in Appendix D of the Scoping Plan
Source: CARB 2022a

The 2022 Scoping Plan Scenario identifies the need to accelerate AB 32’s 2030 target from 40 percent to 48 percent below 1990 levels. Cap-and-Trade regulation continues to play a large factor in the reduction of near-term emissions for meeting the 2030 reduction target. Every sector of the economy will need to begin to transition in this decade to meet these GHG reduction goals and achieve carbon neutrality no later than 2045. The 2022 Scoping Plan Update approaches decarbonization from two perspectives, managing a phasedown of existing energy sources and technologies, as well as increasing, developing, and deploying alternative clean energy sources and technology. The Scoping Plan Scenario is summarized in Table 2-1 starting on page 72 of the Scoping Plan (CARB 2022a). It includes references to relevant statutes and Executive Orders, although it is not comprehensive of all existing new authorities for directing or supporting the actions described. Table 2-1 identifies actions related to sectors in smart growth/VMT reductions, light-duty vehicles and ZEVs, truck ZEVs, aviation fuel, ocean-going vessel fuel and electricity usage, port operations, freight and passenger rail, oil and gas extraction, petroleum refining, electricity generation, electrical appliances in new and existing residential and commercial buildings, electrification for food product industry, electrification for construction equipment, chemicals and allied products, pulp and paper, stone/clay/glass/cement, electrification of other industrial manufacturing, retiring of combined heat and power facilities, electrification of agricultural energy use, low carbon fuels for transportation, low carbon fuels for business and industry, non-combustion methane emissions, and introduction of low GWP refrigerants. Table 4.5-6 identifies actions for the Scoping Plan Scenario based on AB 32 GHG Inventory Sectors.

Table 4.5-6 Actions for the Scoping Plan Scenario: AB 32 GHG Inventory Sectors

Sector	Action	Statutes, Executive Orders, Other Directions, and Outcomes
GHG Emissions Reductions Relative to the SB 32 Target	40 percent below 1990 levels by 2030	SB 32: Reduce Statewide GHG emissions. AB 197: Direct emissions reductions for sources covered by the AB 32 Inventory
Smart Growth/Vehicle Miles Traveled (VMT)	VMT per capita reduced 25 percent below 2019 levels by 2030, and 30 percent below 2019 levels by 2045	SB 375: Reduce demand for fossil transportation fuels and GHGs, and improve air quality. In response to Board direction and Environmental Justice Advisory Committee recommendations.
Light-Duty Vehicle Zero Emission Vehicles (ZEVs)	100 percent of light-duty vehicle sales are ZEV by 2035	EO N-79-20: Reduce demand for fossil transportation fuels and GHGs, and improve air quality. AB 197: Direct emissions reductions for sources covered by the AB 32 Inventory. 2035 target aligns with the Environmental Justice Advisory Committee recommendation.
Truck ZEVs	100 percent of medium-/high-duty vehicle sales are ZEV by 2040 (AB 74 University of California Institute of Transportation Studies report)	EO N-79-20: Reduce demand for fossil transportation fuels and GHGs, and improve air quality. AB 197: Direct emissions reductions for sources covered by the AB 32 Inventory
Aviation	20 percent of aviation fuel demand is met by electricity (batteries) or hydrogen (fuel cells) in 2045. Sustainable aviation fuel meets most or the rest of the aviation fuel demand that has not already transitioned to hydrogen or batteries.	Reduce demand for petroleum aviation fuel and reduce GHGs. AB 197: Direct emissions reductions for sources covered by the AB 32 Inventory. In response to Governor Newsom’s July 2022 letter to CARB Chair Liane Randolph.
Ocean-Going Vessels (OGV)	2020 OGV At-Berth regulation fully implemented, with most OGVs utilizing shore power by 2027. 25 percent of OGVs utilize hydrogen fuel cell electric technology by 2045.	Reduce demand for petroleum fuels and GHGs, and improve air quality. AB 197: Direct emissions reductions for sources covered by the AB 32 Inventory.
Port Operations	100 percent of cargo handling equipment is zero emission by 2037. 100 percent of drayage trucks are zero emission by 2035.	Executive Order N-79-20: reduce demand for petroleum fuels and GHGs, and improve air quality. AB 197: Direct emissions reductions for sources covered by the AB 32 Inventory.
Freight and Passenger Rail	100 percent of passenger and other locomotive sales are ZEV by 2030. 100 percent of line haul locomotive sales are ZEV by 2035. Line haul and passenger rail rely primarily on hydrogen fuel cell technology, and others primarily utilize electricity.	Reduce GHGs and improve air quality. AB 197: Direct emissions reductions for sources covered by the AB 32 Inventory.
Petroleum Refining	CCS on majority of operations by 2030, beginning in 2028. Production reduced in line with petroleum demand.	Reduce GHGs and improve air quality. AB 197: Direct emissions reductions for sources covered by the AB 32 Inventory.

Housing Authority of the City of Los Angeles and City of Los Angeles Housing Department
One San Pedro Specific Plan

Sector	Action	Statutes, Executive Orders, Other Directions, and Outcomes
Electricity Generation	<p>Sector GHG target of 38 MMT of CO₂e in 2030 and 30 MMT of CO₂e in 2035.</p> <p>Retail sales load coverage 20 gigawatts of offshore wind by 2045. Meet increased demand for electrification without new fossil gas-fired resources.</p>	<p>SB 350 and SB 100: Reduce GHGs and improve air quality.</p> <p>AB 197: Direct emissions reductions for sources covered by the AB 32 Inventory. In response to Governor Newsom’s July 2022 letter, Board direction, and Environmental Justice Advisory Committee recommendation.</p>
New Residential and Commercial Buildings	<p>All electric appliances beginning 2026 (residential) and 2029 (commercial), contributing to 6 million heat pumps installed statewide by 2030</p>	<p>Reduce demand for fossil gas and GHGs and improve ambient and indoor air quality.</p> <p>AB 197: Direct emissions reductions for sources covered by the AB 32 Inventory In response to Governor Newsom’s July 2022 letter.</p>
Residential Buildings	<p>80 percent of appliance sales are electric by 2030 and 100 percent of appliance sales are electric by 2035.</p> <p>Appliances are replaced at end of life such that by 2030 there are 3 million all-electric and electric-ready homes, and 7 million homes by 2035, as well as contributing to 6 million heat pumps installed statewide by 2030.</p>	<p>Reduce demand for fossil gas and GHGs and improve ambient and indoor air quality.</p> <p>AB 197: Direct emissions reductions for sources covered by the AB 32 Inventory. In response to Governor Newsom’s July 2022 letter.</p>
Existing Commercial Buildings	<p>80 percent of appliance sales are electric by 2030, and 100 percent of appliance sales are electric by 2045.</p> <p>Appliances are replaced at end of life, contributing to 6 million heat pumps installed statewide by 2030.</p>	<p>Reduce demand for fossil gas and GHGs and improve ambient and indoor air quality.</p> <p>AB 197: Direct emissions reductions for sources covered by the AB 32 Inventory. In response to Governor Newsom’s July 2022 letter.</p>
Food Products	<p>7.5 percent of energy demand electrified directly and/or indirectly by 2030; 75 percent by 2045.</p>	<p>Reduce demand for fossil gas and GHGs and improve air quality.</p> <p>AB 197: Direct emissions reductions for sources covered by the AB 32 Inventory.</p>
Construction Equipment	<p>25 percent of energy demand electrified by 2030 and 75 percent electrified by 2045.</p>	<p>Reduce demand for fossil energy and GHGs and improve air quality.</p> <p>AB 197: Direct emissions reductions for sources covered by the AB 32 Inventory</p>
Chemicals and Allied Products; Pulp and Paper	<p>Electrify 0 percent of boilers by 2030 and 100 percent of boilers by 2045.</p> <p>Hydrogen for 25 percent of process heat by 2035 and 100 percent by 2045.</p> <p>Electrify 100 percent of other energy demand by 2045.</p>	<p>Reduce demand for fossil energy and GHGs and improve air quality.</p> <p>AB 197: Direct emissions reductions for sources covered by the AB 32 Inventory.</p>
Stone, Clay, Glass, and Cement	<p>CCS on 40 percent of operations by 2035 and on all facilities by 2045.</p> <p>Process emissions reduced through alternative materials and CCS.</p>	<p>SB 596: Reduce demand for fossil energy, process emissions, and GHGs, and improve air quality.</p> <p>AB 197: Direct emissions reductions for sources covered by the AB 32 Inventory.</p>

Sector	Action	Statutes, Executive Orders, Other Directions, and Outcomes
Other Industrial Manufacturing	0 percent energy demand electrified by 2030 and 50 percent by 2045.	Reduce demand for fossil energy and GHGs and improve air quality. AB 197: Direct emissions reductions for sources covered by the AB 32 Inventory.
Combined Heat and Power	Facilities retire by 2040.	Reduce demand for fossil energy and GHGs and improve air quality. AB 197: Direct emissions reductions for sources covered by the AB 32 Inventory.
Agriculture Energy Use	25 percent energy demand electrified by 2030 and 75 percent by 2045.	Reduce demand for fossil energy and GHGs and improve air quality. AB 197: Direct emissions reductions.
Low Carbon Fuels for Transportation	25 percent energy demand electrified by 2030 and 75 percent by 2045.	Reduce demand for fossil energy and GHGs and improve air quality. AB 197: Direct emissions reductions.
Low Carbon Fuels for Buildings and Industry	In 2030s biomethane (renewable natural gas) blended in pipeline. Renewable hydrogen blended in fossil gas pipeline at 7 percent energy (approximately 20 percent by volume), ramping up between 2030 and 2040. In 2030s, dedicated hydrogen pipelines constructed to serve certain industrial clusters.	Reduce demand for fossil energy and GHGs and improve air quality. AB 197: Direct emissions reductions for sources covered by the AB 32 Inventory.
Non-combustion Methane Emissions	Increase landfill and dairy digester methane capture. Some alternative manure management deployed for smaller dairies. Moderate adoption of enteric strategies by 2030. Divert 75 percent of organic waste from landfills by 2025. Oil and gas fugitive methane emissions reduced 50 percent by 2030 and further reductions as infrastructure components retire in line with reduced fossil gas demand.	SB 1383: Reduce short-lived climate pollutants.
High GWP Potential Emissions	Low GWP refrigerants introduced as building electrification increases, mitigating HFC emissions.	SB 1383: Reduce short-lived climate pollutants.

Achieving the targets described in the 2022 Scoping Plan Update will require continued commitment to and successful implementation of existing policies and programs and identification of new policy tools and technical solutions to go further, faster. California’s Legislature and State agencies will continue to collaborate to achieve the State’s climate, clean air, equity, and broader economic and environmental protection goals. It will be necessary to maintain and strengthen this collaborative effort, and to draw upon the assistance of the federal government, regional and local governments, tribes, communities, academic institutions, and the private sector to achieve the State’s near-term and longer-term emission reduction goals and a more equitable future for all Californians. The Scoping Plan acknowledges that the path forward is not dependent on one agency, one state, or even one country. However, the State can lead by engaging Californians and demonstrating how actions at the state, regional, and local levels of governments, as well as action at community and individual levels, can contribute to addressing the challenge.

Aligning local jurisdiction action with State-level priorities to tackle climate change and the outcomes called for in the 2022 Scoping Plan Update is critical to achieving the statutory targets for 2030 and 2045. The 2022 Scoping Plan Update discusses the role of local governments in meeting the State’s GHG reductions goals. Local governments have the primary authority to plan, zone, approve, and permit how and where land is developed to accommodate population growth, economic growth, and the changing needs of their jurisdictions. They also make critical decisions on how and when to deploy transportation infrastructure, and can choose to support transit, walking, bicycling, and neighborhoods that do not force people into cars. Local governments also have the option to adopt building ordinances that exceed the California Building Code requirements and play a critical role in facilitating the rollout of ZEV infrastructure. As a result, local government decisions play a critical role in supporting State-level measures to contain the growth of GHG emissions associated with the transportation system and the built environment—the two largest GHG emissions sectors over which local governments have authority. The City has taken the initiative in combating climate change by developing programs and regulations such as the Green New Deal and Green Building Code. Each of these is discussed further under Section 4.5.2c, *Regional and Local Laws and Regulations*.

Cap-and-Trade Program

The Climate Change Scoping Plan identified a Cap-and-Trade Program as one of the strategies California would employ to reduce GHG emissions. CARB asserts that this program will help put California on the path to meet its goal of ultimately achieving an 80 percent reduction from 1990 levels by 2050. Under Cap-and-Trade, an overall limit on GHG emissions from capped sectors is established and facilities subject to the cap will be able to trade permits to emit GHGs.

CARB designed and adopted a California Cap-and-Trade Program (California Code of Regulations [CCR] 17 Sections 95800 through 96023) pursuant to its authority under AB 32. The Cap-and-Trade Program is designed to reduce GHG emissions from public and private major sources (deemed “covered entities”) by setting a firm cap on Statewide GHG emissions and employing market mechanisms to achieve the State’s emission-reduction mandates. The Statewide cap for GHG emissions from the capped sectors (e.g., electricity generation, petroleum refining, and cement production) commenced in 2013 and will decline over time, achieving GHG emission reductions throughout the Program’s duration.

Under the Cap-and-Trade Program, CARB issues allowances equal to the total amount of allowable emissions over a given compliance period and distributes these to regulated entities. Covered entities that emit more than 25,000 metric ton (MT) of CO₂e per year must comply with the Cap-and-Trade Program. Triggering of the 25,000 MT of CO₂e per year “inclusion threshold” is measured against a subset of emissions reported and verified under the California Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (Mandatory Reporting Rule or “MRR”).

Each covered entity with a compliance obligation is required to surrender “compliance instruments”⁶ for each MT of CO₂e of GHG it emits. Covered entities are allocated free allowances in whole or part (if eligible), and can buy allowances at auction, purchase allowances from others, or purchase offset credits.

The Cap-and-Trade Regulation provides a firm cap, ensuring that the Statewide emission limits will not be exceeded. In sum, the Cap-and-Trade Program will achieve aggregate, rather than site-specific or project-level, GHG emissions reductions. Also, due to the regulatory framework adopted by CARB

⁶ Compliance instruments are permits to emit, the majority of which will be “allowances,” but entities also are allowed to use CARB-approved offset credits to meet up to 8 percent of their compliance obligations.

in AB 32, the reductions attributed to the Cap-and-Trade Program can change over time depending on the State's emissions forecasts and the effectiveness of direct regulatory measures.

The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, whether generated in-state or imported. Accordingly, for projects that are subject to CEQA, GHG emissions from electricity consumption are covered by the Cap-and-Trade Program. The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and from combustion of other fossil fuels not directly covered at large sources in the Program's first compliance period.

The Program applies to emissions that cover approximately 80 percent of the State's GHG emissions. Demonstrating the efficacy of AB 32 policies, California achieved its 2020 GHG Reduction Target four years earlier than mandated. The largest reductions were the result of increased renewable electricity in the electricity sector, which is a covered sector in the Cap-and-Trade Program.

AB 398 was enacted in 2017 to extend and clarify the role of the State's Cap-and-Trade Program through December 31, 2030. As part of AB 398, refinements were made to the Cap-and-Trade program to establish updated protocols and allocation of proceeds to reduce GHG emissions.

Energy-Related (Stationary) Sources

Emission Performance Standards

SB 1368, signed September 29, 2006, is a companion bill to AB 32, which requires the CPUC and the CEC to establish GHG emission performance standards for the generation of electricity. These standards also generally apply to power that is generated outside California and imported into the State. SB 1368 provides a mechanism for reducing the emissions of electricity providers, thereby assisting CARB to meet its mandate under AB 32.

Renewables Portfolio Standard

SB 1078 (Chapter 516, Statutes of 2002) required retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017 as a RPS. Subsequent amendments provided additional targets throughout the years. Most recently, on October 7, 2015, SB 350 (Chapter 547, Statutes of 2015), also known as the Clean Energy and Pollution Reduction Act, further increased the RPS to 50 percent by 2030. The legislation also included interim targets of 40 percent by 2024 and 45 percent by 2027. SB 350 also requires the State to double statewide energy efficiency savings in electricity and natural gas end uses by 2030. The 2017 Climate Change Scoping Plan incorporated the SB 350 standards and estimated the GHG reductions would account for approximately 21 percent of the Scoping Plan reductions (CARB 2017a). On September 10, 2018, SB 100 (Chapter 312, Statutes of 2018), provided additional RPS targets of 44 percent by 2024, 52 percent by 2027, and 60 percent by 2030, and that CARB should plan for 100 percent eligible renewable energy resources and zero-carbon resources by 2045.

Mobile Sources

Pavley Standards

AB 1493 (Chapter 200, Statutes of 2002), enacted on July 22, 2002, required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles whose primary use is non-

commercial personal transportation manufactured in and after 2009. In 2004, CARB approved the Pavley regulation to require automakers to control GHG emissions from new passenger vehicles for the 2009 through 2016 model years. Upon adoption of subsequent federal GHG standards by the U.S. EPA that preserved the benefits of the Pavley regulations, the Pavley regulations were revised to accept compliance with the federal standards as compliance with California's standards in the 2012 through 2016 model years. This is referred to as the "deemed to comply" option.

In January 2012, CARB approved GHG emission regulations which require further reductions in passenger vehicle GHG emissions for 2017 and subsequent vehicle model years. As noted above, in August 2012, the U.S. EPA and United States Department of Transportation adopted GHG emission standards for model year 2017 through 2025 vehicles. On November 15, 2012, CARB approved an amendment that allows manufacturers to comply with the 2017-2025 national standards to meet State law. Automobile manufacturers generally comply with these standards through a combination of improved energy efficiency in vehicle equipment (e.g., air conditioning systems) and engines, as well as sleeker aerodynamics, use of strong but lightweight materials, and lower-rolling resistance tires (CARB 2017b).

In 2018, the U.S. EPA proposed the SAFE Vehicles Rule which would roll back fuel economy standards and revoke California's waiver. The rule amended certain average fuel economy and GHG standards for passenger cars covering model years 2021 through 2026. On March 30, 2020, the SAFE Rule was finalized and published in the Federal Register, commencing a review period. Subsequent legal challenges from a coalition of states, including California, and private industry groups were issued. However, in December 2021, the NHTSA repealed the SAFE Vehicle Rule Part One (Federal Register Vol. 86, No. 247). Although the SAFE Vehicle Rule Part One has been repealed, GHG modeling contained in regional plans, such as SCAG's 2020-2045 RTP/SCS, have not been updated to account for this repeal.

California Low Carbon Fuel Standard

Executive Order S-01-07 was enacted by Governor Arnold Schwarzenegger on January 18, 2007. The order mandates the following: (1) that a Statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020; and (2) that an LCFS for transportation fuels be established in California. The final regulation was approved by the State's Office of Administrative Law and filed with the Secretary of State on January 12, 2010; the LCFS became effective on the same day. In September 2015, CARB approved the re-adoption of the LCFS, which became effective on January 1, 2016, to address procedural deficiencies in the way the original regulation was adopted (CARB 2022b).

The development of the 2017 Scoping Plan Update has identified LCFS as a regulatory measure to reduce GHG emission to meet the 2030 emissions target. In September 2018, the standards were amended by CARB to require a 20-percent reduction in carbon intensity by 2030, aligning with California's 2030 targets set by SB 32 (CARB 2018a).

Advanced Clean Cars Regulations

In 2012, CARB approved the Advanced Clean Cars program, an emissions-control program for model years 2015–2025. The components of the Advanced Clean Cars program include the Low-Emission Vehicle (LEV) regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the ZEV regulation, which requires manufacturers to produce an increasing number of pure ZEVs (meaning battery electric and fuel cell electric vehicles), with provisions to also produce plug-in hybrid electric vehicles (PHEV) in the 2018 through 2025 model years (CARB 2022c). During

the March 2017 midterm review, CARB voted unanimously to continue with the vehicle GHG emission standards and the ZEV program for cars and light-duty trucks sold in California through 2025 (CARB 2017c).

In addition, Governor Gavin Newsom signed an executive order (Executive Order No. N-79-20) on September 23, 2020 that would phase out sales of new gas-powered passenger cars by 2035 in California with an additional 10-year transition period for heavy-duty vehicles. The state would not restrict used car sales, or forbid residents from owning gas-powered vehicles. In accordance with the executive order, CARB is developing a 2020 Mobile Source Strategy, a comprehensive analysis that presents scenarios for possible strategies to reduce the carbon, toxic, and unhealthy pollution from cars, trucks, equipment, and ships. The strategies will provide important information for numerous regulations and incentive programs going forward by conveying what is necessary to address the aggressive emission reduction requirements.

The primary mechanism for achieving the ZEV target for passenger cars and light-duty trucks is CARB's Advanced Clean Cars II Program. The Advanced Clean Cars II Program regulations will focus on post-2025 model year light-duty vehicles, as requirements are already in place for new vehicles through the 2025 model year. A rulemaking package is anticipated to be presented to CARB in June 2022.

Sustainable Communities and Climate Protection Act (SB 375)

The Sustainable Communities and Climate Protection Act of 2008, or SB 375 (Chapter 728, Statutes of 2008), which was adopted by the State on September 30, 2008, establishes mechanisms for the development of regional targets for reducing passenger vehicle GHG emissions. SB 375 finds that the "transportation sector is the single largest contributor of greenhouse gases of any sector." Under SB 375, CARB is required, in consultation with the Metropolitan Planning Organizations (MPOs), to set regional GHG reduction targets for the passenger vehicle and light-duty truck sector for 2020 and 2035. SCAG is the MPO in which the city of Los Angeles is located. CARB set targets for 2020 and 2035 for each of the 18 MPO regions in 2010 and updated them in 2018 (CARB 2022d). In March 2018, CARB updated the SB 375 targets for the SCAG region to require an 8-percent reduction by 2020 and a 19-percent reduction by 2035 in per capita passenger vehicle GHG emissions (CARB 2018b). As discussed further below, in September 2020, SCAG adopted an updated Regional Transportation Plan/Sustainable Community Strategies (2020-2045 RTP/SCS) subsequent to the update of the emission targets. The 2020-2045 RTP/SCS is expected to reduce per capita transportation emissions by 19-percent by 2035, which is consistent with SB 375 compliance with respect to meeting the State's GHG emission reduction goals (SCAG 2020).

Under SB 375, the target must be incorporated within that region's RTP which is used for long-term transportation planning, in an SCS. Certain transportation planning and programming activities would then need to be consistent with the SCS; however, SB 375 expressly provides that the SCS does not regulate the use of land, and further provides that local land use plans and policies (e.g., general plans) are not required to be consistent with either the RTP or SCS.

Senate Bill 743

Governor Jerry Brown signed SB 743 in 2013, which created a process to change the way that transportation impacts are analyzed under CEQA. Specifically, SB 743 requires the California Governor's Office of Planning and Research (OPR) to amend the CEQA Guidelines to provide an alternative to level of service methodology for evaluating transportation impacts. Particularly within areas served by transit, the required alternative criteria must "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses."

Measurements of transportation impacts may include “vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated.”

Building Standards and Other Regulations

California Appliance Efficiency Regulations

The Appliance Efficiency Regulations (Title 20, Sections 1601 through 1608), adopted by the CEC, include standards for new appliances (e.g., refrigerators) and lighting, if they are sold or offered for sale in California. These standards include minimum levels of operating efficiency, and other cost-effective measures, to promote the use of energy- and water-efficient appliances.

Title 24, Building Standards Code and CALGreen Code

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

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

On August 11, 2021, the CEC adopted the 2022 Title 24 Standards, which went into effect on January 1, 2023. The 2022 standards continue to improve upon the previous (2019) Title 24 standards for new construction of, and additions and alterations to, residential and non-residential buildings (CEC 2022a). The 2022 Title 24 Standards “build on California’s technology innovations, encouraging energy efficient approaches to encourage building decarbonization, emphasizing in particular on heat pumps for space heating and water heating. This set of Energy Codes also extends the benefits of photovoltaic and battery storage systems and other demand flexible technology to work in combinations with heat pumps to enable California buildings to be responsive to climate change. This Energy code also strengthens ventilation standards to improve indoor air quality. This update provides crucial steps in the State’s progress toward 100 percent clean carbon neutrality by midcentury” (CEC 2022b). The 2022 Energy Code is anticipated to reduce GHG emissions by 10 MMT of CO₂e over the next 30 years and result in approximately 1.5 billion dollars in consumer savings (CEC 2022c). Compliance with Title 24 is enforced through the building permit process.

CEQA Guidelines

In August 2007, the California State Legislature adopted SB 97 (Chapter 185, Statutes of 2007), requiring OPR to prepare and transmit new CEQA guidelines for the mitigation of GHG emissions or the effects of GHG emissions to the Resources Agency by July 1, 2009. In response to SB 97, the OPR adopted CEQA guidelines that became effective on March 18, 2010.

However, neither a threshold of significance nor any specific mitigation measures are included or provided in the CEQA guidelines⁷. The CEQA guidelines require a lead agency to make a good-faith effort, based on the extent possible on scientific and factual data, to describe, calculate, or estimate the amount of GHG emissions resulting from a project. Discretion is given to the lead agency whether to (1) use a model or methodology to quantify GHG emissions resulting from a project, and which model or methodology to use; or (2) rely on a qualitative analysis or performance-based standards. Furthermore, three factors are identified that should be considered in the evaluation of the significance of GHG emissions:

- The extent to which a project may increase or reduce GHG emissions as compared to the existing environmental setting;
- Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and
- 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 Section 15064.4[b]).

The administrative record for the Guidelines Amendments also clarifies “that the effects of greenhouse gas emissions are cumulative and should be analyzed in the context of California Environmental Quality Act’s requirements for cumulative impact analysis” (OPR 2009).

c. Regional and Local Laws and Regulations

South Coast Air Quality Management District CEQA Guidance

The city of Los Angeles is in the South Coast Air Basin (Air Basin), which consists of Orange County, Los Angeles County (excluding the Antelope Valley portion), and the western, non-desert portions of San Bernardino and Riverside counties, in addition to the San Geronio Pass area in Riverside County. SCAQMD is responsible for air quality planning in the Air Basin and developing rules and regulations to bring the area into attainment of the ambient air quality standards. This is accomplished through air quality monitoring, evaluation, education, implementation of control measures to reduce emissions from stationary sources, permitting and inspection of pollution sources, enforcement of air quality regulations, and by supporting and implementing measures to reduce emissions from motor vehicles.

In 2008, SCAQMD released draft guidance regarding interim CEQA GHG significance thresholds (SCAQMD 2008). A GHG Significance Threshold Working Group was formed to further evaluate potential GHG significance thresholds (SCAQMD 2022). SCAQMD proposed the use of a percent emission reduction target to determine significance for commercial/residential projects that emit greater than 3,000 MT of CO₂e per year. Under this proposal, commercial/residential projects that

⁷ See 14 Cal. Code Regs. §§ 15064.7 (generally giving discretion to lead agencies to develop and publish thresholds of significance for use in the determination of the significance of environmental effects) and 15064.4 (giving discretion to lead agencies to determine the significance of impacts from GHGs).

emit fewer than 3,000 MT of CO₂e per year would be assumed to have a less than significant impact on climate change. On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold of 10,000 MT of CO₂e per year for stationary source/industrial projects where the SCAQMD is the lead agency. However, the SCAQMD has yet to adopt a GHG significance threshold for land use development projects (e.g., residential/commercial projects). The Working Group has been inactive since 2011, and SCAQMD has not formally adopted any GHG significance threshold for other jurisdictions.

Regional Transportation Plan/Sustainable Communities Strategy

To implement SB 375 and reduce GHG emissions by correlating land use and transportation planning, SCAG adopted the 2020-2045 RTP/SCS in September 2020. The vision for the region incorporates a range of best practices for increasing transportation choices, reducing dependence on personal automobiles, further improving air quality, and encouraging growth in walkable, mixed-use communities with ready access to transit infrastructure and employment. More and varied housing types and employment opportunities would be located in and near job centers, transit stations, and walkable neighborhoods where goods and services are easily accessible via shorter trips. To support shorter trips, people would have the choice of using neighborhood bike networks, car share, or micro-mobility services like shared bicycles or scooters. For longer commutes, people would have expanded regional transit services and more employer incentives to carpool or vanpool. Other longer trips would be supported by on-demand services, such as micro-transit, car share, and citywide partnerships with ride hailing services. For those that choose to drive, hotspots of congestion would be less difficult to navigate due to cordon pricing and using an electric vehicle will be easier because of an expanded regional charging network (SCAG 2020).

The 2020–2045 RTP/SCS states that the SCAG region was home to about 18.8 million people in 2016 and currently includes approximately 6.0 million homes and 8.4 million jobs. By 2045, the integrated growth forecast estimates that these figures will increase by 3.7 million people, with nearly 1.6 million more homes and 1.6 million more jobs. Transit Priority Areas⁸ will account for less than 1 percent of regional total land but are projected to accommodate 30 percent of future household growth between 2016 and 2045. The 2020–2045 RTP/SCS overall land use pattern reinforces the trend of focusing new housing and employment in the region’s Transit Priority Areas. Transit Priority Areas are a cornerstone of land use planning best practice in the SCAG region because they concentrate roadway repair investments, leverage transit and active transportation investments, reduce regional life cycle infrastructure costs, improve accessibility, create local jobs, and have the potential to improve public health and housing affordability (SCAG 2020).

The 2020–2045 RTP/SCS is expected to reduce per capita transportation emissions by 19 percent by 2035, which is consistent with SB 375 compliance with respect to meeting the State’s GHG emission reduction goals (SCAG 2020). Due to fuel economy and efficiency improvements, GHG emission rates of model year 2017 vehicles have decreased by 15 to 20 percent when compared to model year 2008 and earlier vehicles. However, for purposes of SB 375 emissions reduction targets, the fuel economy improvements have been largely excluded from the reduction calculation. The SB 375 target focuses on the amount of vehicle travel per capita. As discussed above, OPR recommended that achieving 15 percent lower per capita (residential) or per employee (office) VMT than existing development is both generally achievable and is supported by evidence that connects this level of reduction to the State’s emissions goals (i.e., SB 375 goal). The reductions generated by fuel economy improvements are

⁸ Defined by the 2020–2045 RTP/SCS as generally walkable transit villages or corridors that are within 0.5 mile of a major transit stop (rail or bus rapid transit station) with 15-minute or less service frequency during peak commute hours

already included as part of the State’s GHG emissions reduction program and are not double counted in the SB 375 target calculation.

Green New Deal

On April 18, 2015, Mayor Erik Garcetti released the Sustainable City pLAN, which includes both short-term and long-term aspirations through the year 2035 in various topic areas, including water, solar power, energy-efficient buildings, carbon and climate leadership, waste and landfills, housing and development, mobility and transit, and air quality, among others. Specific targets included the construction of new housing units within 1,500 feet of transit by 2017, reducing VMT per capita by 5-percent by 2025, and increasing trips made by walking, biking or transit by at least 35-percent by 2025. The Sustainable City pLAN was intended to be updated every four years (City of Los Angeles 2015).

In April 2019, the Sustainable City pLAN was updated and renamed as L.A.’s Green New Deal, which consists of a program of actions designed to create sustainability-based performance targets through 2050 to advance economic, environmental, and equity objectives (City of Los Angeles 2019). The Green New Deal augments, expands, and elaborates on the City’s vision for a sustainable future and tackles the climate emergency with accelerated targets and new aggressive goals.

While not a plan adopted solely to reduce GHG emissions, within the Green New Deal, “Climate Mitigation,” or reduction of GHG is one of eight explicit benefits that help define its strategies and goals. These include reducing GHG emissions through near-term outcomes:

- Reduce potable water use per capita by 22.5 percent by 2025, 25 percent by 2035, and maintain or reduce 2035 per capita water use through 2050.
- Reduce building energy use per square feet for all building types by 22 percent by 2025; 34 percent by 2035; and 44 percent by 2050 (from a baseline of 68 million British thermal units per sf in 2015).
- All new buildings will be net zero carbon by 2030 and 100 percent of buildings will be net zero carbon by 2050.
- Increase cumulative new housing construction to 150,000 units by 2025 and 275,000 units by 2035.
- Ensure 57 percent of new housing units are built within 1,500 feet of transit by 2025 and 75 percent by 2035.
- Increase the percentage of all trips made by walking, biking, micro-mobility/matched rides, or transit to at least 35 percent by 2025, 50 percent by 2035, and maintain at least 50 percent by 2050.
- Reduce VMT per capita by at least 13 percent by 2025, 39 percent by 2035, and 45 percent by 2050.
- Increase the percentage of electric vehicles and ZEVs in the city to 25 percent by 2025, 80 percent by 2035, and 100 percent by 2050.
- Increase landfill diversion rate to 90 percent by 2025, 95 percent by 2035, and 100 percent by 2050.
- Reduce municipal solid waste generation per capita by at least 15 percent by 2030, including phasing out single-use plastics by 2028 (from a baseline of 17.85 pounds of waste generated per capita per day in 2011).
- Eliminate organic waste going to landfill by 2028.

- Reduce urban/rural temperature differential by at least 1.7°F by 2025 and 3°F by 2035.
- Ensure the proportion of Angelenos living within 0.5 mile of a park or open space is at least 65 percent by 2025, 75 percent by 2035, and 100 percent by 2050 (City of Los Angeles 2019).

City of Los Angeles Green Building Code

On December 11, 2019, the Los Angeles City Council approved Ordinance No. 186,488, which amended Chapter IX of the Los Angeles Municipal Code (LAMC), referred to as the Los Angeles Green Building Code, by adding a new Article 9 to incorporate various provisions of the 2019 CALGreen Code. Projects filed on or after January 1, 2020, must comply with the provisions of the Los Angeles Green Building Code. Specific mandatory requirements and elective measures are provided for three categories: (1) low-rise residential buildings; (2) non-residential and high-rise residential buildings; and (3) additions and alterations to non-residential and high-rise residential buildings. Article 9, Division 5 includes mandatory measures for newly constructed non-residential and high-rise residential buildings.

City of Los Angeles Ordinance 187,714

The City has adopted Ordinance No. 187,714, which does not allow combustion equipment for most new development, also known as the All-Electric Ordinance. Under this All-Electric Ordinance, equipment typically powered by natural gas such as space heating, water heating, cooking appliances and clothes drying would need to be powered by electricity for new construction. Exceptions are made for commercial restaurants, laboratory and research, and development uses. This ordinance is consistent with 2022 Title 24 goals of encouraging all-electric development which requires new residential uses to be electric-ready (wiring installed for all-electric appliances).

City of Los Angeles Solid Waste Programs and Ordinances

The recycling of solid waste materials also contributes to reduced energy consumption. Specifically, when products are manufactured using recycled materials, the amount of energy that would have otherwise been consumed to extract and process virgin source materials is reduced, as well as disposal energy averted. In 1989, California enacted AB 939, the California Integrated Waste Management Act, which establishes a hierarchy for waste management practices, such as source reduction, recycling, and environmentally safe land disposal.

The City has developed and is in the process of implementing the Solid Waste Integrated Resources Plan, also referred to as the Zero Waste Plan, whose goal is to lead the City towards being a “zero waste” City by 2030. These waste reduction plans, policies, and regulations, along with Mayoral and City Council directives, have increased the level of waste diversion for the City to 76 percent as of 2013 (City of Los Angeles Bureau of Sanitation [LASAN] 2022). In addition, the City adopted the Recovering Energy, Natural Resources, and Economic Benefit from Waste for Los Angeles (RENEW LA) Plan in 2006, which aims to achieve a zero-waste goal through reducing, reusing, recycling, or converting the resources not going to disposal and achieving a diversion rate of 90 percent or more by 2025 (City of Los Angeles 2011). The City also approved the Waste Hauler Permit Program (Ordinance No. 181,519, LAMC Chapter VI, Article 6, Section 66.32-66.32.5), which requires private waste haulers to obtain AB 939 Compliance Permits to transport construction and demolition waste to City-certified construction and demolition waste processors. The City’s Exclusive Franchise System Ordinance (Ordinance No. 182,986), among other requirements, sets a maximum annual disposal level and diversion requirements for franchised waste haulers to promote waste diversion from landfills and support the City’s zero waste goals. These programs reduce the number of trips to haul

solid waste and, therefore, reduce the amount of petroleum-based fuels and energy used to process solid waste.

City of Los Angeles General Plan

The City does not have a General Plan Element specific to climate change and GHG emissions, and its General Plan does not have any stated goals, objectives, or policies specifically addressing climate change and GHG emissions. However, the following five goals from the City's General Plan Air Quality Element would also lead to GHG emission reductions:

- Less reliance on single-occupancy vehicles with fewer commute and non-work trips;
- Efficient management of transportation facilities and system infrastructure using cost-effective system management and innovative demand-management techniques;
- Minimal impacts of existing land use patterns and future land use development on air quality by addressing the relationship between land use, transportation, and air quality;
- Energy efficiency through land use and transportation planning, the use of renewable resources and less-polluting fuels, and the implement of conservation measures, including passive measures, such as site orientation and tree planting; and
- Citizen awareness of the linkages between personal behavior and air pollution and participation in efforts to reduce air pollution (City of Los Angeles 1992).

City of Los Angeles Traffic Policies and Procedures

LADOT has developed the City Transportation Assessment Guidelines (July 2019, updated July 2020 and August 2022) to provide the public, private consultants, and City staff with standards, guidelines, objectives, and criteria to be used in the preparation of a transportation assessment. The Transportation Assessment Guidelines establishes the reduction of vehicle trips and VMT as the threshold for determining transportation impacts, and thus, is an implementing mechanism of the City's strategy to reduce land use transportation related GHG emissions consistent with AB 32, SB 32, and SB 375 (LADOT 2022a).

Los Angeles Department of Transportation Mobility Plan 2035

In August 2015, the City Council adopted Mobility Plan 2035 (Mobility Plan), which serves as the City's General Plan circulation element. The City Council has adopted several amendments to the Mobility Plan since its initial adoption, including the most recent amendment on September 7, 2016 (City of Los Angeles 2016). The Mobility Plan incorporates "complete streets" principles and lays the policy foundation for how the City's residents interact with their streets. While the Mobility Plan 2035 mainly relates to transportation, certain components would serve to reduce VMT and mobile source GHG emissions. One component of the Mobility Plan is a GHG emission tracking program to establish compliance with SB 375, AB 32, and the region's Sustainable Community Strategy.

City of Los Angeles Housing Element (Housing Needs Assessment)

The Housing Element of the City's General Plan is prepared pursuant to State law and provides planning guidance in meeting housing needs identified in the SCAG's Regional Housing Needs Assessment (RHNA). The Housing Element identifies the City's housing conditions and needs, establishes the goals, objectives, and policies that are the foundation of the City's housing and growth strategy, and provides the array of programs the City intends to implement to create and preserve sustainable, mixed-income neighborhoods across the city.

The Housing Needs Assessment chapter of the Housing Element discusses the City's population and housing stock to identify housing needs to a variety of household types across the city. The Housing Element establishes quantified objectives which set a reasonable target goal based on needs, resources, and constraints. The amount of housing the City needs to plan for is based on the RHNA allocation which is set by the California Department of Housing and Community Development. The current RHNA goal for affordable housing within the city is approximately 40 percent of new construction. However, the City's projections show affordable housing comprising of 20 percent of new construction, which falls short of the forty percent RHNA goal.

To address this shortfall in affordable housing, the Housing Element provides measures to streamline and incentivize development of affordable housing. Such measures include revising density bonuses for affordable housing, identifying locations which are ideal for funding programs to meet low-income housing goals, and rezoning areas to encourage low-income housing. With implementation of such measures to increase affordable housing, the Housing Element predicts a significant increase in housing production at all income ranges compared to previous cycles.

4.5.3 Impact Analysis

a. Methodology and Significance Thresholds

Significance Thresholds

Based on Appendix G of the CEQA Guidelines, impacts related to GHG emissions from the proposed project would be significant if the project would:

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

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

CEQA Guidelines Section 15064.4 recommends that lead agencies describe, calculate, or estimate GHG emissions of projects and consider several other factors that may be used in the determination of significance of GHG emissions from a project, including the extent to which the project may increase or reduce GHG emissions; whether a project exceeds an applicable significance threshold; and the extent to which the project complies with regulations or requirements adopted to implement a plan for the reduction or mitigation of GHG emissions.

CEQA Guidelines Section 15064.4 does not establish a threshold of significance. Lead agencies have the discretion to establish significance thresholds for their respective jurisdictions, and in establishing those thresholds, a lead agency may appropriately look to thresholds developed by other public agencies or suggested by other experts, as long as any threshold chosen is supported by substantial

evidence (see CEQA Guidelines Section 15064.7[c]). The CEQA Guidelines also clarify that the effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impact analysis (see CEQA Guidelines Section 15130[f]). As a note, the CEQA Guidelines were amended in response to SB 97. In particular, the CEQA Guidelines were amended to specify that compliance with a GHG emissions reduction plan renders a cumulative impact insignificant.

Per CEQA Guidelines Section 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project would comply with an approved plan or mitigation program that provides specific requirements that would avoid or substantially lessen the cumulative problem in the geographic area of the project. To qualify, such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. Examples of such programs include a "water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plans [and] plans or regulations for the reduction of GHG emissions." Therefore, a lead agency can make a finding of less than significant for GHG emissions if a project complies with adopted programs, plans, policies, and/or other regulatory strategies to reduce GHG emissions.

Neither SCAQMD, OPR, CARB, California Air Pollution Control Officers Association, nor any other State or applicable regional agency has adopted a numerical significance threshold for assessing GHG emissions that is applicable to the project. Therefore, the City evaluates the significance of land use development projects' potential impacts with regard to GHG emissions and climate change solely on consistency with plans and policies adopted for the purposes of reducing GHG emissions and mitigating the effects of climate change. The City has also quantified the project's GHG emissions for informational purposes but does not compare the quantified GHG emissions to a numeric threshold.

In the absence of a CEQA-qualified GHG reduction plan, the State recommends determining whether a proposed residential or mixed-use residential development would align with the 2022 Scoping Plan by assessing if the project is consistent with all the key project attributes identified in Table 3 of Appendix D of the 2022 Scoping Plan. These attributes are detailed under Impact GHG-2 below in Table 4.5-7. According to the 2022 Scoping Plan, "Projects that have all the key project attributes should accommodate growth in a manner consistent with State GHG reduction and equity prioritization goals" (CARB 2022a). The 2022 Scoping Plan states, "Lead agencies may determine, with adequate additional supporting evidence, that projects that incorporate some, but not all, of the key project attributes are consistent with the State's climate goals" (CARB 2022a).

Methodology

Emissions Estimation

GHG emissions for project construction and operation were calculated using the California Emissions Estimator Model (CalEEMod), Version 2020.4.0. CalEEMod allows for the use of default data (e.g., emission factors, trip lengths, meteorology, source inventory) provided by the various California air districts to account for local requirements and conditions, and/or user-defined inputs. The input data and subsequent construction and operation emission estimates for the proposed project are summarized below and detailed in Appendix B.

CONSTRUCTION EMISSIONS

Construction emissions modeled include GHG emissions generated by construction equipment used on-site and emissions generated by vehicle trips associated with construction, such as worker and vendor trips. Construction emissions were modeled by phase based on the land use types for each phase.

Construction at the 327 Harbor Site is anticipated to commence in 2023, with completion in 2025, and construction of the OSP Specific Plan is anticipated to occur over three Phases, spanning approximately 14 to 20 years. For the purposes of a conservative analysis, it is anticipated construction activities on the OSP Specific Plan Site would commence in 2024 and end in 2037.

The environmental impact analysis in this document considers two scenarios for the OSP Specific Plan Site: Scenario A, in which the Phases are built to the maximum development as shown in Table 4.5-7, and Scenario B, in which Phases 1 and 2 are “recipient” Phases and Phase 3 is a “donor” Phase (see Section 2.5.2.1 for further discussion of Phases and scenarios). Under both scenarios, construction of Phase 1 is anticipated to occur between 2024 and 2030, construction of Phase 2 is anticipated to occur between 2031 and 2035, and construction of Phase 3 is anticipated to occur between 2034 and 2037.

Table 4.5-7 OSP Specific Plan Site – Phase Maximum Development

Location	Gross Acres	Maximum Dwelling Units	Maximum Commercial Retail Uses (sf)	Maximum Neighborhood Serving Uses (sf)
Scenario A				
327 Harbor Site	0.56	47	0	0
OSP SP Phase 1	7.31	375	0	32,000
OSP SP Phase 2	5.92	600	25,000	30,000
OSP SP Phase 3	7.14	578	20,000	23,000
Total Project Site	20.95	1,600	45,000	85,000
Scenario B				
327 Harbor Site	0.56	47	0	0
OSP SP Phase 1	7.31	450	0	39,000
OSP SP Phase 2	5.92	673	30,000	37,000
OSP SP Phase 3	7.14	430	15,000	9,000
Total Project Site	20.95	1,600	45,000	85,000

OSP SP = One San Pedro Specific Plan Site; sf = square feet

Construction of each Phase on the OSP Specific Plan Site would include the phased demolition of existing buildings and facilities, site preparation, grading and excavation, building construction, paving, and architectural coating activities. In addition, utilities realignment and upgrades would be included in each phase, as needed, to serve the proposed buildings. In total, 500,303 sf of existing buildings would be demolished. The maximum depth of excavation on the OSP Specific Plan Site would be 25 feet below ground surface (bgs) for the removal of uncertified fill and construction of the two-level underground parking structures. A total of 378,645 cubic yards (cy) of soil would be exported from the OSP Specific Plan Site. With a capacity of 16 cy per truck, soil hauling would result in approximately 23,666 haul trucks or 47,331 one-way truck trips.

Construction on the 327 Harbor Site would include site preparation and grading, building construction, paving, and architectural coating. Excavation on the 327 Harbor Site would extend to a maximum of five feet bgs for removal of approximately 4,300 cy of uncertified artificial fill material, except for the placement of 24-inch piles, which would include ground disturbance to a maximum depth of 45 feet bgs. With a capacity of 16 cy per truck, soil hauling from the 327 Harbor Site would result in approximately 269 one-way truck trips.

Haul trucks would export soil and materials to the Sunshine Canyon Landfill in unincorporated Los Angeles County and the Azusa Land Reclamation in the city of Azusa. Construction hauling would primarily be directed along 1st Street, 3rd Street, and Harbor Boulevard to minimize potential traffic impacts to existing residents. With implementation of Project Design Feature (PDF) T-1, a Construction Management Plan, including haul routes, worker parking, job site informational signage, delivery and material off-haul hours, traffic control plan, and schedule, would be implemented during project construction.

Construction would primarily occur Monday through Friday between the hours of 7:00 a.m. to 3:30 p.m., with occasional work on Saturdays or past 3:30 p.m. on weekdays.

OPERATIONAL EMISSIONS

In CalEEMod, GHG emissions include water and solid waste sources in addition to area, energy, and mobile sources.

Mobile source emissions consist of emissions from vehicle trips generated by the project. The trip generation rate and vehicle miles traveled (VMT) estimates from the Transportation Assessment Memorandum of Understanding (MOU) by the LADOT (LADOT 2022b) were used to estimate mobile source emissions. As referenced in the MOU, the project would generate an additional 10,298 daily trips compared to existing uses on the site (LADOT 2022b).

Emissions attributed to energy use include emissions from natural gas consumption for space and water heating and cooking. Area source emissions are generated by landscape maintenance equipment, use of common space fireplace and fire pit, consumer products, and architectural coatings.

Emissions from energy use include electricity and natural gas use. Electricity emissions only apply to GHG emissions (as the energy is generated off site, and therefore, may not be relevant for local and regional air quality conditions) and are calculated by multiplying the energy use times the carbon intensity of the utility district per kilowatt hour. The project would be served by Southern California Edison (SCE).

The default electricity consumption values in CalEEMod include the CEC-sponsored California Commercial End Use Survey and Residential Appliance Saturation Survey studies. CalEEMod currently incorporates California's 2019 Title 24 building energy efficiency standards. As described under Regulatory Framework, the 2022 Title 24 standards went into effect on January 1, 2023. As the project is planned for construction after January 1, 2023, it would be subject to at least 2022 Title 24 standards. To be conservative, this analysis did not include any additional reductions in energy or water use associated with the 2022 Title 24 standards. This analysis accounts for photovoltaic solar systems and electric vehicle charging stations that would be installed consistent with the regulatory requirements of Title 24 and PDF GHG-1 through PDF GHG-3. At a minimum, 321 parking spaces throughout the development would be serviced by EV charging stations.

GHG emissions from waste generation were also calculated in CalEEMod and are based on the IPCC's methods for quantifying GHG emissions from solid waste using the degradable organic content of waste. Waste disposal rates by land use and overall composition of municipal solid waste in California was primarily based on data provided by CalRecycle.

GHG emissions from water and wastewater usage calculated in CalEEMod were based on the default electricity intensity from the CEC's 2006 Refining Estimates of Water-Related Energy Use in California using the average values for northern and southern California and takes into account the reductions required under 2019 Title 24. The project would be subject to 2022 Title 24 requirements; therefore, emissions may be lower than reported and are conservative.

The project's per person GHG emissions were calculated by dividing the total GHG emissions by the project's service population (residents plus employees). According to Section 4.10, *Population and Housing*, the proposed project would result in approximately 3,872 persons, with a net growth of 2,715 when considering the existing residents that would be rehoused on the project site. Additionally, the proposed project is anticipated to increase employment by 314 jobs (Section 4.10). This would result in a total service population of 4,186 (residents plus employees), and net service population of 3,029.

Consistency with 2022 Scoping Plan

Appendix D, Local Actions, of the 2022 Scoping Plan Update includes "recommendations intended to build momentum for local government actions that align with the State's climate goals, with a focus on local GHG reduction strategies (commonly referred to as climate action planning) and approval of new land use development projects, including through environmental review under the California Environmental Quality Act (CEQA)" (CARB 2022a).

The State encourages local governments to adopt a CEQA-qualified Climate Action Plan (CAP) addressing the three priority areas (transportation electrification, VMT reduction, and building decarbonization). However, as not all jurisdictions have sufficient resources (e.g., technical expertise, political capital, staffing, funding) to do so, jurisdictions that wish to take meaningful climate action (such as preparing a non-CEQA-qualified CAP or as individual measures) aligned with the State's climate goals in the absence of a CEQA-qualified CAP should also look to the three priority areas when developing local climate plans, measures, policies, and actions. "By prioritizing climate action in these three priority areas, local governments can address the largest sources of GHGs within their jurisdiction" (CARB 2022a).

The State also recognizes in Appendix D, Local Actions, of the Scoping Plan that each community or local area has distinctive situations and local jurisdictions must balance the need for housing while demonstrating that a project is in alignment with the State's Climate Goals. Jurisdictions should avoid creating targets that are impossible to meet as a basis to determine significance. Ultimately, targets that make it more difficult to achieve Statewide goals by prohibiting or complicating projects that are needed to support the State's climate goals, like infill development, low-income housing, or solar arrays, are not consistent with the State's goals. The State also recognizes the CEQA lead agencies' discretion to develop evidence-based approaches for determining whether a project would have a potentially significant impact on GHG emissions.

b. Project Design Features

The project would be developed in accordance with the regulations, standards, and guidelines established by the SCAQMD and the City. The following PDFs have been incorporated within the project analysis to meet regulatory compliance or to provide further benefit to the future tenants and residents within the Phases, as well as the surrounding community.

PDF GHG-1 Photovoltaic Solar

Active photovoltaic (PV) solar will be installed on the project site to produce a minimum rate of 15 percent electricity demand for either Scenario⁹.

PDF GHG-2 Electric Vehicle Charging Stations

The proposed project will comply with Tier II voluntary Title 24 measures which require that a total of 40 percent of parking spaces are EV ready and a minimum of 15 percent of parking spaces are equipped with EV chargers¹⁰. Consistent with these requirements, a minimum of 855 spaces would be EV ready and EV charging stations would be incorporated on site to accommodate a minimum of 321 spaces for Scenario A and B (15 percent of total parking spaces)¹¹. In addition to the added EV charging stations, electric outlets for use by delivery vehicles in loading areas shall be incorporated where feasible.

PDF GHG-3 Additional Measures

- The following additional Transportation Demand Management (TDM) measures will be incorporated into the proposed project, as feasible, as outlined in the Transportation Assessment (Fehr & Peers 2023)¹²:
- Construction of a mobility hub at 1st Street;
- Implement/improve on-street bicycle facilities;
- Include bicycle parking per the LAMC;
- Include secure bike parking and showers (end of trip facilities);
- Improve pedestrian network within the project site;
- Use of transit subsidies assuming that 7 percent of employees and residents are eligible and a daily equivalent of \$5.96 is subsidized;
- Implementation of a car-share program; and
- A comprehensive bicycle-share program for the development

⁹ Under the proposed project, 15 percent reduction in CO₂e emissions from PV solar offsets would result in a reduction of 156 MT of CO₂e annually for Scenario A and 165 MT of CO₂e annually for Scenario B.

¹⁰ EV-ready = a vehicle space which is provided with a branch circuit and any necessary raceways to accommodate EV charging stations, including a receptacle for future installation of a charger (see California Green Building Standard Code, Title 24 Part 11 for full explanation of mandatory measures, including exceptions).

¹¹ The inclusion of 321 EV charging spaces would result in a reduction of 6,013 MT of CO₂e annually for Scenario A and 6,035 MT of CO₂e annually for Scenario B. The difference is based on anticipated CO₂e intensity factors for the various years and the years of implementation of the charging stations based on the timing of residential development by phases. Electric use by delivery vehicles is not quantified as this portion of the measure is not specific enough to provide the detail needed to model emissions reductions.

¹² Implementation of these measures would reduce annual VMT by 718,320 (Appendix I of this EIR/EIS). This would reduce GHG emissions from the project by approximately 206 MT of CO₂e.

c. Project Impacts and Mitigation Measures

Threshold 1: Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

Impact GHG-1 THE PROPOSED PROJECT WOULD RESULT IN INCREASED GHG EMISSIONS DURING CONSTRUCTION AND OPERATION. BECAUSE THE PROJECT WOULD BE IN COMPLIANCE WITH LOCAL AND STATE GHG REDUCTION PLANS, ESPECIALLY WITH IMPLEMENTATION OF PDF GHG-1 THROUGH PDF GHG-3, ABOVE, PROJECT IMPACTS ASSOCIATED WITH THE GENERATION OF GHG EMISSIONS WOULD BE LESS THAN SIGNIFICANT.

Construction and operation of the proposed project would generate GHG emissions. This analysis considers the combined impact of GHG emissions from both construction and operation. Calculations of CO₂, CH₄, and N₂O emissions have been conducted to identify the magnitude of potential project effects.

As detailed in the methodology section, the development of the proposed project includes two scenarios (also described in Section 2, *Project Description*) that would involve phasing construction in different ways. Under both Scenarios, the footprint of development would be identical, construction and grading activities would be the same, and the overall buildout of the project site would involve the same types and amounts of land uses. The total GHG emissions from construction activities would be the same for Scenario A and Scenario B and the analysis of construction emissions applies to the proposed project regardless of the scenario.

GHG emissions from operational activities would differ slightly between Scenario A and Scenario B due to the differing amounts of development in each Phase under the two scenarios and the timing of the development. Therefore, operational emissions and total buildout emissions are discussed separately for Scenario A and Scenario B.

Construction Emissions

Project construction would generate temporary GHG emissions primarily from operation of construction equipment on site, as well as from vehicles transporting construction workers to and from the project site and heavy-duty trucks transporting building materials and soil. As shown in Table 4.5-8, construction associated with the proposed project would generate 26,794 MT of CO₂e. Amortized over a 30-year period pursuant to SCAQMD guidance, construction associated with the project would generate 893 MT of CO₂e per year. GHG emissions are cumulative; therefore, total annual emissions include the amortized construction emissions added to operational emissions, which are discussed under "*Operational Emissions*," below, for informational purposes only.

Table 4.5-8 Estimated GHG Emissions during Construction

Construction GHG Emissions (MT of CO ₂ e)					
	327 Harbor Site	OSP Phase 1	OSP Phase 2	OSP Phase 3	Total
2023	178				178
2024	190	2,016			2,207
2025	9	2,420			2,429
2026		1,403			1,403
2027		1,384			1,384
2028		1,572			1,572
2029		1,649			1,649
2030		1,668			1,668
2031			2,454		2,454
2032			1,580		1,580
2033			1,454		1,454
2034			1,688	2,122	3,810
2035			893	1,477	2,370
2036				1,573	1,573
2037				1,065	1,065
Total					26,794
Amortized over 30 years					893

OSP = One San Pedro Specific Plan Site; MT of CO₂e = metric tons of carbon dioxide equivalent
 Source: See Appendix B

Operational Emissions

Operation of the proposed project would generate GHG emissions associated with area sources (e.g., landscape maintenance), energy and water usage, vehicle trips, and wastewater and solid waste generation and removal. The annual operational GHG emissions are combined with the amortized construction emissions to determine overall project GHG emissions.

Annual operational emissions resulting from the project, including reductions from project design features are summarized in Table 4.5-9. The project would generate approximately 2,526 MT of CO₂e per year of net new emissions under Scenario A and 2,415 MT of CO₂e per year of net new emissions under Scenario B. As previously stated, this is provided for informational purposes only and is not used in the environmental impact analysis.

Table 4.5-9 Combined Annual GHG Emissions

Emission Source	Project Emissions (MT of CO ₂ e per year)	
	Scenario A	Scenario B
Area	28	28
Electric ¹	1088	1,148
Mobile	9,670	9,533
Solid Waste	325	326
Water	78	78
Amortized Construction	893	893
PDF GHG-1: PV Solar	(156)	(165)
PDF GHG-2: EV Charging Stations	(6,013)	(6,035)
PDF GHG-3: TDM Measures	(206)	(206)
Operational Emissions	5,634	5,524
Existing Emissions	3,108	3,108
Net Emissions	2,526	2,415

MT of CO₂e = metric tons of carbon dioxide equivalent; () = negative values

¹ Additional regulatory reductions account for the increased RPS requirements which reduces carbon intensity of electricity usage.

Source: Appendix B

As detailed under Impact GHG-2, below, the project would not conflict with local and State GHG reduction plans, and therefore, impacts related to GHG emissions would be less than significant. Quantified project emissions and emission reductions from implementation of the PDFs are provided only for informational purposes.

Mitigation Measures

Impacts would be less than significant. Therefore, no mitigation is required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 2: Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?

Impact GHG-2 IMPLEMENTATION OF THE PROPOSED PROJECT WOULD NOT CONFLICT WITH AN APPLICABLE PLAN, POLICY, OR REGULATION ADOPTED FOR THE PURPOSE OF REDUCING GHG EMISSIONS. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

2022 Scoping Plan

As discussed above, jurisdictions that want to take meaningful climate action aligned with the State’s climate goals in the absence of a CEQA-qualified CAP should look to the three priority areas (transportation electrification, VMT reduction, and building decarbonization). To assist local jurisdictions, the 2022 Scoping Plan Update presents a non-exhaustive list of effective GHG reduction strategies that can be implemented by local governments within the three priority areas. A detailed assessment of goals, plans, and policies implemented by the City which would support the GHG

reduction strategies in the three priority areas is provided below. In addition, further details are provided regarding the correlation between these reduction strategies and applicable actions included above in Table 4.5-6.

Transportation Electrification

The priority GHG reduction strategies for local government climate action related to transportation electrification are discussed below and would support the Scoping Plan action to have 100 percent of all new passenger vehicles to be zero emission by 2035 (see Table 4.5-6).

CONVERT LOCAL GOVERNMENT FLEETS TO ZEVs

CARB approved the Advanced Clean Cars II rule, which codifies Executive Order N-79-20 and requires 100 percent of new cars and light trucks sold in California be ZEVs by 2035. The State has also adopted AB 2127, which requires the CEC to analyze and examine charging needs to support California's EVs in 2030. This report would help decision-makers allocate resources to install new EV chargers where they are needed most.

The City of Los Angeles Green New Deal (Sustainable City pLAN 2019) identifies a number of measures to reduce VMT and associated GHG emissions. Such measures that would support the local reduction strategy include converting all City fleet vehicles to zero emission where technically feasible by 2028. Starting in 2021, all vehicle procurement will follow a "zero emission first" policy for City fleets. The Green New Deal also establishes a target to increase the percentage of zero emission vehicles to 25 percent by 2025, 80 percent by 2035, and 100 percent by 2050. To achieve this goal, the City would build 20 Fast Charging Plazas throughout the city. The City would also install 28,000 publicly available chargers by 2028 to encourage adoption of ZEVs.

The City's goals of converting the municipal fleet to zero emissions and installation of EV chargers throughout the city would be consistent with the Scoping Plan goals of transitioning to EVs. Although this measure mainly applies to City fleets, the proposed project would not conflict with these goals, and would install a minimum of 321 EV chargers, resulting in 15 percent of project parking spaces being serviced by EV stations. Installation of additional EV chargers would encourage adoption of EVs.

CREATE A JURISDICTION-SPECIFIC ZEV ECOSYSTEM TO SUPPORT DEPLOYMENT OF ZEVs STATEWIDE

The State has adopted AB 1236 and AB 970, which require cities to adopt streamline permitting procedures for EV charging stations. As a result, the City has adopted Ordinance No. 186,485 which requires most new construction to designate 30 percent of new parking spaces as capable of supporting future electric vehicle supply equipment (EVSE). This exceeds the 2022 CALGreen Code requirement for 20 percent of new parking spaces to be EV capable. The ordinance also requires new construction to install EVSE at 10 percent of total parking spaces. This requirement also exceeds the 2022 CALGreen Code requirement to install EVSE at 25 percent of EV capable parking spaces or approximately five percent of total parking spaces. Also, Ordinance No. 186,485 has the potential to streamline EV permitting requirements within the city.

The City's goal of installing EV chargers throughout the city would be consistent with the Scoping Plan goals of transitioning to EVs. In addition, the proposed project would comply with Ordinance No. 186,485 by installing EV chargers in at least 15 percent of total proposed parking spaces, which would exceed the 2022 CALGreen Code requirement. The proposed project would also ensure that 40 percent of parking spaces are at least EV ready.

VMT Reduction

The priority GHG reduction strategies for local government climate action related to VMT reduction are discussed below and would support the Scoping Plan action to reduce VMT per capita 25 percent below 2019 levels by 2030 and 30 percent below 2019 levels by 2045. The strategies include the following:

- Reduce or eliminate minimum parking standards in new developments
- Implement parking pricing or transportation demand management pricing strategies

The City of Los Angeles Mobility Plan 2035 contains measures and programs related to VMT reduction throughout the city. With regard to parking standards, Mobility Plan Program No. PK.13 would reduce parking requirements for developments near transit (within 0.5 mile) and allow for individualized parking requirements where businesses can identify parking demand and can reduce on-site parking with TDM strategies. These reduction strategies would serve to reduce minimum parking standards to reduce vehicle trips.

The project would implement PDF GHG-3, which includes measures to reduce VMT, including transit subsidies, public transit and active transportation improvements, bikeshare and rideshare programs, and allowing residents and employees to cash-out the monthly value of their parking space. Therefore, the project would be consistent and not conflict with this reduction strategy to reduce parking standards.

IMPLEMENT COMPLETE STREETS POLICIES AND INVESTMENTS

The City of Los Angeles Mobility Plan 2035 established a “Complete Streets” planning framework which resulted in the City of Los Angeles Complete Streets Design Guide in 2015 consistent with California’s Complete Streets Act of 2008. A supplemental update to the Complete Streets Design Guide was adopted in 2020. The Complete Streets Design Guide provides a number of measures to increase public access to electric shuttles, car sharing, and walking, as well as establishes guidelines for on-street parking for car sharing. The City has also established BlueLA, which is a car sharing network consisting of more than 100 electric vehicles located throughout the city. In addition, under the Green New Deal, the City would install 28,000 publicly available chargers by 2028 and introduce 135 new electric DASH buses.

This reduction strategy mainly applies to City traffic circulation. However, the project would include pedestrian and bicycle network improvements, such as new bicycle lanes and pedestrian paths, a new mobility hub, and on-site bike and carshare programs to encourage alternative modes of transportation. Therefore, the proposed project would not conflict with implementation of Complete Streets policies.

INCREASE ACCESS TO PUBLIC TRANSIT AND CLEAN MOBILITY OPTIONS; AMEND ZONING OR DEVELOPMENT CODES TO ENABLE MIXED-USE, WALKABLE, TRANSIT-ORIENTED, AND COMPACT INFILL DEVELOPMENT; AND PRESERVE NATURAL AND WORKING LANDS

These reduction strategies are supported through implementation of SB 375 which requires integration of planning processes for transportation, land use, and housing, and generally encourages jobs/housing proximity, promotes transit-oriented development (TOD), and encourages high-density residential/commercial development along transit corridors. To implement SB 375 and reduce GHG emissions by correlating land use and transportation planning, SCAG adopted the 2020–2045 RTP/SCS. The 2020–2045 RTP/SCS “Core Vision” prioritizes the maintenance and management of the

region's transportation network, expanding mobility choices by co-locating housing, jobs, and transit, and increasing investment in transit and complete streets. See the 2020-2045 RTP/SCS discussion below for additional discussion of consistency with the 2020-2045 RTP/SCS.

On a local level, the City has developed the Complete Streets Design Guide, which provides a number of reduction strategies to increase public access to electric shuttles, car sharing, and walking. The City has also established BlueLA, which is a car sharing network consisting of more than 100 electric vehicles located throughout the city. In addition, under the Green New Deal, the City would install 28,000 publicly available EV chargers by 2028 and introduce 135 new electric DASH buses.

The project is located on an infill site surrounded by existing urban uses and served by existing utilities and essential public services. The project, a mixed-use development with up to 1,600 multi-family residential units, open space areas, associated access and parking, and up to 130,000 sf of Commercial Retail and Neighborhood Serving Uses, would replace existing housing currently on the OSP Specific Plan Site and the currently vacant 327 Harbor Site. The project site is an infill site within walking and bicycling distance of existing residential, commercial, and recreational uses, would create new mixed uses, and would focus growth near destinations and mobility options, consistent with the strategies contained in the 2020-2045 RTP/SCS and SB 375.

In addition, the project site is serviced by the LADOT and Metro bus lines, including nine bus stops adjacent to or within the project site. The project site would be serviced by the LADOT Dash line, as well as Metro Bus Route 205, 246, and 950, which have average headways of 30 minutes. The project would incorporate at least 321 EV charging spaces. These features would incentivize the use of public transit, active transportation, and fuel-efficient vehicles for traveling to and from the site. In addition, the project site's proximity to a variety of commercial uses and services would encourage employees of the proposed project to walk to nearby destinations to meet their shopping needs, thereby reducing VMT and GHG emissions. Therefore, the proposed project would be consistent with these GHG reduction strategies.

The project involves redevelopment of an infill site and would not include the development of NWL. The OSP Specific Plan Site is currently developed and therefore does not constitute NWL. Although there is currently open space on site, it is not considered a park. The 327 Harbor Site is currently vacant with a few trees and dried grasses. Because it is surrounded by developed land, is not an urban forest, and is not used for agricultural purposes, the site does not constitute NWL lands.

AFFORDABLE HOUSING

California continues to experience a severe housing shortage. The State must plan for more than 2.5 million residential units over the next eight years, and no less than one million of those residential units must be affordable to lower-income households. This represents more than double the housing planned for during the last eight years (California Department of Housing and Community Development 2022). The housing crisis and the climate crisis must be confronted simultaneously, and it is possible to address the housing crisis in a manner that supports the State's climate and regional air quality goals (Elkind et al. 2017). The California Air Pollution Control Officers Association's (CAPCOA) Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity (CAPCOA's Handbook) provides a VMT reduction measurement for incorporation of low-income housing. Measure T-4 (Integrate Affordable and Below Market Rate Housing) shows a 28.6 percent reduction in VMT for low-income units in comparison to market rate units (CAPCOA 2021).

As discussed above, the City's Housing Element of the General Plan provides planning guidance in meeting housing needs identified in the RHNA. The current RHNA goal for affordable housing within the city is approximately 40 percent of new construction. However, the City's projections show affordable housing comprising only 20 percent of new construction, which falls short of the 40 percent RHNA goal. To address this shortfall, the Housing Element identifies measures to encourage development of affordable housing such as revising density bonuses for affordable housing, identifying locations that are ideal for funding programs to meet low-income housing goals, and rezoning areas to encourage low-income housing. The Housing Element estimates that implementation of these measures would increase housing production at all income ranges compared to previous cycles.

While the City's low-income housing goal is applicable on a citywide basis and not applicable to individual projects, the proposed project would increase affordable housing on the project site by 609 units and approximately 68 percent of the housing developed at part of the project would be affordable. This would exceed the RHNA goal of 40 percent affordable housing. Therefore, the proposed project would help address the housing crisis while simultaneously reducing GHG emissions.

Building Decarbonization

The priority GHG reduction strategies for local government climate action related to electrification are discussed below and would support the Scoping Plan actions regarding meeting increased demand for electrification associated with all electric appliances beginning in 2026 (residential) and 2029 (commercial) (see Table 4.5-6).

ADOPT ALL-ELECTRIC NEW CONSTRUCTION REACH CODES FOR RESIDENTIAL AND COMMERCIAL USES

California's transition away from fossil fuel-based energy sources will bring the project's GHG emissions associated with building energy use down to zero as the electricity supply becomes 100 percent carbon free. California has committed to achieving this goal by 2045 through SB 100, the 100 Percent Clean Energy Act of 2018. SB 100 strengthened the State's RPS by requiring that 60 percent of all electricity provided to retail users in California come from renewable sources by 2030 and that 100 percent come from carbon-free sources by 2045. The land use sector will benefit from the RPS because the electricity used in buildings will be increasingly carbon-free but implementation does not depend (directly, at least) on how buildings are designed and built.

The City has adopted an All-Electric Ordinance, effective April 1, 2023, which will reduce GHG emissions related to natural gas combustion. Under this ordinance, all building permit applications for newly constructed buildings will be required to be all-electric with some exceptions, such as cooking appliances within restaurant uses. Space heating, water heating and cooking appliances for non-restaurant uses would be required to be powered by electricity. In future years, the LADWP will be required to increase the amount of renewable energy in the power mix to comply with SB 100 requirements. The combination of the All-Electric Ordinance and increasing availability of renewable energy will serve to reduce GHG emissions from sources traditionally powered by natural gas.

The proposed project would be required to comply with the City's All-Electric Ordinance and would not include natural gas uses in residential, retail, and office uses. The restaurant uses are exempt from the All-Electric Ordinance but would consist of a small portion of the total project square footage. Therefore, the proposed project would be consistent and not conflict with the City's adopted All-Electric Ordinance.

ADOPT POLICIES AND INCENTIVE PROGRAMS TO IMPLEMENT ENERGY-EFFICIENCY RETROFITS

This reduction strategy would support the Scoping Plan action regarding electrification of appliances in existing residential buildings (see Table 4.5-6). The City and LADWP have established rebate programs to promote the use of energy-efficient products and home upgrades. Under LADWP’s Consumer Rebate Program, residential customers can receive rebates for energy-efficient upgrades such as Cool Roofs, EnergyStar Windows, HVAC upgrades, and pool pump and insulation upgrades. Such upgrades would serve to reduce wasteful energy and water usage and associated GHG emissions citywide.

The proposed project would not retrofit any existing buildings and would entail completely new construction. However, the proposed project would include a variety of energy efficiency features, including rooftop solar panels, energy-efficient lighting, HVAC and appliances, and LEED or similar rating system certification. Therefore, the project would not conflict with policies to implement energy efficiency retrofits.

SCAG 2020-2045 RTP/SCS

The SCAG 2020-2045 RTP/SCS includes a commitment to reduce emissions from transportation sources by promoting compact and infill development to comply with SB 375. The proposed mixed-use project would not conflict with any of the SCAG RTP/SCS goals or strategies, as outlined in Table 4.5-10.

Table 4.5-10 Consistency with Applicable SCAG RTP/SCS GHG Emission Reduction Strategies

Strategy/Action	Project Consistency
<p>Focus Growth Near Destinations & Mobility Options.</p> <ul style="list-style-type: none"> ▪ Emphasize land use patterns that facilitate multimodal access to work, educational and other destinations ▪ Focus on a regional jobs/housing balance to reduce commute times and distances and expand job opportunities near transit and along center-focused main streets ▪ Plan for growth near transit investments and support implementation of first/last mile strategies. ▪ Prioritize infill and redevelopment of underutilized land to accommodate new growth, increase amenities and connectivity in existing neighborhoods ▪ Encourage design and transportation options that reduce the reliance on and number of solo car trips (this could include mixed uses or locating and orienting close to existing destinations) 	<p>No Conflict. The project is a mixed-use infill development and would involve the construction of up to 1,600 multi-family residential units, open area, associated access and parking, and up to 130,000 sf of commercial and neighborhood serving retail uses. The proposed project would be within walking and biking distance of existing residential, commercial, and recreational uses. In addition, the project is serviced by LADOT and Metro, including nine bus stops adjacent or within the project site. The project site would be serviced by the LADOT Dash line, as well as Metro Bus Route 205, 246, and 950, which have average headways of 30 minutes. The project would incorporate at least 321 EV charging parking spaces. These features would incentivize the use of public transit, active transportation, and fuel-efficient vehicles for traveling to and from the site. Therefore, the proposed project would focus growth near destinations and mobility options.</p>

Strategy/Action	Project Consistency
<p>Promote Diverse Housing Choices. Preserve and rehabilitate affordable housing and prevent displacement</p>	<p>No Conflict. The project is an infill development and would involve construction of up to 1,600 multi-family units, including affordable rental and ownership units and senior housing, which would increase housing supply and diversity from the existing housing conditions. A net increase of 564 affordable rental units and 45 affordable ownership units would be provided on the project site. Residents of the existing 478 units would have the opportunity to relocate to the new units and no permanent displacement would occur. In addition, the new units would be designed to be more energy efficient and safer than the existing deteriorating buildings.</p>
<p>Leverage Technology Innovations. Promote low emission technologies such as neighborhood electric vehicles, shared rides hailing, car sharing, bike sharing and scooters by providing supportive and safe infrastructure such as dedicated lanes, charging and parking/drop-off space</p>	<p>No Conflict. The project would incorporate all applicable measures of the 2022 CALGreen Code, which are comparable (and more stringent in certain categories) than LEED standards. The project would include solar panels, high efficiency insulation, tankless water heaters, energy efficient light-emitting diode (LED) lighting fixtures, high-efficiency temperature control systems, and water-efficient appliances and fixtures. The majority of the development would be electric only, limiting natural gas use to restaurants and other exempted land uses contained in the All-Electric Ordinance. The project would incorporate at a minimum 321 parking spaces served by EV chargers and would add new bicycle lanes and pedestrian infrastructure to reduce VMT and associated transportation emissions.</p>
<p>Support Implementation of Sustainability Policies. Continue to support long range planning efforts by local jurisdictions</p>	<p>No Conflict. The project would be designed and operated to meet the applicable requirements of the CALGreen Code. The project would be consistent with the latest Title 24 and CALGreen requirements. The project’s water consumption would be minimized through the use of low-flow plumbing fixtures, installation of water-conserving appliances, and use of drought-tolerant, native, and adaptive plants as part of the landscape design. Furthermore, the project would include solar panels consistent with PDF GHG-1 and the residences would be equipped with Energy Star appliances and energy-efficient LED lighting and heating, ventilation, and air conditioning (HVAC) systems. Therefore, the project would support implementation of sustainability policies. Additionally, the project would incorporate a minimum of 321 parking spaces served by EV chargers consistent with PDF GHG-2.</p>
<p>Promote a Green Region.</p> <ul style="list-style-type: none"> ▪ Support development of local climate adaptation and hazard mitigation plans, as well as project implementation that improves community resiliency to climate change and natural hazards ▪ Support local policies for renewable energy production, reduction of urban heat islands and carbon sequestration ▪ Promote more resource efficient development focused on conservation, recycling and reclamation 	<p>No Conflict. The project is a mixed-use infill development and would involve the construction of up to 1,600 residential units, open space areas, associated road and parking, and up to 130,000 sf of commercial and neighborhood serving retail uses. The project would comply with applicable conservation policies such as the City’s General Plan, Title 24, and CALGreen Code, and would include renewable energy production through solar panels, consistent with PDF GHG-1. The project would include landscaped park areas and increase tree canopy along the streetscapes, thereby reducing heat island effects and increasing carbon sequestration. Accordingly, the project would support development of a “green” region.</p>

Source: SCAG 2020

LA Green Plan/L.A.'s Green New Deal/Sustainability pLAn 2019

The City of Los Angeles is implementing the LA Green Plan, L.A.'s Green New Deal, and Sustainability pLAn 2019, which outline the goals and actions that the City has established to reduce the generation and emission of GHGs from public and private activities. The LA Green Plan has the goal of reducing emissions of CO₂e to 35 percent below 1990 levels by the year 2030 and has achieved a 36 percent reduction in emissions by 2020 (City of Los Angeles 2022). To achieve this goal, the City increased and is continuing to further increase the generation of renewable energy, improved energy conservation and efficiency, and changing transportation and land use patterns to reduce dependence on automobiles. Table 4.5-11 summarizes LA Green Plan elements that are potentially relevant to the project, along with an analysis of the project's consistency with them.

Table 4.5-11 Consistency with Green LA/Climate LA Plans

Strategy/Action	Project Consistency
<p>Present a comprehensive set of green building policies to guide and support private sector development. The City embarked on an effort to establish green building requirements, paired with incentives, for medium- to large-private projects. Buildings account for a majority of electricity use. Each building site is a microcosm of the environmental issues faced by the City, so addressing each site in a comprehensive manner will provide a variety of environmental benefits.</p>	<p>No Conflict. The project would incorporate all applicable measures of the 2022 CALGreen Code and Ordinance 187,714, which are comparable (and more stringent in certain categories) than LEED standards. The project would include solar panels consistent with PDF GHG-1, high efficiency insulation, tankless water heaters, energy efficient LED lighting fixtures, high-efficiency temperature control systems, and water-efficient appliances and fixtures. Residential portions of the development would be electric only, limiting natural gas use to restaurants and other uses exempted by Ordinance 187,714. The project would incorporate at a minimum 321 parking spaces served by EV chargers consistent with PDF GHG-2.</p>
<p>A. Meet all additional demand for water resulting from growth through water conservation and recycling.</p> <p>B. Reduce per capita water consumption by 20 percent.</p> <p>The Mayor's Office and LADWP developed the <i>Securing LA's Water Supply</i> plan, which is an aggressive, multi-faceted approach to developing a locally sustainable water supply. The plan includes a set of key short term and long-term strategies to secure our water future, such as:</p> <p>Short-Term Conservation Strategies:</p> <ul style="list-style-type: none"> ▪ Enforcing prohibited uses of water (levying fines and sanctions against water abusers and increase water conservation awareness). ▪ Expanding the list of prohibited uses of water (possible further restrictions on watering landscape and washing/rinsing vehicles without a self-closing nozzle). ▪ Extending outreach efforts, water conservation incentives, and rebates. ▪ Encouraging regional conservation measures (encourage all water agencies in the region to adopt water conservation ordinances which include prohibited uses and enforcement). <p>Long-Term Conservation Strategies:</p> <ul style="list-style-type: none"> ▪ Increasing water conservation through reduction of outdoor water use and new technology. ▪ Maximizing water recycling. 	<p>No Conflict. The project would be required to be compliant with the most current version of the Title 24 requirements which requires reduction in water usage. The project would include high efficiency insulation, tankless water heaters, and water-efficient appliances and fixtures. The project would include native landscaping and drought tolerant species, with low-flow irrigation systems. Low Impact Development BMPs would also be included throughout the project site to enhance stormwater capture.</p>

Strategy/Action	Project Consistency
<ul style="list-style-type: none"> ▪ Enhancing stormwater capture. ▪ Accelerating clean-up of the groundwater basin. ▪ Expanding groundwater storage 	
<p>Promote walking and biking to work, within neighborhoods, and to large events and venues. Promoting alternate modes of travel will reduce the carbon emissions associated with single-occupancy vehicles. The City is promoting high-density and mixed-use housing close to major transportation arteries. Such developments will also support the advancement of Action Item T8, by improving accessibility for those who wish to walk and bike to work.</p>	<p>No Conflict. The project is a mixed-use infill development and would involve the construction of up to 1,600 multi-family residential units, open area, associated access and parking, and up to 130,000 sf of commercial and neighborhood serving retail uses. The proposed project would be within walking and bicycling distance of existing residential, commercial, and recreational uses. The project would include streetscape design improvements such as wider sidewalks, traffic calming features, increased landscaping and street trees, and pathways throughout the site to encourage walking and running. New bicycle lanes and a bicycle hub with lockers, showers, and repair stations would also be added as part of the proposed project. In addition, the project is serviced by Metro and LADOT bus lines, including nine bus stops adjacent or within the project site. The project site would be serviced by the LADOT Dash line, as well as Metro Bus Route 205, 246, and 950, which have average headways of 30 minutes. These features would incentivize the use of public transit and active transportation for traveling to and from the site. Therefore, the proposed project would focus growth near destinations and mobility options.</p>
<p>Promote high-density housing close to major transportation arteries. With 469 square miles, Los Angeles is a vast and sprawling city. Yet many neighborhoods are walkable, with stores and services clustered near dense residential housing. As the city continues to redevelop and grow, there is an unprecedented opportunity to rethink the urban environment. Accommodating continued growth requires taking advantage of infill opportunities and increasing density along transit corridors.</p>	<p>No Conflict. The project is a mixed-use infill development and would involve the construction of 1,600 multi-family residential units. The proposed project would be within walking and biking distance of existing residential, commercial, and recreational uses. In addition, the project is serviced by Metro and LADOT buses, including nine bus stops adjacent or within the project site. The project site would be serviced by the LADOT Dash line, as well as Metro Bus Route 205, 246, and 950, which have average headways of 30 minutes. These features would incentivize the use of public transit, active transportation, and fuel-efficient vehicles for traveling to and from the site.</p>
<p>Promote and implement transit-oriented development (TOD). TODs represent opportunities for creating cohesive, vibrant, walkable communities where fragmented, auto-dependent corridors now exist. TODs are a positive alternative to low-density traditional land use patterns that typically segregate housing, jobs and neighborhood services from one another. In contrast, TODs cluster these community elements in close proximity, so a greater portion of trips can be made by transit, bike, or on foot.</p>	<p>No Conflict. The project is a mixed-use infill development and would involve the construction of 1,600 multi-family residential units, open area, associated road and parking, and up to 130,000 sf of commercial and neighborhood serving retail uses. The proposed project would be within walking and biking distance of existing residential, commercial, and recreational uses. In addition, the project is serviced by the Los Angeles Bus System, including nine bus stops adjacent or within the project site. The project site would be serviced by the LADOT Dash line, as well as Metro Bus Routes 205, 246, and 950. As described above, the project would include pedestrian and bicycle infrastructure improvements throughout the site. These features would incentivize the use of public transit, active transportation, and fuel-efficient vehicles for traveling to and from the site. Therefore, the proposed project would focus growth near destinations and mobility options.</p>

Source: City of Los Angeles 2005 and 2019

As illustrated in the above analysis, the proposed project would be consistent with State and local policies for reducing GHG emissions and impacts would be less than significant.

Mitigation Measures

Impacts would be less than significant. Therefore, no mitigation is required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

4.5.4 Cumulative Impacts

The geographic scope for projects considered in the cumulative impact analysis for GHG emissions is global because impacts of climate change are experienced on a global scale regardless of the location of GHG emission sources. Therefore, GHG emissions and climate change are, by definition, cumulative impacts. Thus, the issue of climate change involves an analysis of whether a project's contribution towards an impact is cumulatively considerable. As discussed under Impacts GHG-1 and GHG-2 above, proposed project impacts related to GHG emissions would be less than significant with the implementation of PDF GHG-1 through PDF GHG-3 as the proposed project would be below the per service population threshold and would be consistent with the State and local plans for reducing GHG emissions. Therefore, the proposed project's contribution to cumulative GHG impacts would not be cumulatively considerable.

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