

5. Environmental Analysis

5.6 GREENHOUSE GAS EMISSIONS

This section of the Draft Environmental Impact Report (DEIR) evaluates the potential for implementation of the Century Villages at Cabrillo Specific Plan (Specific Plan) to cumulatively contribute to greenhouse gas (GHG) emissions impacts. Because no single project is large enough to result in a measurable increase in global concentrations of GHG, climate change impacts of a project are considered on a cumulative basis.

This evaluation is based on the methodology recommended by the South Coast Air Quality Management District (South Coast AQMD). Modeling of GHG emissions was conducted using the California Emissions Estimator Model (CalEEMod), version 2016.3.2. Model outputs are in Appendix C of this DEIR.

Terminology

The following are definitions for terms used throughout this section.

- **Greenhouse gases (GHG).** Gases in the atmosphere that absorb infrared light, thereby retaining heat in the atmosphere and contributing to a greenhouse effect.
- **Global warming potential (GWP).** Metric used to describe how much heat a molecule of a greenhouse gas absorbs relative to a molecule of carbon dioxide (CO₂) over a given period of time (20, 100, and 500 years). CO₂ has a GWP of 1.
- **Carbon dioxide-equivalent (CO₂e).** The standard unit to measure the amount of greenhouse gases in terms of the amount of CO₂ that would cause the same amount of warming. CO₂e is based on the GWP ratios between the various GHGs relative to CO₂.
- **MTCO₂e.** Metric ton of CO₂e.
- **MMTCO₂e.** Million metric tons of CO₂e.

5.6.1 Environmental Setting

5.6.1.1 GREENHOUSE GASES AND CLIMATE CHANGE

Scientists have concluded that human activities are contributing to global climate change by adding large amounts of heat-trapping gases, known as GHGs, to the atmosphere. The primary source of these GHGs is fossil fuel use. The Intergovernmental Panel on Climate Change (IPCC) has identified four major GHGs—water vapor, carbon dioxide (CO₂), methane (CH₄), and ozone (O₃)—that are the likely cause of an increase in global average temperatures observed in the 20th and 21st centuries. Other GHGs identified by the IPCC that contribute to global warming to a lesser extent are nitrous oxide (N₂O), sulfur hexafluoride (SF₆),

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hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons (IPCC 2001).^{1,2} The major GHGs applicable to the Specific Plan are briefly described.

- **Carbon dioxide (CO₂)** enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and respiration, and also as a result of other chemical reactions (e.g., manufacture of cement). Carbon dioxide is removed from the atmosphere (sequestered) when it is absorbed by plants as part of the biological carbon cycle.
- **Methane (CH₄)** is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and from the decay of organic waste in landfills and water treatment facilities.
- **Nitrous oxide (N₂O)** is emitted during agricultural and industrial activities as well as during the combustion of fossil fuels and solid waste.

GHGs are dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. Some GHGs have a stronger greenhouse effect than others. These are referred to as high GWP gases. The GWP of GHG emissions are shown in Table 5.6-1. The GWP is used to convert GHGs to CO₂-equivalence (CO₂e) to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. For example, under IPCC's Fifth Assessment Report (AR5), GWP values for CH₄, 10 MT of CH₄ would be equivalent to 280 MT of CO₂.

Table 5.6-1 GHG Emissions and Their Relative Global Warming Potential Compared to CO₂

GHGs	Carbon Dioxide (CO ₂)	Methane ¹ (CH ₄)	Nitrous Oxide (N ₂ O)
Second Assessment			
Atmospheric Lifetime (Years)	50 to 200	12 (±3)	120
Global Warming Potential Relative to CO ₂ ²	1	21	310
Fourth Assessment			
Atmospheric Lifetime (Years)	50 to 200	12	114
Global Warming Potential Relative to CO ₂ ²	1	25	298
Fifth Assessment			
Atmospheric Lifetime (Years)	50 to 200	12	121
Global Warming Potential Relative to CO ₂ ²	1	28	265

Source: IPCC 1995; IPCC 2007; IPCC 2013.

¹ The methane GWP includes direct effects and indirect effects due to the production of tropospheric ozone and stratospheric water vapor. The indirect effect due to the production of CO₂ is not included.

² Based on 100-year time horizon of the GWP of the air pollutant compared to CO₂.

- ¹ Water vapor (H₂O) is the strongest GHG and the most variable in its phases (vapor, cloud droplets, ice crystals). However, water vapor is not considered a pollutant because it is considered part of the feedback loop rather than a primary cause of change.
- ² Black carbon contributes to climate change both directly, by absorbing sunlight, and indirectly, by depositing on snow (making it melt faster) and by interacting with clouds and affecting cloud formation. Black carbon is the most strongly light-absorbing component of particulate matter (PM) emitted from burning fuels such as coal, diesel, and biomass. Reducing black carbon emissions globally can have immediate economic, climate, and public health benefits. California has been an international leader in reducing emissions of black carbon, with close to 95 percent control expected by 2020 due to existing programs that target reducing PM from diesel engines and burning activities (CARB 2017a). However, state and national GHG inventories do not include black carbon due to ongoing work resolving the precise global warming potential of black carbon. Guidance for CEQA documents does not yet include black carbon.

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California's GHG Sources and Relative Contribution

In 2019, the statewide GHG emissions inventory was updated for 2000 to 2017 emissions using the GWPs in IPCC's AR4.³ Based on these GWPs, California produced 424.10 MMTCO₂e GHG emissions in 2017. California's transportation sector was the single largest generator of GHG emissions, producing 40.1 percent of the state's total emissions. Industrial sector emissions made up 21.1 percent, and electric power generation made up 14.7 percent of the state's emissions inventory. Other major sectors of GHG emissions include commercial and residential (9.7 percent), agriculture and forestry (7.6 percent) high GWP (4.7 percent), and recycling and waste (2.1 percent) (CARB 2019a).

California's GHG emissions have followed a declining trend since 2007. In 2017, emissions from routine GHG emitting activities statewide were 424 MMTCO₂e, 5 MMTCO₂e lower than 2016 levels. This represents an overall decrease of 14 percent since peak levels in 2004 and 7 MMTCO₂e below the 1990 level and the state's 2020 GHG target. During the 2000 to 2017 period, per capita GHG emissions in California have continued to drop from a peak in 2001 of 14.0 MTCO₂e per capita to 10.7 MTCO₂e per capita in 2017, a 24 percent decrease. Overall trends in the inventory also demonstrate that the carbon intensity of California's economy (the amount of carbon pollution per million dollars of gross domestic product (GDP)) is declining, representing a 41 percent decline since the 2001 peak, while the state's GDP has grown 52 percent during this period. For the first time since California started to track GHG emissions, California uses more electricity from zero-GHG sources (hydro, solar, wind, and nuclear energy) (CARB 2019b).

Human Influence on Climate Change

For approximately 1,000 years before the Industrial Revolution, the amount of GHGs in the atmosphere remained relatively constant. During the 20th century, however, scientists observed a rapid change in the climate and the quantity of climate change pollutants in the Earth's atmosphere that is attributable to human activities. The amount of CO₂ in the atmosphere has increased by more than 35 percent since preindustrial times and has increased at an average rate of 1.4 parts per million per year since 1960, mainly due to combustion of fossil fuels and deforestation (IPCC 2007). These recent changes in the quantity and concentration of climate change pollutants far exceed the extremes of the ice ages, and the global mean temperature is warming at a rate that cannot be explained by natural causes alone. Human activities are directly altering the chemical composition of the atmosphere through the buildup of climate change pollutants (CAT 2006). In the past, gradual changes in the earth's temperature changed the distribution of species, availability of water, etc. However, human activities are accelerating this process so that environmental impacts associated with climate change no longer occur in a geologic time frame but within a human lifetime (IPCC 2007).

Like the variability in the projections of the expected increase in global surface temperatures, the environmental consequences of gradual changes in the Earth's temperature are hard to predict. Projections of climate change depend heavily upon future human activity. Therefore, climate models are based on different emission scenarios that account for historical trends in emissions and on observations of the climate record that assess the human influence of the trend and projections for extreme weather events. Climate-change scenarios are affected by

³ Methodology for determining the statewide GHG inventory is not the same as the methodology used to determine statewide GHG emissions under AB 32 (2006).

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varying degrees of uncertainty. For example, there are varying degrees of certainty on the magnitude of the trends for:

- Warmer and fewer cold days and nights over most land areas.
- Warmer and more frequent hot days and nights over most land areas.
- An increase in frequency of warm spells/heat waves over most land areas.
- An increase in frequency of heavy precipitation events (or proportion of total rainfall from heavy falls) over most areas.
- Larger areas affected by drought.
- Intense tropical cyclone activity increases.
- Increased incidence of extreme high sea level (excluding tsunamis).

Potential Climate Change Impacts for California

Observed changes over the last several decades across the western United States reveal clear signs of climate change. Statewide, average temperatures increased by about 1.7°F from 1895 to 2011, and warming has been greatest in the Sierra Nevada (CCCC 2012). The years from 2014 through 2016 have shown unprecedented temperatures with 2014 being the warmest (OEHHA 2018). By 2050, California is projected to warm by approximately 2.7°F above 2000 averages, a threefold increase in the rate of warming over the last century. By 2100, average temperatures could increase by 4.1 to 8.6°F, depending on emissions levels (CCCC 2012).

In California and western North America, observations of the climate have shown: 1) a trend toward warmer winter and spring temperatures; 2) a smaller fraction of precipitation falling as snow; 3) a decrease in the amount of spring snow accumulation in the lower and middle elevation mountain zones; 4) advanced shift in the timing of snowmelt of 5 to 30 days earlier in the spring; and 5) a similar shift (5 to 30 days earlier) in the timing of spring flower blooms (CAT 2006). Overall, California has become drier over time, with five of the eight years of severe to extreme drought occurring between 2007 and 2016, with unprecedented dry years occurring in 2014 and 2015 (OEHHA 2018). Statewide precipitation has become increasingly variable from year to year, with the driest consecutive four years occurring from 2012 to 2015 (OEHHA 2018). According to the California Climate Action Team—a committee of state agency secretaries and the heads of agencies, boards, and departments, led by the Secretary of the California Environmental Protection Agency—even if actions could be taken to immediately curtail climate change emissions, the potency of emissions that have already built up, their long atmospheric lifetimes (see Table 5.6-1), and the inertia of the Earth's climate system could produce as much as 0.6°C (1.1°F) of additional warming. Consequently, some impacts from climate change are now considered unavoidable. Global climate change risks to California are shown in Table 5.6-2, and include impacts to public health, water resources, agriculture, coastal sea level, forest and biological resources, and energy.

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Table 5.6-2 Summary of GHG Emissions Risks to California

Impact Category	Potential Risk
Public Health Impacts	Heat waves will be more frequent, hotter, and longer Fewer extremely cold nights Poor air quality made worse Higher temperatures increase ground-level ozone levels
Water Resources Impacts	Decreasing Sierra Nevada snow pack Challenges in securing adequate water supply Potential reduction in hydropower Loss of winter recreation
Agricultural Impacts	Increasing temperature Increasing threats from pests and pathogens Expanded ranges of agricultural weeds Declining productivity Irregular blooms and harvests
Coastal Sea Level Impacts	Accelerated sea level rise Increasing coastal floods Shrinking beaches Worsened impacts on infrastructure
Forest and Biological Resource Impacts	Increased risk and severity of wildfires Lengthening of the wildfire season Movement of forest areas Conversion of forest to grassland Declining forest productivity Increasing threats from pest and pathogens Shifting vegetation and species distribution Altered timing of migration and mating habits Loss of sensitive or slow-moving species
Energy Demand Impacts	Potential reduction in hydropower Increased energy demand

Sources: CEC 2006; CEC 2009; CCCC 2012; CNRA 2014.

5.6.1.2 MASS EMISSIONS AND HEALTH EFFECTS

On December 24, 2018, in *Sierra Club et al. v. County of Fresno et al.* (Friant Ranch), the California Supreme Court determined that the EIR for the proposed Friant Ranch project failed to adequately analyze the project’s air quality impacts on human health. The EIR prepared for the project, a master planned retirement community in Fresno County, showed that project-related mass emissions would exceed the San Joaquin Valley Air Pollution Control District’s regional significance thresholds. In its findings, the California Supreme Court affirmed the holding of the Court of Appeal that EIRs for projects must not only identify impacts to human health, but also provide an “analysis of the correlation between the project’s emissions and human health impacts” related to each criteria air pollutant that exceeds the regional significance thresholds or explain why it could not make such a connection. In general, the ruling focuses on the correlation of emissions of toxic air contaminants and criteria air pollutants and their impact to human health.

In 2009, the EPA issued an endangerment finding for six GHGs (CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆) in order to regulate GHG emissions from passenger vehicles. The endangerment finding is based on evidence

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that shows an increase in mortality and morbidity associated with increases in average temperatures, which increase the likelihood of heat waves and elevated ozone levels. The effects of climate change are identified in Table 5.7-2. While effects such as sea level rise and extreme weather can indirectly impact human health, neither the EPA nor CARB has established ambient air quality standards for GHG emissions. The state's GHG reduction strategy outlines a path to avoid the most catastrophic effects of climate change. Yet the state's GHG reduction goals and strategies are based on the state's path toward reducing statewide cumulative GHGs as outlined in AB 32, SB 32, and Executive Order S-03-05. As described further below, the two significance thresholds that the City uses to analyze GHG impacts are based on achieving those statewide GHG reduction goals. Further, because no single project is large enough to result in a measurable increase in global concentration of GHG emissions, climate change impacts of a project are considered on a cumulative basis. Without federal ambient air quality standards for GHG emissions and given the cumulative nature of GHG emissions and the City's significance thresholds that are tied to reducing the state's cumulative GHG emissions, it is not feasible at this time to connect the project's specific GHG emission to the potential health impacts of climate change.

5.6.1.3 REGULATORY BACKGROUND

This section describes the federal, state, and local regulations applicable to GHG emissions.

Federal

The US Environmental Protection Agency (EPA) announced on December 7, 2009, that GHG emissions threaten the public health and welfare of the American people and that GHG emissions from on-road vehicles contribute to that threat. The EPA's final findings respond to the 2007 US Supreme Court decision that GHG emissions fit within the Clean Air Act definition of air pollutants. The findings did not themselves impose any emission reduction requirements but allowed the EPA to finalize the GHG standards proposed in 2009 for new light-duty vehicles as part of the joint rulemaking with the Department of Transportation (USEPA 2009).

To regulate GHGs from passenger vehicles, EPA was required to issue an endangerment finding. The finding identifies emissions of six key GHGs—CO₂, CH₄, N₂O, hydrofluorocarbons, perfluorocarbons, and SF₆—that have been the subject of scrutiny and intense analysis for decades by scientists in the United States and around the world. The first three are applicable to the Specific Plan's GHG emissions inventory because they constitute the majority of GHG emissions; they are the GHG emissions that should be evaluated as part of a project's GHG emissions inventory.

US Mandatory Reporting Rule for GHGs (2009)

In response to the endangerment finding, the EPA issued the Mandatory Reporting of GHG Rule that requires substantial emitters of GHG emissions (large stationary sources, etc.) to report GHG emissions data. Facilities that emit 25,000 MTCO₂e or more per year are required to submit an annual report.

Update to Corporate Average Fuel Economy Standards (2021 to 2026)

The federal government issued new Corporate Average Fuel Economy (CAFE) standards in 2012 for model years 2017 to 2025, which required a fleet average of 54.5 miles per gallon in 2025. However, on March 30,

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2020, the EPA finalized an updated CAFE and GHG emissions standards for passenger cars and light trucks and established new standards, covering model years 2021 through 2026, known as the Safer Affordable Fuel Efficient (SAFE) Vehicles Final Rule for Model Years 2021-2026. Under SAFE, the fuel economy standards will increase 1.5 percent per year compared to the 5 percent per year under the CAFE standards established in 2012. However, consortium of automakers and California have agreed on a voluntary framework to reduce emissions that can serve as an alternative path forward for clean vehicle standards nationwide. Automakers who agreed to the framework are Ford, Honda, BMW of North America, and Volkswagen Group of America. The framework supports continued annual reductions of vehicle greenhouse gas emissions through the 2026 model year, encourages innovation to accelerate the transition to electric vehicles, and provides industry the certainty needed to make investments and create jobs. This commitment means that the auto companies party to the voluntary agreement will only sell cars in the United States that meet the CAFE standards established in 2012 for model years 2017 to 2025 (CARB 2019c).

EPA Regulation of Stationary Sources under the Clean Air Act (Ongoing)

Pursuant to its authority under the Clean Air Act, the EPA has been developing regulations for new, large stationary sources of emissions such as power plants and refineries. Under former President Obama's 2013 Climate Action Plan, the EPA was directed to develop regulations for existing stationary sources as well. On June 19, 2019, the EPA issued the final Affordable Clean Energy (ACE) rule which became effective on August 19, 2019. The ACE rule was crafted under the direction of President Trump's Energy Independence Executive Order. It officially rescinds the Clean Power Plan rule issued during the Obama Administration and sets emissions guidelines for states in developing plans to limit CO₂ emissions from coal-fired power plants.

State

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in Executive Orders S-03-05 and B-30-15, Assembly Bill (AB) 32, Senate Bill (SB) 32, and SB 375.

Executive Order S-03-05

Executive Order S-03-05, signed June 1, 2005, set the following GHG reduction targets for the state:

- 2000 levels by 2010
- 1990 levels by 2020
- 80 percent below 1990 levels by 2050

Assembly Bill 32, the Global Warming Solutions Act (2006)

State of California guidance and targets for reductions in GHG emissions are generally embodied in the Global Warming Solutions Act, adopted with passage of AB 32. AB 32 was passed by the California state legislature on August 31, 2006, to place the state on a course toward reducing its contribution of GHG emissions. AB 32 follows the 2020 emissions reduction goal established in Executive Order S-03-05.

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CARB 2008 Scoping Plan

The first Scoping Plan was adopted by CARB on December 11, 2008. The 2008 Scoping Plan identified that GHG emissions in California are anticipated to be 596 MMTCO_{2e} in 2020. In December 2007, CARB approved a 2020 emissions limit of 427 MMTCO_{2e} (471 million tons) for the state (CARB 2008). To effectively implement the emissions cap, AB 32 directed CARB to establish a mandatory reporting system to track and monitor GHG emissions levels for large stationary sources that generate more than 25,000 MTTCO_{2e} per year, prepare a plan demonstrating how the 2020 deadline can be met, and develop appropriate regulations and programs to implement the plan by 2012.

First Update to the Scoping Plan (2014)

CARB completed a five-year update to the 2008 Scoping Plan, as required by AB 32. The First Update to the Scoping Plan, adopted May 22, 2014, highlights California's progress toward meeting the near-term 2020 GHG emission reduction goals defined in the 2008 Scoping Plan. As part of the update, CARB recalculated the 1990 GHG emission levels with the updated AR4 GWPs, and the 427 MMTCO_{2e} 1990 emissions level and 2020 GHG emissions limit, established in response to AB 32, are slightly higher at 431 MMTCO_{2e} (CARB 2014).

As identified in the First Update to the Scoping Plan, California is on track to meet the goals of AB 32. The update also addresses the state's longer-term GHG goals in a post-2020 element. The post-2020 element provides a high-level view of a long-term strategy for meeting the 2050 GHG goal, including a recommendation for the state to adopt a midterm target. According to the First Update to the Scoping Plan, local government reduction targets should chart a reduction trajectory that is consistent with or exceeds the trajectory created by statewide goals (CARB 2014). CARB identified that reducing emissions to 80 percent below 1990 levels will require a fundamental shift to efficient, clean energy in every sector of the economy. Progressing toward California's 2050 climate targets will require significant acceleration of GHG reduction rates. Emissions from 2020 to 2050 will have to decline several times faster than the rate needed to reach the 2020 emissions limit (CARB 2014).

Executive Order B-30-15

Executive Order B-30-15, signed April 29, 2015, sets a goal of reducing GHG emissions in the state to 40 percent below 1990 levels by year 2030. Executive Order B-30-15 also directs CARB to update the Scoping Plan to quantify the 2030 GHG reduction goal for the state and requires state agencies to implement measures to meet the interim 2030 goal as well as the long-term goal for 2050 in Executive Order S-03-05. It also requires the Natural Resources Agency to conduct triennial updates of the California adaptation strategy, Safeguarding California, in order to ensure climate change is accounted for in state planning and investment decisions.

Senate Bill 32 and Assembly Bill 197

In September 2016, Governor Brown signed SB 32 and AB 197, making the Executive Order goal for year 2030 into a statewide, mandated legislative target. AB 197 established a joint legislative committee on climate change policies and requires the CARB to prioritize direction emissions reductions rather than the market-based cap-and-trade program for large stationary, mobile, and other sources.

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Second Update to the Scoping Plan (2017)

Executive Order B-30-15 and SB 32 required CARB to prepare another update to the Scoping Plan to address the 2030 target for the state. On December 24, 2017, CARB approved the 2017 Climate Change Scoping Plan Update, which outlines potential regulations and programs, including strategies consistent with AB 197 requirements, to achieve the 2030 target. The 2017 Scoping Plan establishes a new emissions limit of 260 MMTCO₂e for the year 2030, which corresponds to a 40 percent decrease in 1990 levels by 2030 (CARB 2017b).

California's climate strategy will require contributions from all sectors of the economy, including enhanced focus on zero- and near-zero emission vehicle technologies; continued investment in renewables such as solar roofs, wind, and other types of distributed generation; greater use of low carbon fuels; integrated land conservation and development strategies; coordinated efforts to reduce emissions of short-lived climate pollutants (methane, black carbon, and fluorinated gases); and an increased focus on integrated land use planning to support livable, transit-connected communities and conserve agricultural and other lands. Requirements for GHG reductions at stationary sources complement local air pollution control efforts by the local air districts to tighten emissions limits for criteria air pollutants and toxic air contaminants on a broad spectrum of industrial sources. Major elements of the 2017 Scoping Plan framework include:

- Implementing and/or increasing the standards of the Mobile Source Strategy, which include increasing zero-emission (ZE) buses and trucks.
- Low Carbon Fuel Standard (LCFS), with an increased stringency (18 percent by 2030).
- Implementation of SB 350, which expands the Renewables Portfolio Standard (RPS) to 50 percent RPS and doubles energy efficiency savings by 2030.
- California Sustainable Freight Action Plan, which improves freight system efficiency by 25 percent by 2030 and utilizes near-zero emissions technology and deployment of ZE trucks.
- Implementing the proposed Short-Lived Climate Pollutant Strategy, which focuses on reducing methane and hydrofluorocarbon emissions by 40 percent and anthropogenic black carbon emissions by 50 percent by year 2030.
- Post-2020 Cap-and-Trade Program that includes declining caps.
- Continued implementation of SB 375.
- Development of a Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

In addition to these statewide strategies, the 2017 Climate Change Scoping Plan also identified local governments as essential partners in achieving the state's long-term GHG reduction goals and recommended local actions to reduce GHG emissions—for example, statewide targets of no more than 6 MTCO₂e or less per capita by 2030 and 2 MTCO₂e or less per capita by 2050. CARB recommends that local governments

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evaluate and adopt quantitative, locally appropriate goals that align with the statewide per capita targets and sustainable development objectives, and develop plans to achieve the local goals. The statewide per capita goals were developed by applying the percent reductions necessary to reach the 2030 and 2050 climate goals (i.e., 40 percent and 80 percent, respectively) to the state’s 1990 emissions limit established under AB 32. For CEQA projects, CARB states that lead agencies have discretion to develop evidenced-based numeric thresholds (mass emissions, per capita, or per service population) consistent with the Scoping Plan and the state’s long-term GHG goals. To the degree a project relies on GHG mitigation measures, CARB recommends that lead agencies prioritize on-site design features that reduce emissions, especially from vehicle miles traveled (VMT), and direct investments in GHG reductions within the project’s region that contribute potential air quality, health, and economic co-benefits. Where further project design or regional investments are infeasible or not proven to be effective, CARB recommends mitigating potential GHG impacts through purchasing and retiring carbon credits.

The Scoping Plan scenario is set against what is called the “business as usual” yardstick—that is, what would the GHG emissions look like if the state did nothing at all beyond the policies that are already required and in place to achieve the 2020 limit, as shown in Table 5.6-3. It includes the existing renewables requirements, advanced clean cars, the “10 percent” LCFS, and the SB 375 program for more vibrant communities, among others. However, it does not include a range of new policies or measures that have been developed or put into statute over the past two years. Also shown in the table, the known commitments are expected to result in emissions that are 60 MMTCO_{2e} above the target in 2030. If the estimated GHG reductions from the known commitments are not realized due to delays in implementation or technology deployment, the post-2020 Cap-and-Trade Program would deliver the additional GHG reductions in the sectors it covers to ensure the 2030 target is achieved.

Table 5.6-3 2017 Climate Change Scoping Plan Emissions Reductions Gap

Modeling Scenario	2030 GHG Emissions MMTCo _{2e}
Reference Scenario (Business-as-Usual)	389
With Known Commitments	320
2030 GHG Target	260
Gap to 2030 Target	60

Source: CARB 2017b.

Table 5.6-4 provides estimated GHG emissions compared to 1990 levels, and the range of GHG emissions for each sector estimated for 2030.

Table 5.6-4 2017 Climate Change Scoping Plan Emissions Change by Sector

Scoping Plan Sector	1990 MMTCo _{2e}	2030 Proposed Plan Ranges MMTCo _{2e}	% Change from 1990
Agricultural	26	24 to 25	-8% to -4%
Residential and Commercial	44	38 to 40	-14% to -9%
Electric Power	108	30 to 53	-72% to -51%
High GWP	3	8 to 11	267% to 367%
Industrial	98	83 to 90	-15% to -8%

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Table 5.6-4 2017 Climate Change Scoping Plan Emissions Change by Sector

Scoping Plan Sector	1990 MMTCO _{2e}	2030 Proposed Plan Ranges MMTCO _{2e}	% Change from 1990
Recycling and Waste	7	8 to 9	14% to 29%
Transportation (including TCU)	152	103 to 111	-32% to -27%
Net Sink ¹	-7	TBD	TBD
Sub Total	431	294 to 339	-32% to -21%
Cap-and-Trade Program	NA	34 to 79	NA
Total	431	260	-40%

Source: CARB 2017b.

Notes: TCU = Transportation, Communications, and Utilities; TBD = To Be Determined.

¹ Work underway through 2017 was used to estimate the range of potential sequestration benefits from the natural and working lands sector.

Senate Bill 375

In 2008, SB 375, the Sustainable Communities and Climate Protection Act, was adopted to connect the GHG emissions reductions targets established in the 2008 Scoping Plan for the transportation sector to local land use decisions that affect travel behavior. Its intent is to reduce GHG emissions from light-duty trucks and automobiles (excludes emissions associated with goods movement) by aligning regional long-range transportation plans, investments, and housing allocations to local land use planning to reduce VMT and vehicle trips. Specifically, SB 375 required CARB to establish GHG emissions reduction targets for each of the 18 metropolitan planning organizations (MPOs). The Southern California Association of Governments (SCAG) is the MPO for the Southern California region, which includes the counties of Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial.

Pursuant to the recommendations of the Regional Transportation Advisory Committee, CARB adopted per capita reduction targets for each of the MPOs rather than a total magnitude reduction target. SCAG's targets are an 8 percent per capita reduction from 2005 GHG emission levels by 2020 and a 13 percent per capita reduction from 2005 GHG emission levels by 2035 (CARB 2010). The 2020 targets are smaller than the 2035 targets because a significant portion of the built environment in 2020 has been defined by decisions that have already been made. In general, the 2020 scenarios reflect that more time is needed for large land use and transportation infrastructure changes. Most of the reductions in the interim are anticipated to come from improving the efficiency of the region's transportation network. The targets would result in 3 MMTCO_{2e} of reductions by 2020 and 15 MMTCO_{2e} of reductions by 2035. Based on these reductions, the passenger vehicle target in CARB's Scoping Plan (for AB 32) would be met (CARB 2010).

2017 Update to the SB 375 Targets

CARB is required to update the targets for the MPOs every eight years. In June 2017, CARB released updated targets and technical methodology and recently released another update in February 2018. The updated targets consider the need to further reduce VMT, as identified in the 2017 Scoping Plan Update, while balancing the need for additional and more flexible revenue sources to incentivize positive planning and action toward sustainable communities. Like the 2010 targets, the updated SB 375 targets are in units of percent per capita reduction in GHG emissions from automobiles and light trucks relative to 2005. This excludes reductions anticipated from implementation of state technology and fuels strategies and any potential future state strategies

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such as statewide road user pricing. The proposed targets call for greater per capita GHG emission reductions from SB 375 than are currently in place, which for 2035, translate into proposed targets that either match or exceed the emission reduction levels in the MPOs' currently adopted sustainable communities strategies (SCS). As proposed, CARB staff's proposed targets would result in an additional reduction of over 8 MMTCO_{2e} in 2035 compared to the current targets. For the next round of SCS updates, CARB's updated targets for the SCAG region are an 8 percent per capita GHG reduction in 2020 from 2005 levels (unchanged from the 2010 target) and a 19 percent per capita GHG reduction in 2035 from 2005 levels (compared to the 2010 target of 13 percent) (CARB 2018). CARB adopted the updated targets and methodology on March 22, 2018. All SCSs adopted after October 1, 2018, are subject to these new targets.

SCAG's Regional Transportation Plan / Sustainable Communities Strategy

SB 375 requires each MPO to prepare a sustainable communities strategy in its regional transportation plan. For the SCAG region, the 2020-2045 Regional Transportation Plan / Sustainable Communities Strategy (RTP/SCS) (Connect SoCal) was adopted on September 3, 2020, and is an update to the 2016-2040 RTP/SCS (SCAG 2020). In general, the RTP/SCS outlines a development pattern for the region that, when integrated with the transportation network and other transportation measures and policies, would reduce vehicle miles traveled from automobiles and light duty trucks and thereby reduce GHG emissions from these sources.

Connect SoCal focuses on the continued efforts of the previous RTP/SCSs to integrate transportation and land uses strategies in development of the SCAG region through horizon year 2045 (SCAG 2020). Connect SoCal forecasts that the SCAG region will meet its GHG per capita reduction targets of 8 percent by 2020 and 19 percent by 2035. Additionally, Connect SoCal also forecasts that implementation of the plan will reduce VMT per capita in year 2045 by 4.1 percent compared to baseline conditions for that year. Connect SoCal includes a "Core Vision" that centers on maintaining and better managing the transportation network for moving people and goods while expanding mobility choices by locating housing, jobs, and transit closer together, and increasing investments in transit and complete streets (SCAG 2020).

Transportation Sector Specific Regulations

Assembly Bill 1493

California vehicle GHG emission standards were enacted under AB 1493 (Pavley I). Pavley I is a clean-car standard that reduces GHG emissions from new passenger vehicles (light-duty auto to medium-duty vehicles) from 2009 through 2016 and is anticipated to reduce GHG emissions from new passenger vehicles by 30 percent in 2016. California implements the Pavley I standards through a waiver granted to California by the EPA. In 2012, the EPA issued a Final Rulemaking that sets even more stringent fuel economy and GHG emissions standards for model years 2017 through 2025 light-duty vehicles (see also the discussion on the update to the Corporate Average Fuel Economy standards under *Federal Laws*, above). In January 2012, CARB approved the Advanced Clean Cars program (formerly known as Pavley II) for model years 2017 through 2025. The program combines the control of smog, soot, and global warming gases with requirements for greater numbers of ZE vehicles into a single package of standards. Under California's Advanced Clean Car program, by 2025 new automobiles will emit 34 percent less global warming gases and 75 percent less smog-forming emissions.

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Executive Order S-01-07

On January 18, 2007, the state set a new LCFS for transportation fuels sold in the state. Executive Order S-01-07 sets a declining standard for GHG emissions measured in CO₂e gram per unit of fuel energy sold in California. The LCFS requires a reduction of 2.5 percent in the carbon intensity of California's transportation fuels by 2015 and a reduction of at least 10 percent by 2020. The standard applies to refiners, blenders, producers, and importers of transportation fuels, and would use market-based mechanisms to allow these providers to choose how they reduce emissions during the "fuel cycle" using the most economically feasible methods.

Executive Order B-16-2012

On March 23, 2012, the state identified that CARB, the California Energy Commission (CEC), the Public Utilities Commission, and other relevant agencies worked with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to accommodate ZE vehicles in major metropolitan areas, including infrastructure to support them (e.g., electric vehicle charging stations). The executive order also directed the number of ZE vehicles in California's state vehicle fleet to increase through the normal course of fleet replacement so that at least 10 percent of fleet purchases of light-duty vehicles are ZE by 2015 and at least 25 percent by 2020. The executive order also establishes a target for the transportation sector of reducing GHG emissions 80 percent below 1990 levels.

Senate Bill 743

SB 743 was enacted in 2013, with the intent to "more appropriately balance the needs of congestion management with statewide goals related to infill development, promotion of public health through active transportation, and reduction of greenhouse gas emissions." When implemented, "traffic congestion shall not be considered a significant impact on the environment" within CEQA transportation analysis. OPR was charged with developing new guidelines for evaluating transportation impacts under CEQA using methods that no longer focus on measuring automobile delay and level of service (LOS). OPR issued updates to the CEQA guidelines in support of these goals and a supporting technical advisory. The updates establish vehicle miles travelled (VMT) as the primary metric for evaluating a project's environmental impacts on the transportation system, replacing LOS standards. The changes to CEQA guidelines Section 15064.3 to implement SB 743 were certified by the State in December of 2018. In July 2020, the City of Long Beach adopted new Traffic Impact Analysis (TIA) Guidelines which identify VMT as the metric for CEQA transportation analysis.

Renewables Portfolio: Carbon Neutrality Regulations

Senate Bills 1078, 107, and X1-2 and Executive Order S-14-08

A major component of California's Renewable Energy Program is the renewables portfolio standard established under Senate Bills 1078 (Sher) and 107 (Simitian). Under the RPS, certain retail sellers of electricity were required to increase the amount of renewable energy each year by at least 1 percent in order to reach at least 20 percent by December 30, 2010. Executive Order S-14-08, signed in November 2008, expanded the state's renewable energy standard to 33 percent renewable power by 2020. This standard was adopted by the legislature in 2011 (SB X1-2). Renewable sources of electricity include wind, small hydropower, solar,

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geothermal, biomass, and biogas. The increase in renewable sources for electricity production will decrease indirect GHG emissions from development projects because electricity production from renewable sources is generally considered carbon neutral.

Senate Bill 350

Senate Bill 350 (de Leon) was signed into law September 2015 and establishes tiered increases to the RPS—40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. SB 350 also set a new goal to double the energy-efficiency savings in electricity and natural gas through energy efficiency and conservation measures.

Senate Bill 100

On September 10, 2018, Governor Brown signed SB 100. Under SB 100, the RPS for public-owned facilities and retail sellers consist of 44 percent renewable energy by 2024, 52 percent by 2027, and 60 percent by 2030. Additionally, SB 100 also established a new RPS requirement of 50 percent by 2026. Furthermore, the bill establishes an overall state policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045. Under the bill, the state cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target.

Executive Order B-55-18

Executive Order B-55-18, signed September 10, 2018, sets a goal “to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter.” Executive Order B-55-18 directs CARB to work with relevant state agencies to ensure future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal. The goal of carbon neutrality by 2045 is in addition to other statewide goals, meaning not only should emissions be reduced to 80 percent below 1990 levels by 2050, but that, by no later than 2045, the remaining emissions be offset by equivalent net removals of CO_{2e} from the atmosphere, including through sequestration in forests, soils, and other natural landscapes.

Energy Efficiency Regulations

California Building Code: Building Energy Efficiency Standards

Energy conservation standards for new residential and nonresidential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the CEC) in June 1977 and most recently revised in 2019 (Title 24, Part 6, of the California Code of Regulations [CCR]). Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. The 2019 Building Energy Efficiency Standards, which were adopted on May 9, 2018, went into effect starting January 1, 2020.

The 2019 standards move toward cutting energy use in new homes by more than 50 percent and require installation of solar photovoltaic systems for single-family homes and multifamily buildings of three stories and less. The 2019 standards focus on four key areas: 1) smart residential photovoltaic systems; 2) updated

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thermal envelope standards (preventing heat transfer from the interior to exterior and vice versa); 3) residential and nonresidential ventilation requirements; 4) and nonresidential lighting requirements (CEC 2018a). Under the 2019 standards, nonresidential buildings are 30 percent more energy efficient compared to the 2016 standards, and single-family homes are 7 percent more energy efficient (CEC 2018b). When accounting for the electricity generated by the solar photovoltaic system, single-family homes would use 53 percent less energy compared to homes built to the 2016 standards (CEC 2018b).

California Building Code: CALGreen

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (24 CCR, Part 11, known as "CALGreen") was adopted as part of the California Building Standards Code. CALGreen established planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants.⁴ The mandatory provisions of the California Green Building Code Standards became effective January 1, 2011, and were last updated in 2019. The 2019 CALGreen standards became effective January 1, 2020.

2006 Appliance Efficiency Regulations

The 2006 Appliance Efficiency Regulations (20 CCR §§ 1601–1608) were adopted by the CEC on October 11, 2006 and approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and non–federally regulated appliances. Though these regulations are now often viewed as "business as usual," they exceed the standards imposed by all other states, and they reduce GHG emissions by reducing energy demand.

Solid Waste Diversion Regulations

AB 939: Integrated Waste Management Act of 1989

California's Integrated Waste Management Act of 1989 (AB 939, Public Resources Code §§ 40050 et seq.) set a requirement for cities and counties throughout the state to divert 50 percent of all solid waste from landfills by January 1, 2000, through source reduction, recycling, and composting. In 2008, the requirements were modified to reflect a per capita requirement rather than tonnage. To help achieve this, the act requires that each city and county prepare and submit a source reduction and recycling element. AB 939 also established the goal for all California counties to provide at least 15 years of ongoing landfill capacity.

AB 341

AB 341 (Chapter 476, Statutes of 2011) increased the statewide goal for waste diversion to 75 percent by 2020 and requires recycling of waste from commercial and multifamily residential land uses. Section 5.408 of CALGreen also requires that at least 65 percent of the nonhazardous construction and demolition waste from nonresidential construction operations be recycled and/or salvaged for reuse.

⁴ The green building standards became mandatory in the 2010 edition of the code.

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AB 1327

The California Solid Waste Reuse and Recycling Access Act (AB 1327, Public Resources Code §§ 42900 et seq.) requires areas to be set aside for collecting and loading recyclable materials in development projects. The act required the California Integrated Waste Management Board to develop a model ordinance for adoption by any local agency requiring adequate areas for collection and loading of recyclable materials as part of development projects. Local agencies are required to adopt the model or an ordinance of their own.

AB 1826

In October of 2014, Governor Brown signed AB 1826 requiring businesses to recycle their organic waste on and after April 1, 2016, depending on the amount of waste they generate per week. This law also requires that on and after January 1, 2016, local jurisdictions across the state implement an organic waste recycling program to divert organic waste generated by businesses and multifamily residential dwellings with five or more units. Organic waste means food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed with food waste.

Water Efficiency Regulations

SBX7-7

The 20x2020 Water Conservation Plan was issued by the Department of Water Resources (DWR) in 2010 pursuant to Senate Bill 7, which was adopted during the 7th Extraordinary Session of 2009–2010 and therefore dubbed “SBX7-7.” SBX7-7 mandated urban water conservation and authorized the DWR to prepare a plan implementing urban water conservation requirements (20x2020 Water Conservation Plan). In addition, it required agricultural water providers to prepare agricultural water management plans, measure water deliveries to customers, and implement other efficiency measures. SBX7-7 requires urban water providers to adopt a water conservation target of 20 percent reduction in urban per capita water use by 2020 compared to 2005 baseline use.

AB 1881, Water Conservation in Landscaping Act

The Water Conservation in Landscaping Act of 2006 (AB 1881) requires local agencies to adopt the updated DWR model ordinance or an equivalent. AB 1881 also requires the CEC to consult with the DWR to adopt, by regulation, performance standards and labeling requirements for landscape irrigation equipment, including irrigation controllers, moisture sensors, emission devices, and valves to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy or water.

Short-Lived Climate Pollutant Reduction Strategy

Senate Bill 1383

On September 19, 2016, the Governor signed SB 1383 to supplement the GHG reduction strategies in the Scoping Plan to consider short-lived climate pollutants, including black carbon and CH₄. Black carbon is the light-absorbing component of fine particulate matter produced during incomplete combustion of fuels. SB 1383 required the state board, no later than January 1, 2018, to approve and begin implementing a comprehensive strategy to reduce emissions of short-lived climate pollutants to achieve a reduction in methane

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by 40 percent, hydrofluorocarbon gases by 40 percent, and anthropogenic black carbon by 50 percent below 2013 levels by 2030. The bill also established targets for reducing organic waste in landfills. On March 14, 2017, CARB adopted the Short-Lived Climate Pollutant Reduction Strategy, which identifies the state's approach to reducing anthropogenic and biogenic sources of short-lived climate pollutants. Anthropogenic sources of black carbon include on- and off-road transportation, residential wood burning, fuel combustion (charbroiling), and industrial processes. According to CARB, ambient levels of black carbon in California are 90 percent lower than in the early 1960s, despite the tripling of diesel fuel use (CARB 2017a). In-use on-road rules are expected to reduce black carbon emissions from on-road sources by 80 percent between 2000 and 2020.

Local

City of Long Beach Sustainable City Action Plan

The City of Long Beach adopted the Sustainable City Action Plan in February 2010 (Long Beach 2010). The Sustainable City Action Plan is meant to guide the City's future operational and policy decisions and it sets out the environmental and sustainability goals listed below. The Sustainable City Action Plan will be superseded by the City's Climate Action and Adoption Plan (CAAP) once it is adopted, which is expected in Fall of 2021. A description of the CAAP is provided below.

- 100% of major city facilities are LEED certified (or equivalent) by 2020.
- At least 5 million square feet of privately developed LEED certified (or equivalent) green buildings by 2020.
- Double the number of LEED accredited professionals (or equivalent) in the City and community by 2012.
- 100% of city-owned vacant lots are utilized with interim green uses by 2012.
- Create at least 6 new community gardens by 2012.
- Plant at least 10,000 new trees in Long Beach by 2020.
- 100% of suitable alley and parking lot projects use permeable pavement by 2020.
- 50% of Long Beach residents work in Long Beach by 2020.
- At least 60,000 residents in the downtown by 2020.
- By 2020, at least 30% of Long Beach residents use alternative transportation to get to work.
- Reduce greenhouse gas emissions from City facilities and operations by 15% by 2020.
- Reduce electricity use in City operations by 25% by 2020.
- Reduce natural gas use in City operations by 15% by 2020.

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- Facilitate the development of at least 2 Megawatts of solar energy on city facilities by 2020.
- Reduce community electricity use by 15% by 2020.
- Reduce community natural gas use by 10% by 2020.
- Facilitate the development of at least 8 Megawatts of solar energy within the community (private rooftops) by 2020.
- Identify and develop at least 2,000 green collar jobs in Long Beach by 2012.
- Enroll 100 green businesses in the Long Beach Green Business Certification Program by 2012.
- Target half of the business grants/loans for green business development by 2012.
- Increase City green spending to 100% by 2020.
- Annual increase in participation in citywide green events.
- Increase the average fuel efficiency of the gasoline-powered City fleet to 35 mpg by 2020.
- 100% of the City fleet is alternative fuel and/or low emission by 2020.
- Reduce vehicle emissions by 30% by 2020.
- Increase public transit ridership by 25% by 2016.
- Increase city employee average vehicle ridership to 1.5 by 2012.
- 100% of taxi cab fleets are alternative fuel and/or low emissions by 2016.
- Increase bike ridership from 1% to 10% by 2016.
- Create a system of at least 200 miles of interconnected bike routes (Class 1-3) by 2020.
- Reduce future port-related emissions by 47% reduction in DPM, 45% reduction in NO_x, and 52% reduction in SO_x from OGV, CHE & HDV source categories by 2011.
- Create 8 acres of open space per 1,000 residents by 2020.
- Create 100 miles of green linkages by 2020.
- Establish one or more Natural Centers along the L.A. River by 2016.
- Establish a native landscape demonstration in every park 1 acre or larger by 2020.
- Establish a community garden in every park 5 acres or larger by 2020.

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- 1,200 front yards converted to native or edible landscape by 2016.
- Train 500 Habitat Stewards by 2016.
- Annual increase of youth who are trained as Long Beach Bioneers.
- Annual reduction in average pounds of solid waste generated per person per day.
- Increase the number of students participating in Traveling Recycling Education Center to 2,000 per year by 2016.
- Attract and retain to total of 20 RMDZ manufacturing companies by 2020.
- Reduce per capita use of potable water, exceeding the State mandate to achieve a demand reduction of 20% in per capita water use by the year 2020.
- Facilitate the installation of rain catchment systems at 5 City facilities by 2012.
- Facilitate the development of 50 green roofs communitywide by 2016.

City of Long Beach Climate Action and Adaptation Plan (CAAP)

The City of Long Beach released its CAAP on December 10, 2020 with adoption anticipated for Fall 2021 (Long Beach 2020). The CAAP is intended to be utilized for purposes of GHG streamlining and to satisfy the requirements needed under CEQA Guidelines Section 15183 to be considered a qualified GHG reduction plan. Overall, the CAAP provides a framework for the City to reduce community-wide GHG emissions and comply with state regulations (e.g., SB 32), and to also address the effects of climate change on the community. Under the CAAP, the City aims to achieve a per service population (SP) emissions target of 3.04 MTCO_{2e} per SP for year 2030, which would coincide with the emissions reduction target established under SB 32. To achieve this target, the City would be required to reduce emissions by 192,659 MTCO_{2e} relative to the business-as-usual emissions forecast for year 2030. In addition to the year 2030 target, the CAAP also includes a long-term net carbon neutrality goal for year 2045. This goal would require a reduction in GHG of 1,513,047 MTCO_{2e}. To meet the 2030 reduction target, the CAAP includes 21 mitigation actions covering the transportation, building energy, and waste sectors. Full implementation of these mitigation actions would reduce emissions in the transportation, building energy, and waste sectors by 8 percent, 68 percent, and 24 percent, respectively. In addition to mitigation actions, the CAAP also includes 40 various adaptation actions that addresses extreme heat, air quality, drought, and sea level rise and flooding.

City Green Building Standards for Public and Private Development (Municipal Code Section 21.45.400)

The City Municipal Code requires that the following types of projects meet Leadership in Energy and Environmental Design (LEED) Green Building standards:

- a. A new residential or mixed use building of 50 dwelling units and 50,000 gross square feet or more;

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- b. A new mixed use, or nonresidential building of 50,000 square feet or more of gross floor area;
- c. The alteration of an existing residential or mixed use building that results in the addition of 50 dwelling units and 50,000 gross square feet or more;
- d. The alteration of an existing mixed use, or nonresidential building that results in the expansion of 50,000 gross square feet or more; and
- e. A new construction or substantial rehabilitation project for which the City provides any portion of funding.

South Coast Air Quality Management District

South Coast AQMD has adopted a significance threshold of 10,000 MTCO₂e per year for permitted (stationary) sources of GHG emissions for which South Coast AQMD is the designated lead agency. To provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents, South Coast AQMD convened a GHG CEQA Significance Threshold Working Group (Working Group). Based on the last Working Group meeting (Meeting No. 15) in September 2010, South Coast AQMD identified a tiered approach for evaluating GHG emissions for development projects where South Coast AQMD is not the lead agency (South Coast AQMD 2010a). This following tiered approach has not been formally adopted by South Coast AQMD.

- **Tier 1.** If a project is exempt from CEQA, project-level and contribution to significant cumulative GHG emissions are less than significant.
- **Tier 2.** If the project complies with a GHG emissions reduction plan or mitigation program that avoids or substantially reduces GHG emissions in the project's geographic area (e.g., city or county), project-level and contribution to significant cumulative GHG emissions are less than significant.
- **Tier 3.** If GHG emissions are less than the screening-level criterion, project-level and contribution to significant cumulative GHG emissions are less than significant.

For projects that are not exempt or where no qualifying GHG reduction plans are directly applicable, South Coast AQMD requires an assessment of GHG emissions. Project-related GHG emissions include on-road transportation, energy use, water use, wastewater generation, solid waste disposal, area sources, off-road emissions, and construction activities. The South Coast AQMD Working Group identified that because construction activities would result in a "one-time" net increase in GHG emissions, construction activities should be amortized into the operational phase GHG emissions inventory based on the service life of a building. For buildings in general, it is reasonable to look at a 30-year time frame, since this is a typical interval before a new building requires the first major renovation. South Coast AQMD identified a screening-level threshold of 3,000 MTCO₂e annually for all land use types. The bright-line screening-level criteria are based on a review of the Governor's Office of Planning and Research database of CEQA projects. Based on their review of 711 CEQA projects, 90 percent of CEQA projects would exceed the bright-line thresholds. Therefore, projects that do not exceed the bright-line threshold would have a

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nominal, and therefore, less than cumulatively considerable impact on GHG emissions. South Coast AQMD recommends use of the 3,000 MTCO₂e interim bright-line screening-level criterion for all project types (South Coast AQMD 2010b).

- **Tier 4.** If emissions exceed the screening threshold, a more detailed review of the project’s GHG emissions is warranted.⁵

The South Coast AQMD Working Group has identified an efficiency target for projects that exceed the screening threshold of 4.8 MTCO₂e per year per service population (MTCO₂e/year/SP) for project-level analyses and 6.6 MTCO₂e/year/SP for plan level projects (e.g., program-level projects such as general plans) for the year 2020.⁶ The per capita efficiency targets are based on the AB 32 GHG reduction target and 2020 GHG emissions inventory prepared for CARB’s 2008 Scoping Plan.⁷

5.6.1.4 EXISTING CONDITIONS

The various existing land uses within the Plan Area generate GHG emissions from natural gas used for energy, heating, and cooking; electricity usage; vehicle trips for residents, employees, vendors, and customers; and area sources such as landscaping and consumer cleaning products. Emissions associated with the Plan Area are shown in Table 5.6-5.

Table 5.6-5 Specific Plan Existing GHG Emissions Inventory

Sectors	GHG Emissions
	MTCO ₂ e Per Year
Area	15
Energy	1,814
Transportation	5,925
Solid Waste Disposal	619
Water/Wastewater	311
Plan Area Total All Sectors	8,684

Source: CalEEMod, version 2016.3.2.25.
Notes: Totals may not equal 100 percent due to rounding.

5.6.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

⁵ South Coast AQMD had identified an efficiency target for projects that exceed the bright-line threshold: a 2020 efficiency target of 4.8 MTCO₂e per year per service population (MTCO₂e/year/SP) for project-level analyses and 6.6 MTCO₂e/year/SP for plan-level projects (e.g., general plans). Service population is generally defined as the sum of residential and employment population of a project. The per capita efficiency targets are based on the AB 32 GHG reduction target and 2020 GHG emissions inventory prepared for CARB’s 2008 Scoping Plan.⁵

⁶ It should be noted that the Working Group also considered efficiency targets for 2035 for the first time in this Working Group meeting.

⁷ South Coast AQMD took the 2020 statewide GHG reduction target for land use only GHG emissions sectors and divided it by the 2020 statewide employment for the land use sectors to derive a per capita GHG efficiency metric that coincides with the GHG reduction targets of AB 32 for year 2020.

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

The California Supreme Court, in *Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 62 Cal.4th 204, recently identified “potential options” for lead agencies in choosing CEQA thresholds of significance under which to analyze GHG impacts. However, the Court emphasized that the following list did not represent a “guarantee,” but instead, “merely a description of potential pathways to compliance, depending on the circumstances of a given project.”

- A project could demonstrate compliance with regulations intended to reduce GHG emissions consistent with AB 32 goals.
- A project could utilize the Business As Usual (BAU) model, which compares a project’s GHG emissions against the emissions associated with continuance of existing uses as a quantitative measure of consistency with AB 32 goals. The Court cautioned that substantial evidence in the record must link the statewide GHG reduction standard to the appropriate GHG reduction standard for the specific location and type of project under consideration.
- A project could implement a local climate action plan or other “Geographically Specific Greenhouse Gas Emission Reduction Plan.”
- A project could demonstrate consistency with the long term climate goals of the applicable regional RTP/SCS adopted pursuant to SB 375.
- A project could analyze its GHG emissions against an appropriate numerical threshold. The Court favorably cited to the GHG significance thresholds of the Bay Area Air Quality Management District, based on compliance with AB 32, which use a “service population” GHG ratio threshold for land use projects and a 10,000 ton annual GHG emission threshold for industrial projects.

The Court also noted that projects, especially those that will be developed over long periods of time, must consider consistency with goals beyond 2020. However, the Court was careful to explain that the 2050 target of EO S-3-05 was not a mandated significance threshold. As explained above and by the court, to achieve these goals, significant cultural shifts and innovations in transportation and energy technology are required, which are neither currently available nor in the jurisdiction and control of local agencies, like the City. Thus, analysis of a given development project’s impacts relative to such long range targets are too speculative for purposes of determining CEQA significance.

Summary

For purposes of this analysis, because the City has not developed its own numeric GHG significance threshold, the South Coast AQMD Working Group’s bright-line screening-level criterion of 3,000 MTCO_{2e} per year is

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used to quantitatively analyze the project's GHG emissions impacts (see Impact 5.6-1 below). If the project's emissions exceed this criterion, GHG emissions would be considered potentially significant in the absence of mitigation measures. This analysis also analyzes the project's GHG emissions based on consistency with the Scoping Plan, SCAG's RTP/SCS, the City's Sustainable City Action Plan, the City's Proposed CAAP, and the City's Municipal Code Section 21.45.400 (see Impact 5.6-2 below). Additionally, Section 5.14, Transportation, Impact 5.14-1, of this Draft EIR, analyzes the project's consistency with the City's General Plan Mobility Element (as summarized below). Should the project conflict with or obstruct the policies, goals or programs contained in these plans, it would be considered potentially significant without implementation of mitigation measures. Therefore, this EIR utilizes several of the compliance options identified by the Supreme Court in the *Newhall* case, and represents the most comprehensive analysis feasible.

5.6.3 Environmental Impacts

5.6.3.1 METHODOLOGY

This GHG emissions evaluation was prepared in accordance with the requirements of CEQA to determine if significant GHG emissions impacts are likely in conjunction with the type and scale of development associated with the Specific Plan. Air pollutant emissions are calculated using the California Emissions Estimator Model (CalEEMod), version 2016.3.2.25. CalEEMod compiles an emissions inventory of construction (fugitive dust, off-gas emissions, on-road emissions, and off-road emissions) and area sources and indirect emissions from energy use, mobile sources, waste disposal (annual only), and water/wastewater (annual only).

The following provides a summary of the assumptions used for the Specific Plan. GHG emissions modeling datasheets are in Appendix C.

Operational Phase

- **Transportation:** Based on the weekday daily trip generation and VMT data provided by Fehr and Peers (see Appendix I of this DEIR). Additionally, the analysis also utilizes the Saturday and Sunday daily trip generation rates as provided in the 10th Edition Trip Generation Manual Handbook (ITE 2017). Year 2020 and 2033 on-road GHG emissions are based on calendar year 2020 and 2033 emission rates, respectively, obtained from EMFAC2017 (v. 1.0.2) and adjusted based on CalEEMod methodology.
- **Area Sources.** Area source emissions from use of consumer cleaning products and landscaping equipment are based on CalEEMod default values and the square footage of the proposed buildings and parking areas. Additionally, existing and proposed dwelling units are modeled without fireplaces.
- **Energy:** GHG emissions from energy use (i.e., natural gas and electricity) are based on the CalEEMod default natural gas and electricity usage rates. The CalEEMod historical energy rates, which are based on the 2005 Building Energy Efficiency Standards, are utilized for the existing buildings. New buildings are assumed to comply with the 2019 Building Energy Efficiency Standards and are modeled to be 10.2 percent and 1 percent more energy efficient for electricity and natural gas, respectively, compared to the 2016 Building Energy Efficiency Standards (NORESO 2018). Under the California Building and Energy Standards, residential buildings that are four stories and higher fall under the non-residential standards. The

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carbon intensity of electricity supplied by Southern California Edison is based on their latest Sustainability Report (SCE 2020). For year 2033, the SCE carbon intensity is adjusted to account for the SB 100 RPS target of 60 percent by year 2030.

- **Solid Waste Disposal:** Indirect emissions from waste generation are based on CalRecycle waste generation rates of 4 pounds per dwelling per day for residential uses and 0.06 pound per square foot per day for non-residential uses.⁸
- **Water/Wastewater:** Emissions from this sector are based on the water demand rate of 0.26 acre-feet per year (AFY) per dwelling unit and 0.00052 AFY per square feet for non-residential uses.⁹ Emissions of GHG are associated with the embodied energy used to supply, treat, and distribute water. For purposes of this analysis, water demand is modeled as 100 percent indoor water.

Construction Phase

For purposes of this analysis, development of the Specific Plan is anticipated to occur over a 10-year period beginning in year 2023 and would generally occur over 12 development phases. Each of the 12 development phases are anticipated to last in duration of approximately 20 months (see Table 5.2-10, *Specific Plan Development Phase Schedule*). In general, each development phase would consist of demolition of some of the existing hardscape and buildings, site preparation, grading, utility trenching, geopiering, building construction, coating, and paving (see Table 5.2-9, *Construction Activities, Phasing, and Equipment*). Due to the programmatic nature of the Specific Plan, construction emissions are quantified for a single development phase that represents the worst-case scenario for an individual development phase. The total construction emissions for the Specific Plan are based on the emissions associated with this worst-case development phase multiplied by the total number of development phases (12). Additionally, because construction emissions are one-time emissions, construction emissions are amortized over a 30-year building lifetime in accordance with the South Coast AQMD Working Group recommendations (South Coast AQMD 2009).

Life-cycle emissions are not included in this analysis because not enough information is available for the Specific Plan, and therefore life-cycle GHG emissions would be speculative.¹⁰ Black carbon emissions are not included in the GHG analysis because CARB does not include this short-lived climate pollutant in the state's Scoping Plan inventory but treats it separately.¹¹ GHG modeling is included in Appendix C of this Draft EIR.

⁸ See Table 5.16-5, *Estimated Solid Waste Generation*, of this DEIR.

⁹ See Table 5.16-2, *Water Demand Estimate for the Specific Plan*, in this DEIR.

¹⁰ Life cycle emissions include indirect emissions associated with materials manufacture. However, these indirect emissions involve numerous parties, each of which is responsible for GHG emissions of their particular activity. The California Resources Agency, in adopting the CEQA Guidelines Amendments on GHG emissions found that lifecycle analyses was not warranted for project-specific CEQA analysis in most situations, for a variety of reasons, including lack of control over some sources, and the possibility of double-counting emissions (see Final Statement of Reasons for Regulatory Action, December 2009). Because the amount of materials consumed during the operation or construction of the Specific Plan is not known, the origin of the raw materials purchased is not known, and manufacturing information for those raw materials are also not known, calculation of life cycle emissions would be speculative. A life-cycle analysis is not warranted (OPR 2008).

¹¹ Particulate matter emissions, which include black carbon, are analyzed in Section 5.2, *Air Quality*. Black carbon emissions have sharply declined due to efforts to reduce on-road and off-road vehicle emissions, especially diesel particulate matter. The State's existing air quality policies will virtually eliminate black carbon emissions from on-road diesel engines within 10 years (CARB 2017a).

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5.6.3.2 IMPACT ANALYSIS

The following impact analysis addresses thresholds of significance for which the Initial Study (Appendix A) disclosed potentially significant impacts. The applicable thresholds are identified in brackets after the impact statement.

Impact 5.6-1: Buildout of the Specific Plan could generate a net increase in GHG emissions, either directly or indirectly, that may have a significant impact on the environment [Threshold GHG-1]

Impact Analysis: Global climate change is not confined to a particular project area and is generally accepted as the consequence of global industrialization over the last 200 years. A typical project, even a very large one, does not generate enough greenhouse gas emissions on its own to influence global climate change significantly; hence, the issue of global climate change is by definition a cumulative environmental impact. As stated, for purposes of this analysis, the potential GHG emissions impact from implementation of the Specific Plan is based on consistency with applicable plans to reduce GHG emissions and on comparison of the emissions inventory of the project to the South Coast AQMD 3,000 MTCO_{2e} per year bright-line screening-level threshold.

Plans that reduce GHG emissions applicable to the Specific Plan include the CARB Scoping Plan, SCAG’s Connect SoCal RTP/SCS, and the City’s CAAP in addition to the City’s Sustainable City Action Plan. The City also adopted green building standards for public and private development under Municipal Code Section 21.45.400. As discussed in detail below in Impact 5.6-2, the Specific Plan would be consistent with these aforementioned applicable plans and regulations. For example, future development projects accommodated under the Specific Plan would comply with CALGreen and the Building Energy Efficiency Standards, which would result in increased energy efficiency and conservation. Furthermore, the development standards and design guidelines included in the Specific Plan are based on the gold LEED-Neighborhood Development (ND) certification documentation obtained by Century Village at Cabrillo in 2019. Additionally, the implementation of the Specific Plan would result in a decrease in VMT per vehicle trip compared to existing conditions.

In addition to consistency of the Specific Plan to the applicable plans and regulations, annual GHG emissions were calculated for construction and operation of the Specific Plan and are shown in Table 5.6-6. Construction emissions were amortized into the operational phase in accordance with South Coast AQMD’s proposed methodology.

Table 5.6-6 Specific Plan GHG Emissions

Sectors	GHG Emissions (MTCO _{2e} per Year)			
	Existing	Specific Plan	Percent by Sector Specific Plan	Change from Existing
Area	15	24	<1%	9
Energy ^{1,2}	1,814	2,459	20%	645
Mobile ^{3,4}	5,925	7,447	62%	1,522
Water/Wastewater	619	1,521	13%	902
Solid Waste Disposal	311	332	3%	21

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Table 5.6-6 Specific Plan GHG Emissions

Sectors	GHG Emissions (MTCO ₂ e per Year)			
	Existing	Specific Plan	Percent by Sector Specific Plan	Change from Existing
30-Year Amortized Construction ⁵	N/A	233	2%	233
Total All Sectors	8,684	12,016	100%	3,332
South Coast AQMD Bright-Line Threshold				3,000
Exceeds Threshold?				Yes

Source: CalEEMod, Version 2016.3.2.25.

Notes: Emissions may not total to 100 percent due to rounding. N/A: not applicable.

¹ The CalEEMod historical energy rates, which are based on the 2005 Building Energy Efficiency Standards, are utilized for the existing and remaining existing uses.

² New buildings are assumed to comply with the 2019 Building Energy Efficiency Standards and are modeled to be 10.2 percent and 1 percent more energy efficient for electricity and natural gas, respectively, compared to the 2016 Building Energy Efficiency Standards.

³ Based on calendar year 2020 emission rates obtained from EMFAC2017, Version 1.0.2., and adjusted based on CalEEMod methodology for vehicle emission rates.

⁴ Based on calendar year 2033 emission rates obtained from EMFAC2017, Version 1.0.2., and adjusted based on CalEEMod methodology for vehicle emission rates.

⁵ Construction emissions are amortized based on a typical 30-year building lifetime (South Coast AQMD 2009).

As shown in the table, implementation of the Specific Plan would generate 12,016 MTCO₂e per year. The primary source of project-related emissions would be mobile sources. The next largest source of emissions would be energy usage. Overall, development of the Specific Plan would result in a net increase in GHG emissions of 3,332 MTCO₂e per year when compared to the existing conditions, which would exceed the bright-line threshold of 3,000 MTCO₂e per year. Overall, the Specific Plan would be consistent with applicable plans and regulations to reduce GHG emissions. However, because it would generate GHG emissions that exceed the 3,000 MTCO₂e per year bright-line, GHG emissions generated by the Specific Plan would be considered to cumulatively contribute to statewide GHG emissions. Therefore, GHG emissions impacts are considered to be potentially significant.

Level of Significance Before Mitigation: Potentially Significant.

Impact 5.6-2: Build out of the Specific Plan would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases [Threshold GHG-2]

Impact Analysis: Applicable plans adopted for the purpose of reducing GHG emissions include CARB's Scoping Plan, SCAG's 2016-2040 RTP/SCS, the City's Sustainable City Action Plan and CAAP, and Municipal Code Section 21.45.400. A consistency analysis with these plans is presented below. Section 5.14, Transportation, Impact 5.14-1, of this Draft EIR, analyzes the project's consistency with the City's General Plan Mobility Element (as summarized below).

CARB Scoping Plan

The CARB Scoping Plan is applicable to state agencies, but is not directly applicable to cities/counties and individual projects (i.e., the Scoping Plan does not require the City to adopt policies, programs, or regulations to reduce GHG emissions). However, new regulations adopted by the state agencies outlined in the Scoping Plan result in GHG emissions reductions at the local level. As a result, local jurisdictions benefit from reductions in transportation emissions rates, increases in water efficiency in the building and landscape codes, and other statewide actions that affect a local jurisdiction's emissions inventory from the top down. Statewide strategies

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to reduce GHG emissions include the LCFS and changes in the corporate average fuel economy standards (e.g., Pavley I and Pavley California Advanced Clean Cars program).

Development projects accommodated under the Specific Plan are required to adhere to the programs and regulations identified by the Scoping Plan and implemented by state, regional, and local agencies to achieve the statewide GHG reduction goals of AB 32. These future individual development projects would comply with these statewide GHG emissions reduction measures. For example, new buildings under the Specific Plan would meet the current CALGreen and Building Energy Efficiency standards. The CEC anticipates that new nonresidential buildings will be required to achieve zero net energy by 2030. Project GHG emissions shown in Table 5.6-6 include reductions associated with statewide strategies that have been adopted since AB 32. Therefore, the Specific Plan would generate GHG emissions consistent with the reduction goals of AB 32, and impacts are considered less than significant.

SCAG's Regional Transportation Plan/Sustainable Communities Strategy

Connect SoCal finds that land use strategies that focus on new housing and job growth in areas rich with destinations and mobility options would be consistent with a land use development pattern that supports and complements the proposed transportation network. The overarching strategy in Connect SoCal is to plan for the southern California region to grow in more compact communities in transit priority areas and priority growth areas; provide neighborhoods with efficient and plentiful public transit; establish abundant and safe opportunities to walk, bike, and pursue other forms of active transportation; and preserve more of the region's remaining natural lands and farmlands (SCAG 2020). Connect SoCal's transportation projects help more efficiently distribute population, housing, and employment growth, and forecast development is generally consistent with regional-level general plan data to promote active transportation and reduce GHG emissions. The projected regional development, when integrated with the proposed regional transportation network in Connect SoCal, would reduce per-capita GHG emissions related to vehicular travel and achieve the GHG reduction per capita targets for the SCAG region.

The RTP/SCS does not require that local general plans, specific plans, or zoning be consistent with the RTP/SCS, but provides incentives for consistency to governments and developers. The Specific Plan would result in a net increase in retail, commercial, and educational space and 515 housing units, which would increase population and employment opportunities. As discussed in Impact 5.11-1 of this DEIR, the overall jobs-housing ratio for the City without the Specific Plan is projected at 0.96 jobs per housing unit for buildout year 2033. While this ratio is below the recommended range of 1.5 to 1.7, the City would trend towards reaching the recommended range as the existing jobs-housing ratio is 0.91 for the City as a whole. In general, an improved jobs-housing balance for the City overall could contribute in reducing the average distance traveled between where people live and work and therefore reduce passenger VMT. As determined in Impact 5.11-1, implementation of the Specific Plan would not cause a deviation from the projected 0.96 jobs-housing ratio. Furthermore, as shown in Table 5.6-7, while implementation of the Specific Plan would result in an increase in daily VMT and vehicle trips, VMT per vehicle trip would decrease compared to existing conditions. Moreover, as discussed in Impact 5.9-1 and Table 5.9-1, *Consistency with SCAG's 2016-2040 RTP/SCS Goals*, and Table 5.9-2, *Consistency with SCAG's Connect SoCal*, of this DEIR, the Specific Plan is shown to be consistent with the

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RTP/SCS. Therefore, the Specific Plan would not interfere with SCAG’s ability to implement the regional strategies outlined in the RTP/SCS, and impacts are considered less than significant.

Table 5.6-7 Specific Plan Operation-Related VMT

Scenario	Daily VMT	Daily Vehicle Trips	VMT/Vehicle Trip
Existing	44,876	3,189	14.07
Existing Plus Project	74,372	6,332	11.75
Change from Existing	29,496	3,143	-2.32

Source: Fehr & Peers 2020.

Note: Project-generated VMT is VMT associated with trips that start or end in the Plan Area. This methodology excludes pass-through trips not associated with land uses within the Specific Plan and includes the full trip length for the trips that start or end in the Plan Area.

City of Long Beach Climate Action and Adaptation Plan

As stated, the Proposed CAAP was recently released on December 10, 2020, and is anticipated to be adopted Fall 2021. Table 5.6-8 evaluates consistency of the Specific Plan to the Proposed CAAP. Specifically, the Specific Plan is compared to the adaptation actions and mitigation actions included in the Proposed CAAP. As shown in the table, the Specific Plan would be generally consistent with the applicable adaptation and mitigation actions. For example, the Specific Plan would provide improvements to the bicycle and pedestrian infrastructure through the proposed Wellness Trail in addition to design guidelines that focus on improving the experience and access for pedestrians. In addition, the Specific Plan would focus development around the existing CVC Transit Center, which would serve as the central transportation hub for the Plan Area. These components would support and be consistent with Mitigation Actions T-2 and T-3. Furthermore, the Specific Plan includes minimum parking requirements for the installation of electric vehicle charging stations, which is consistent with Mitigation Action T-5. Moreover, the Specific Plan would include the planting of trees of the evergreen varieties that establish an expansive canopy of shade and also incorporate bioswales and rain gardens to provide green infrastructure. These components would be consistent with Adaptation Actions EH-2, EH-3, and DRT-3. Therefore, implementation of the Specific Plan would not be inconsistent or interfere with implementation of the City’s Proposed CAAP and impacts are considered less than significant.

Table 5.6-8 Consistency with the City of Long Beach Proposed Climate Action and Adaptation Plan

Action	Project Compliance with Action
Mitigation Actions	
Transportation	
T-1: Increase the frequency, connectivity, and safety of transit options.	Consistent: The Specific Plan proposes development that would utilize the existing CVC Transit Center, which would serve as the transportation node for the Plan Area. Additionally, the current transit access provided to Plan Area residents will be expanded through a vanpool program that connects residents to specific destinations offsite, including grocery stores, medical centers, or community events. This will be accomplished in collaboration with Long Beach Transit, service providers, and local retailers. Furthermore, a network of wellness trails would be established throughout the Plan Area to encourage walking, jogging, and biking and could provide better connectivity to services and amenities such as the CVC Transit Center.
T-2: Expand and improve pedestrian infrastructure citywide.	Consistent: The Specific Plan includes a network of Wellness Trails, which would provide improve the pedestrian infrastructure of the Plan Area. Additionally, the streets along the

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Table 5.6-8 Consistency with the City of Long Beach Proposed Climate Action and Adaptation Plan

Action	Project Compliance with Action
Mitigation Actions	
	wellness trails would be redesigned to ease pedestrian crossings and calm vehicle traffic speeds. Furthermore, walkways would be designed to be between 7 to 10 feet in width and where possible, the most direct routes would be provided for pedestrians to access their residence, services, and community amenities.
T-3: Increase bikeway infrastructure.	Consistent: The Specific Plan includes the Wellness Trail, which is a multi-use paved trails that would provide a two-way bike path. Bicycle parking facilities would also be provided under the Specific Plan.
T-4: Implement the Port of Long Beach Clean Trucks Program.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
T-5: Develop an Electric Vehicle Infrastructure Master Plan.	Consistent: New developments in the Plan Area would be required to provide electric vehicle charging facilities. At minimum, at least three percent of total parking spaces, but not less than one stall, shall be capable of supporting electric vehicle supply equipment with pre-wired electricity service.
T-6: Increase employment and residential development along primary transit corridors.	Consistent: The Plan Area is within both transit priority area and high quality transit area (see Section 5.9.1.1, Regulatory Background, of this DEIR). Implementation of the Specific Plan would result in a net increase of 515 dwelling units, which includes affordable units, and would also provide up to 154 new jobs.
T-7: Update the Transportation Demand Management Ordinance.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
T-8: Increase density and mixing of land uses.	Consistent: Implementation of the Specific Plan would result in a net increase of 515 dwelling units within the Plan Area, in addition to a net increase in retail, commercial, and educational space.
T-9: Integrate SB 743 planning with CAAP process.	Not Applicable: This is not a project-specific goal because it assesses how using the SB 743 analysis affects the CAAP's ability to meet GHG reduction targets. However, the project is consistent with SB 743, as demonstrated in Section 5.14, Transportation, Impact 5.14-1.
Energy	
BE-1: Provide access to renewably generated electricity.	Consistent: Street lights will include solar panels and batteries to generate and capture electricity to be later used in the evening to light the way for pedestrians and vehicles. As described above, new developments in the Plan Area would be required to provide electric vehicle charging facilities.
BE-2: Increase use of solar power.	Consistent: Street lights will include solar panels and batteries to generate and capture electricity to be later used in the evening to light the way for pedestrians and vehicles.
BE-3: Promote community and solar microgrids.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
BE-4: Develop a residential and commercial energy assessment and benchmarking program.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
BE-5: Provide access to energy efficiency financing, rebates, and incentives for building owners.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
BE-6: Perform municipal energy audits.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
BE-7: Update building codes to incentivize electric new residential and commercial buildings.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
BE-8: Implement short-term measures to reduce emissions related to oil and gas extraction.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
Waste	

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Table 5.6-8 Consistency with the City of Long Beach Proposed Climate Action and Adaptation Plan

Action	Project Compliance with Action
Mitigation Actions	
W-1: Ensure compliance with state law requirements for multi-family and commercial property recycling programs.	Not Applicable: This relates to City government action and is not a project-specific goal. However, the project would comply with all state law recycling requirements as described in Section 5.16, Utilities and Service Systems, of this Draft EIR.
W-2: Develop an organic waste collection program for City-serviced accounts.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
W-3: Partner with private waste haulers to expand organic waste collection community-wide.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
W-4: Identify organic waste management options.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
Adaptation Actions	
Extreme Heat	
EH-1: Increase presence of cool roofs and cool walls.	Inconsistent: The Specific Plan would not incorporate cool roof/wall systems.
EH-2: Increase the presence of reflective streets, cool surfaces, and shade canopies.	Consistent: The Specific Plan includes a proposed street tree plan that would consist of planting trees of the evergreen varieties that have large canopies to provide as much shade as possible.
EH-3: Enhance and expand urban forest cover and vegetation.	Consistent: The Specific Plan includes a proposed street tree plan that would consist of planting trees of the evergreen varieties that have large canopies to provide as much shade as possible. Additional existing trees shall either be preserved when possible, or replaced at a two to one ratio.
EH-4: Install additional water fountains and other actions to increase public access to water.	Consistent: The Open Space Design Guidelines of the Specific Plan include a provision for drinking fountains to be incorporated into the streetscape and community open space.
EH-5: Identify future vulnerability potential for power outages related to extreme heat and develop plans to prevent such outages.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
EH-6: Enhance and expand the accessibility of cooling centers.	Consistent: Due to the nature of the CVC of providing transitional and permanent housing to the homeless and those at risk of becoming homeless, expansion of facilities under the Specific Plan would potentially provide additional facilities to be used as cooling centers for members of the public that may need them.
EH-7: Provide bus shelter amenities.	Consistent: The existing CVC transit center within the Plan Area serves as the terminus for two Long Beach Transit bus routes that will now extend onto community, reaching the Veterans Hospital, Long Beach State University and regional shopping centers. The transit center includes benches, a bus stop shelter, bike lockers, bollards, public art, and landscaping. The proposed project would retain this feature in its design and allow for its expansion. For example, two additional Long Beach Transit bus routes currently ending at Willow Street and Santa Fe Avenue could eventually be extended to this transit node.
EH-8: Improve beach and coastal transit access during extreme heat events.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
Air Quality	
AQ-1: Incentivize installation of photocatalytic tiles.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
AQ-2: Encourage urban agriculture practices that reduce air quality pollution.	Consistent: Community gardens are a permitted use under the Specific Plan.
AQ-3: Support the development of the Long Beach Airport Sustainability Plan.	Not Applicable: This is not a project-specific goal and is therefore not applicable.

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Table 5.6-8 Consistency with the City of Long Beach Proposed Climate Action and Adaptation Plan

Action	Project Compliance with Action
Mitigation Actions	
AQ-4: Electrify small local emitters, such as lawn and garden equipment, outdoor power equipment, and others.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
AQ-5: Work with Long Beach Unified School District (LBUSD) to support school bus electrification.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
AQ-6: Implement the Port of Long Beach Clean Air Action Plan.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
AQ-7: Increase monitoring and regulation of oil extraction and refining process.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
Drought	
DRT-1: Continue development and implementation of water use efficiency programs and implement additional water conservation programs.	Consistent: The Specific Plan development will include all State mandated water saving features, including water-efficient faucets, showerheads, and toilets. Additionally, as demonstrated in Section 5.16, Utilities and Service Systems, of this Draft EIR, the project could be adequately served by the City's water supply.
DRT-2: Enhance outreach and education related to water conservation.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
DRT-3: Expand usage of green infrastructure and green streets.	Consistent: The Specific Plan would incorporate bioswales and rain gardens along with other permeable surfaces including parkways and decomposed granite.
DRT-4: Expand usage of recycled water and greywater for non-potable use.	Inconsistent: The Specific Plan would not incorporate greywater systems.
DRT-5: Incorporate increased rainfall capture and other actions to maximize local water supplies and offset imported water.	Inconsistent: The Specific Plan would not incorporate greywater systems.
Sea Level Rise + Flooding	
FLD-1: Update and augment floodplain regulations as necessary.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
FLD-2: Incorporate sea level rise language into citywide plans, policies, and regulations.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
FLD-3: Establish a flood impacts monitoring program.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
FLD-4: Incorporate adaptation into City lease negotiations.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
FLD-5: Update the City's existing Stormwater Management Plan.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
FLD-6: Conduct citywide beach stabilization study.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
FLD-7: Review and conduct studies of combined riverine/coastal flooding and increased severity of rainfall events on watershed flooding.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
FLD-8: Enhance dunes.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
FLD-9: Inventory and flood-proof vulnerable sewer pump stations.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
FLD-10: Relocate/elevate critical infrastructure.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
FLD-11: Elevate riverine levees.	Not Applicable: This is not a project-specific goal and is therefore not applicable.

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Table 5.6-8 Consistency with the City of Long Beach Proposed Climate Action and Adaptation Plan

Action	Project Compliance with Action
Mitigation Actions	
FLD-12: Expand beach nourishment.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
FLD-13: Construct living shoreline/berm.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
FLD-14: Elevate street hardscapes.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
FLD-15: Elevate streets/pathways.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
FLD-16: Retrofit/extend sea wall.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
FLD-17: Retreat/realign parking lots.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
FLD-18: Extend/upgrade existing sea walls.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
FLD-19: Investigate feasibility of managed retreat.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
FLD-20: Evaluate feasibility of storm surge barrier at Alamitos Bay.	Not Applicable: This is not a project-specific goal and is therefore not applicable.

Source: City of Long Beach Proposed Climate Action and Adaptation Plan (2020).

City of Long Beach Sustainable City Action Plan

The Sustainable City Action Plan goals generally focus on increasing building energy efficiency, increasing use of renewable energy, water conservation, increasing public and active transit ridership, and reducing VMT. It is largely focused on guiding City operational and policy decisions rather than project specific actions. As highlighted in Table 5.6-8, the Specific Plan would focus development around the existing CVC Transit Center, which would serve as the central transportation hub for the Plan Area. Additionally, the Specific Plan would also provide bicycle and pedestrian infrastructure improvements (e.g., the wellness trails) and includes design guidelines focused on creating a more conducive environment for both bicycle and pedestrian travel. The planned improvements to the bicycle and pedestrian network would provide better access to the CVC Transit Center and areas outside of the Plan Area, which would contribute in reducing VMT by increasing active transit and public transit use.

In addition to transit related improvements, the development standards and design guidelines included in the Specific Plan are based on the LEED-ND certification documentation obtained by CVC in 2019. The Specific Plan design guidelines require proposed developments to have landscapes that include California native or adaptive plants, which would contribute in conserving water. Furthermore, developments accommodated under the Specific Plan would be required to install low-flow water fixtures. As for energy, at minimum, the new buildings accommodated under the Specific Plan would be built to comply with the 2019 Building Energy Efficiency Standards and CALGreen standards. Compliance with these two building design standards would contribute in increasing the energy efficiency of the proposed uses. Additionally, under the Specific Plan, street lights will include solar panels and batteries to generate and capture electricity to be later used in the evening to light the way for pedestrians. Overall, the Specific Plan would generally be consistent with the goals of the Sustainable City Action Plan and impacts are considered less than significant.

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City of Long Beach General Plan, Mobility Element

A detailed consistency analysis of the Specific Plan to the City of Long Beach General Plan Mobility Element is provided in the Impact 5.14-1 discussion of this DEIR. As discussed, the Specific Plan would, overall, support and be consistent with the City of Long Beach General Plan Mobility Element. For example, the Specific Plan includes the development of a multi-modal transportation system, which would encourage active forms of transportation and public transit while providing adequate accommodations for vehicles. This supports the Mobility Element's goal of establishing an efficient, balanced, multi-modal transportation network.

In addition, the Specific Plan includes a Transportation Demand Management (TDM) program that would promote alternative and shared modes of transportation and reduce dependence on vehicles. For example, employers within the Plan Area will be encouraged to arrange flexible work programs in order to mitigate traffic during peak rush hours, as well as reduce parking demand. The Specific Plan will also offer transportation in case of emergency situations for these commuters via the Guaranteed Ride Home program, in collaboration with Metro. Transit passes will be provided free or at reduced-price to residents and employees. The Specific Plan would provide carpool/shared-use vehicle parking for each non-residential and mixed-use building on site. Thus, with the inclusion of these TDM programs, the Specific Plan would support Policy 5-2 of the Mobility Element: "Reduce vehicle miles traveled (VMT) and vehicle trips through the use of alternative modes of transportation and TDM." Therefore, as determined in Impact 5.14-1 of the DEIR, the Specific Plan would be consistent with the City's General Plan Mobility Element and impacts are considered less than significant.

City of Long Beach Green Building Standards for Public and Private Development (Municipal Code Section 21.45.400)

As stated, the City of Long Beach established green building standards requirements under Municipal Code Section 21.45.400, which are based on the LEED Green Building Rating System. Overall, development projects accommodated under the Specific Plan would be subject to all applicable provisions under Municipal Code Section 21.45.400. Moreover, in addition to being subjected to the requirements of Municipal Code Section 21.45.400, the development standards and design guidelines included in the Specific Plan are based on the gold LEED-Neighborhood Development certification documentation obtained by Century Village at Cabrillo in 2019. Therefore, overall, the Specific Plan would be consistent and would not conflict with the City's Municipal Code Section 21.45.400 and impacts would be less than significant.

5.6.4 Cumulative Impacts

Project-related GHG emissions are not confined to a particular air basin but are dispersed worldwide. Therefore, Impact 5.6-1 is not project-specific impacts, but the Specific Plan's contribution to a cumulative impact. Implementation of the Specific Plan would result in annual emissions that would exceed South Coast AQMD's bright-line threshold. Additionally, buildout of the Specific Plan would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. Therefore, project-related GHG emissions and their contribution to global climate change are cumulatively considerable, and GHG emissions impacts would be significant.

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5.6.5 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, the following impact would be less than significant: 5.6-2.

Without mitigation, this impact would be **potentially significant**:

- **Impact 5.6-1** Although, the Specific Plan would be consistent with plans and regulations intended to reduce GHG emissions, it would generate GHG emissions that would exceed the South Coast AQMD unadopted bright-line threshold, and thus, build out of the Specific Plan could generate a net increase in greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

5.6.6 Mitigation Measures

Impact 5.6-1

GHG-1 New development within the Century Village at Cabrillo Specific Plan shall either 1) be certified LEED Silver Level at minimum, or equivalent program; or 2) implement the following, voluntary provisions of the California Green Building Standards Code (CALGreen). The project applicant/developer(s) shall provide documentation (e.g., building plans) of implementation of the applicable voluntary measures to the City of Long Beach Building & Safety Bureau Official or his/her designee prior to the issuance of building permits.

For nonresidential land uses and residential land uses, the applicant/developer shall:

- Design and build structures to, at a minimum, meet the Tier 2 advanced energy efficiency requirements of the Nonresidential Voluntary Measures of the California Green Building Standards Code, Division A5.2, Energy Efficiency, as outlined under Section A5.203.1.2.2.
- Design the proposed parking areas to provide parking for low-emitting, fuel-efficient, and carpool/van vehicles. At minimum, the number of preferential parking spaces shall equal the Tier 2 Nonresidential Voluntary Measures of the California Green Building Standards Code, Section A5.106.5.1.2.
- Design the proposed parking areas to provide electric vehicle (EV) charging stations. At minimum, the number of EV charging stations shall equal the Tier 2 Nonresidential Voluntary Measures of the California Green Building Standards Code, Section A5.106.5.3.2.

GHG-2 For residential projects, all major appliances (e.g., dishwashers, refrigerators, clothes washers and dryers, and water heaters) provided/installed shall be Energy Star certified or of equivalent energy efficiency where applicable. Prior to the issuance of the certificate of occupancy, the City of Long Beach shall verify implementation of this requirement.

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5.6.7 Level of Significance After Mitigation

Impact 5.6-1

GHG emissions generated by the Specific Plan would be considered to cumulatively contribute to statewide GHG emissions. Implementation of Mitigation Measures GHG-1 and GHG-2 would reduce GHG emissions to the extent feasible. The Specific Plan includes transportation demand management (TDM) measures to further reduce parking demand and VMT, such as employee flexible work programs, subsidized transit passes, and carpool/carshare programs. However, because the number of people who may use alternative modes of transportation is uncertain, the total reductions cannot be quantified. The lead agency (City of Long Beach) cannot substantively or materially affect reductions in project mobile-source emissions beyond the regulatory requirements. Further, significant cultural shifts and technological innovation is required to achieve the state's long-term GHG emissions goals. The City has no jurisdictional control or responsibility for GHG reductions in other parts of California, the nation or the globe, all of which contribute to climate change. In addition, the City does not have jurisdiction to enforce statewide implementation of all of the applicable GHG-reducing regulatory programs. Although other agencies with the necessary jurisdiction are currently taking action to reduce GHG emissions, the City cannot assure that these measures would ultimately be implemented or be adequate to address climate change. In light of these considerations, as well as the global nature climate change, the Specific Plan's incremental contribution to the global GHG emissions inventory would be considered cumulatively considerable and this cumulative impact is significant and unavoidable, even though the project satisfies several compliance options identified by the *Newhall* court. Impact 5.6-1 would remain **significant and unavoidable**.

5.6.8 References

California Air Resources Board. 2008, October. Climate Change Proposed Scoping Plan: A Framework for Change.

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