

5. Environmental Analysis

5.5 GREENHOUSE GAS EMISSIONS

This section of the Draft Environmental Impact Report (DEIR) evaluates the potential for implementation of the proposed Beach Boulevard Specific Plan (Proposed Project) 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 (SCAQMD). Transportation-sector impacts for the Proposed Project are based on average daily vehicle trips and vehicle miles traveled provided by Fehr & Peers (see Appendix F). Water use and wastewater generation for the Proposed Project are based on rates provided by Fuscoe Engineering, Inc. (see Appendix G). GHG emissions modeling is conducted using the California Emissions Estimator Model (CalEEMod), Version 2016.3.1, and 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.

5.5.1 Environmental Setting

5.5.1.1 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 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.
- **Fluorinated gases** are synthetic, strong GHGs that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent GHGs, they are sometimes referred to as high GWP gases.
 - **Chlorofluorocarbons (CFCs)** are GHGs covered under the 1987 Montreal Protocol and used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants. Since they are not destroyed in the lower atmosphere (troposphere, stratosphere), CFCs drift into the upper atmosphere where, given suitable conditions, they break down the ozone layer. These gases are therefore being replaced by other compounds that are GHGs covered under the Kyoto Protocol.
 - **Perfluorocarbons (PFCs)** are a group of human-made chemicals composed of carbon and fluorine only. These chemicals (predominantly perfluoromethane [CF₄] and perfluoroethane [C₂F₆]) were introduced as alternatives, along with hydrofluorocarbons (HFCs), to ozone-depleting substances. In addition, PFCs are emitted as by-products of industrial processes and are used in manufacturing. PFCs do not harm the stratospheric ozone layer, but they have a high GWP.
 - **Sulfur Hexafluoride (SF₆)** is a colorless gas soluble in alcohol and ether, and slightly soluble in water. SF₆ is a strong GHG used primarily in electrical transmission and distribution systems as an insulator.

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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- *Hydrochlorofluorocarbons (HCFCs)* contain hydrogen, fluorine, chlorine, and carbon atoms. Although they are ozone-depleting substances, they are less potent than CFCs. They have been introduced as temporary replacements for CFCs.
- *Hydrofluorocarbons (HFCs)* contain only hydrogen, fluorine, and carbon atoms. They were introduced as alternatives to ozone-depleting substances to serve many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are also used in manufacturing. They do not significantly deplete the stratospheric ozone layer, but they are strong GHGs. (IPCC 1995; USEPA 2017)

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 5.5-1, *GHG Emissions and their Relative Global Warming Potential Compared to CO₂*. 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 Fourth Assessment Report (AR4) GWP values for CH₄, a project that generates 10 MT of CH₄ would be equivalent to 250 MT of CO₂.

Table 5.5-1 GHG Emissions and Their Relative Global Warming Potential Compared to CO₂

GHGs	Second Assessment Report Atmospheric Lifetime (Years)	Fourth Assessment Report Atmospheric Lifetime (Years)	Second Assessment Report Global Warming Potential Relative to CO ₂ ¹	Fourth Assessment Report Global Warming Potential Relative to CO ₂ ¹
Carbon Dioxide (CO ₂)	50 to 200	50 to 200	1	1
Methane ² (CH ₄)	12 (±3)	12	21	25
Nitrous Oxide (N ₂ O)	120	114	310	298
Hydrofluorocarbons:				
HFC-23	264	270	11,700	14,800
HFC-32	5.6	4.9	650	675
HFC-125	32.6	29	2,800	3,500
HFC-134a	14.6	14	1,300	1,430
HFC-143a	48.3	52	3,800	4,470
HFC-152a	1.5	1.4	140	124
HFC-227ea	36.5	34.2	2,900	3,220
HFC-236fa	209	240	6,300	9,810
HFC-4310mee	17.1	15.9	1,300	1,030
Perfluoromethane: CF ₄	50,000	50,000	6,500	7,390
Perfluoroethane: C ₂ F ₆	10,000	10,000	9,200	12,200
Perfluorobutane: C ₄ F ₁₀	2,600	NA	7,000	8,860

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Table 5.5-1 GHG Emissions and Their Relative Global Warming Potential Compared to CO₂

GHGs	Second Assessment Report Atmospheric Lifetime (Years)	Fourth Assessment Report Atmospheric Lifetime (Years)	Second Assessment Report Global Warming Potential Relative to CO ₂ ¹	Fourth Assessment Report Global Warming Potential Relative to CO ₂ ¹
Perfluoro-2-methylpentane: C ₆ F ₁₄	3,200	NA	7,400	9,300
Sulfur Hexafluoride (SF ₆)	3,200	NA	23,900	22,800

Source: IPCC 1995, 2007.

Notes: The IPCC published updated GWP values in its Fifth Assessment Report (2013) that reflect new information on atmospheric lifetimes of GHGs and an improved calculation of the radiative forcing of CO₂. However, GWP values identified in AR4 are used by SCAQMD to maintain consistency in statewide GHG emissions modeling. In addition, the 2014 Scoping Plan Update was based on the GWP values in AR4.

¹ Based on 100-year time horizon of the GWP of the air pollutant compared to CO₂.

² 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.

California's GHG Sources and Relative Contribution

California is the 20th largest GHG emitter in the world and the second largest GHG emitter in the United States, surpassed only by Texas (CARB 2014a). However, California also has over 12 million more people than Texas. Because of more stringent air emission regulations, in 2001, California ranked third lowest in energy-related carbon emissions per capita (EIA 2017).

In 2016, the statewide GHG emissions inventory was updated for 2000 to 2014 emissions using the GWPs in IPCC's AR4.³ Based on these GWPs, California produced 442 MMTCO₂e GHG emissions in 2014. California's transportation sector was the single largest generator of GHG emissions, producing 36.1 percent of the state's total emissions. Industrial sector emissions made up 21.1 percent, and electric power generation made up 20.0 percent of the state's emissions inventory. Other major sectors of GHG emissions include commercial and residential (8.7 percent), agriculture (8.2 percent), high GWP GHGs (3.9 percent), and recycling and waste (2.0 percent) (CARB 2016a).

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

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

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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 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. 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). 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 5.5-1), and the inertia of the Earth's climate system could produce as much as 0.6°C (1.1°F) of

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additional warming. Consequently, some impacts from climate change are now considered unavoidable. Global climate change risks to California are shown in Table 5.5-2, *Summary of GHG Emissions Risks to California*, and include impacts to public health, water resources, agriculture, coastal sea level, forest and biological resources, and energy.

Table 5.5-2 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.

Specific climate change impacts that could affect the Proposed Project include:

- Water Resources Impacts.** By late this century, all projections show drying, and half of the projections suggest 30-year average precipitation will decline by more than 10 percent below the historical average. This drying trend is caused by an apparent decline in the frequency of rain and snowfall. Even in projections with relatively little or no decline in precipitation, central and southern parts of the state are expected to be drier from the warming effects alone because the spring snowpack will melt sooner, and the moisture in soils will evaporate during long dry summer months (CCCC 2012).

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- **Wildfire Risks.** Earlier snowmelt, higher temperatures, and longer dry periods over a longer fire season will directly increase wildfire risk. Indirectly, wildfire risk will also be influenced by potential climate-related changes in vegetation and ignition potential from lightning. Human activities will continue to be the biggest factor in ignition risk. The number of large fires statewide is estimated to increase by 58 percent to 128 percent above historical levels by 2085. Under the same emissions scenario, estimated burned area will increase by 57 percent to 169 percent, depending on location (CCCC 2012).
- **Health Impacts.** Many of the gravest threats to public health in California stem from the increase of extreme conditions, principally more frequent, more intense, and longer heat waves. Particular concern centers on the increasing tendency for multiple hot days in succession, and simultaneous heat waves in several regions throughout the state. Public health could also be affected by climate change impacts on air quality, food production, the amount and quality of water supplies, energy pricing and availability, and the spread of infectious diseases. Higher temperatures also increase ground-level ozone levels. Furthermore, wildfires can increase particulate air pollution in the major air basins of California (CCCC 2012).
- **Increase Energy Demand.** Increases in average temperature and higher frequency of extreme heat events combined with new residential development across the state will drive up the demand for cooling in the increasingly hot and longer summer season and decrease demand for heating in the cooler season. Warmer, drier summers also increase system losses at natural gas plants (reduced efficiency in the electricity generation process at higher temperatures) and hydropower plants (lower reservoir levels). Transmission of electricity will also be affected by climate change. Transmission lines lose 7 percent to 8 percent of transmitting capacity in high temperatures while needing to transport greater loads. This means that more electricity needs to be produced to make up for the loss in capacity and the growing demand (CCCC 2012).

5.5.1.2 REGULATORY SETTING

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

Federal Laws

The U.S. 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 U.S. 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 Proposed Project's GHG emissions inventory because

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they constitute the majority of GHG emissions; per SCAQMD guidance, 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 MTCO_{2e} or more per year are required to submit an annual report.

Update to Corporate Average Fuel Economy Standards (2010/2012)

The current Corporate Average Fuel Economy standards (for model years 2011 to 2016) incorporate stricter fuel economy requirements promulgated by the federal government and California into one uniform standard. Additionally, automakers were required to cut GHG emissions in new vehicles by roughly 25 percent by 2016 (resulting in a fleet average of 35.5 miles per gallon by 2016). Rulemaking to adopt these new standards was completed in 2010. California agreed to allow automakers who show compliance with the national program to also be deemed in compliance with state requirements. The federal government issued new standards in 2012 for model years 2017 to 2025 that will require a fleet average of 54.5 miles per gallon in 2025. However, the EPA is reexamining the 2017–2025 emissions standards.

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. However, the EPA is reviewing the Clean Power Plan under President Trump's Energy Independence Executive Order.

State Laws

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 32 (AB 32), Senate Bill 32 (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)

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in AB 32, the Global Warming Solutions Act. AB 32 was passed by the California state legislature on August 31,

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2006, to place the state on a course toward reducing its contribution of GHG emissions. AB 32 follows the 2020 tier of emissions reduction targets established in Executive Order S-03-05.

CARB 2008 Scoping Plan

The final Scoping Plan was adopted by the California Air Resources Board (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). In order 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 MTCO_{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

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 2014b).

As identified in the Update to the Scoping Plan, California is on track to meeting the goals of AB 32. However, 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 goals, including a recommendation for the state to adopt a midterm target. According to the 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 2014b). 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 2014b).

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 adaption strategy, Safeguarding California, in order to ensure climate change is accounted for in state planning and investment decisions.

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Senate Bill 32 and Assembly Bill 197

In September 2016, Governor Brown signed Senate Bill 32 and Assembly Bill 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.

2017 Climate Change Scoping Plan

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 January 20, 2017, CARB released the Draft 2017 Climate Change Scoping Plan with adoption hearings planned for December 2017. The Draft 2017 Climate Change Scoping Plan includes the potential regulations and programs to achieve the 2030 target, including strategies consistent with AB 197 requirements. The 2017 Scoping Plan establishes a new emissions limit of 260 MMTCO_{2e} 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 (ZE/NZE) 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 conservation of agricultural and other lands. Requirements for GHG reductions at stationary sources complement efforts by the local air districts to tighten criteria air pollutants and TACs emissions limits 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 ZEV 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 and utilizes NZE technology and deployment of ZEV 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.
- Continued implementation of SB 375.
- Post-2020 Cap-and-Trade Program that includes declining caps.

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- Development of a Natural and Working Lands Action Plan to secure California’s land base as a net carbon sink.

In addition to the statewide strategies listed above, the 2017 Climate Change Scoping Plan also identified local governments as essential partners in achieving the state’s long-term GHG reduction goals and identified local actions to reduce GHG emissions. As part of the recommended actions, CARB recommends statewide targets of no more than 6 MTCO_{2e} or less per capita by 2030 and 2 MTCO_{2e} or less per capita by 2050. CARB recommends that local governments evaluate and adopt robust and quantitative locally appropriate goals that align with the statewide per capita targets and the state’s 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 the discretion to develop evidence-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 in 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 (CARB 2017b).

The Scoping Plan scenario is set against what is called the business-as-usual yardstick—that is, what GHG emissions would look like if the state did nothing beyond the existing policies that are required and already in place to achieve the 2020 limit, as shown in Table 5.5-3, *2017 Climate Change Scoping Plan Emissions Reductions Gap*. 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. As 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 5.5-3 2017 Climate Change Scoping Plan Emissions Reductions Gap

Modeling Scenario	2030 GHG Emissions MMTCO _{2e}
Reference Scenario (Business-as-Usual)	398
With Known Commitments	320
2030 GHG Target	260
Gap to 2030 Target	60

Source: CARB 2017b.

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Table 5.5-4, *2017 Scoping Plan Emissions Changes by Sector to Achieve the 2030 Target*, provides estimated GHG emissions by sector, compared to 1990 levels, and the range of GHG emissions for each sector estimated for 2030.

Table 5.5-4 2017 Scoping Plan Emissions Changes by Sector to Achieve the 2030 Target

Scoping Plan Sector	1990 MMTCO _{2e}	2030 Proposed Plan Ranges MMTCO _{2e}	% Change from 1990
Agricultural	26	24–25	-4% to -8%
Residential and Commercial	44	38–40	-9% to -14%
Electric Power	108	30–53	-51% to -72%
High GWP	3	8–11	267% to 367%
Industrial	98	83–90	-8% to -15%
Recycling and Waste	7	8–9	14% to 29%
Transportation (including TCU)	152	103–111	-27% to -32%
Net Sink ¹	-7	TBD	TBD
Sub Total	431	294–339	-21% to -32%
Cap-and-Trade Program	NA	34–79	NA
Total	431	260	-40%

Source: CARB 2017b.

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

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

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 requires 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 by 40 percent, hydrofluorocarbon gases by 40 percent, and anthropogenic black carbon by 50 percent below 2013 levels by 2030. The bill also establishes targets for reducing organic waste in landfills. On March 14, 2017, CARB adopted the Final Proposed Short-Lived Climate Pollutant 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. SCAQMD is one of the air districts that requires air pollution control technologies for chain-driven broilers, which reduces their particulate emissions by over 80 percent (CARB 2017a). Additionally, SCAQMD Rule 445 limits installation of new fireplaces in the South Coast Air Basin.

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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. The updated targets consider the need to further reduce VMT, as identified in the draft 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 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. As proposed, CARB staff's proposed targets would result in an additional reduction of over 10 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 21 percent per capita GHG reduction in 2035 from 2005 levels (compared to the 2010 target of 13 percent) (CARB 2017c). The updated targets and methodology will take effect on January 1, 2018, and sustainable communities strategies adopted in 2018 and later would be subject to these new targets.

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SCAG's 2016-2040 RTP/SCS

SB 375 requires the MPOs to prepare a sustainable communities strategy in their regional transportation plan. For the SCAG region, the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) was adopted on April 7, 2016, and is an update to the 2012 RTP/SCS (SCAG 2016). In general, the SCS outlines a development pattern for the region, which, 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.

The 2016-2040 RTP/SCS projects that the SCAG region will meet or exceed the passenger per capita targets set in 2010 by CARB. It is projected that VMT per capita in the region for year 2040 would be reduced by 7.4 percent with implementation of the 2016-2040 RTP/SCS compared to a no-plan year 2040 scenario. Under the 2016-2040 RTP/SCS, SCAG anticipates lowering GHG emissions 8 percent below 2005 levels by 2020, 18 percent by 2035, and 21 percent by 2040. The 18 percent reduction by 2035 over 2005 levels represents a 2 percent increase in reduction compared to the 2012 RTP/SCS projection. Overall, the SCS is meant to provide growth strategies that will achieve the regional GHG emissions reduction targets. Land use strategies to achieve the region's targets include planning for new growth around high quality transit areas and livable corridors, and creating neighborhood mobility areas to integrate land use and transportation and plan for more active lifestyles (SCAG 2016). However, the SCS does not require that local general plans, specific plans, or zoning be consistent with the SCS; instead, it provides incentives to governments and developers for consistency.

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.

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 carbon dioxide equivalent 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

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mechanisms to allow these providers to choose how they reduce emissions during the “fuel cycle” using the most economically feasible methods.

Senate Bills 1078, 107, 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, 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.

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.

California Building Code: Building Energy Efficiency Standards

Energy conservation standards for new residential and non-residential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the CEC) in June 1977 and most recently revised in 2016 (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. On June 10, 2015, the CEC adopted the 2016 Building Energy Efficiency Standards, which went into effect on January 1, 2017.

The 2016 Standards improve upon the previous 2013 Standards for new construction of and additions and alterations to residential and nonresidential buildings. Under the 2016 Standards, residential and nonresidential buildings are generally 28 and 5 percent more energy efficient than the 2013 Standards,

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respectively (CEC 2015a). Buildings that were constructed in accordance with the 2013 Building Energy Efficiency Standards are 25 percent (residential) to 30 percent (nonresidential) more energy efficient than the previous 2008 standards as a result of better windows, insulation, lighting, ventilation systems, and other features. Although the 2016 standards do not achieve zero net energy (ZNE), they get very close to the state's goal and take important steps toward changing residential building practices in California. The 2019 standards will take the final step to achieve ZNE for newly constructed residential buildings throughout California (CEC 2015b).

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 2016. The 2016 Standards became effective on January 1, 2017.

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 Regulations

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 (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.

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.

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

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Section 5.408 of the 2016 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.

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 required 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, including multifamily residential dwellings that consist of 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 in with food waste.

Water Efficiency Regulations

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.

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.

Local Laws

City of Anaheim Municipal GHG Reduction Plan

The City of Anaheim’s Greenhouse Gas Reduction Plan: Sustainable Electric & Water Initiatives (GHG Reduction Plan), approved on July 21, 2015, identifies reduction targets for years 2020 and 2030 to be achieved by the Anaheim Public Utilities Department (APUD). The 2020 reduction target for GHG emissions from power generation is 20 percent below 1990 levels and 40 percent below 1990 levels for the 2030 reduction target. To meet these emissions targets, the GHG Reduction Plan also identifies renewables portfolio targets of increasing the APUD power supply generated from renewable sources up to 33 percent by year 2020 and 40 to 50 percent by year 2030. The GHG Reduction Plan also establishes transportation-related goals for APUD to convert its fleet vehicles to consist of 10 percent low to zero emissions vehicles by year 2020 and up to 20 percent by year 2030.

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City of Anaheim Sustainability Programs

- **Anaheim Public Utilities Incentive Programs:** The program encompasses more than 45 rebates and incentive programs offered to businesses and residents in Anaheim to assist them in water and energy savings.
- **Electric Vehicle Charging:** The City of Anaheim developed a streamlined process to promote use of electric vehicles (EV) and created a rebate program for installation of EV chargers. The City currently offers rebate programs for private- and public-use EV chargers.
- **Green Building Program/Incentives:** This program provides rebates for buildings certified as “green” by the US Green Building Council, California Green Build, Build It Green, or other rating program.
- **Green Connection Resolution and Updates:** In 2006, the Anaheim City Council adopted a resolution establishing a series of goals that are grounded in the principles of environmental soundness and sustainable development. Through this program, City residents can track the City’s progress and see the most recent green developments.

5.5.1.3 EXISTING CONDITIONS

The Project Area consists of single- and multifamily residences and commercial land uses. Operation of these land uses generates GHG emissions from natural gas used for energy, heating, and cooking; electricity usage; vehicle trips for employees and residents; area sources such as landscaping equipment and consumer cleaning products; water demand; waste generation; and solid waste generation. Table 5.5-5, *Existing GHG Emissions Inventory*, shows the existing emissions currently associated with existing land uses in the Project Area, modeled using CalEEMod 2016.3.1.

Table 5.5-5 Existing GHG Emissions Inventory

Sector	GHG Emissions MTCO ₂ e/Year	Percent of Total
Area	392	1%
Energy ¹	18,441	40%
On-Road Transportation ²	19,444	42%
Solid Waste Disposal	5,327	12%
Water/Wastewater ³	2,383	5%
Total	45,987	100%
Service Population (SP) ⁴	6,766	—
MTCO ₂ e/Year/SP	6.8	—

Source: CalEEMod 2016.3.1.

Notes: Totals may not add to 100 percent due to rounding.

¹ Existing residential and nonresidential building energy use modeled using historical energy demand rates in CalEEMod.

² Transportation emissions are based on trip generation and VMT data provided by Fehr & Peers. Assumed vehicle fleet mix based on the annual average daily trips identified by Caltrans for the segment of Highway 39 north of Lincoln Avenue (Caltrans 2016a).

³ Water use is based on the water demand rates provided by Fuscoe Engineering (see Appendix G).

⁴ Service population consists of 5,139 residents and 1,627 employees in the Project Area.

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5.5.2 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:

- 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.

South Coast Air Quality Management District

SCAQMD has adopted a significance threshold of 10,000 MTCO_{2e} per year for permitted (stationary) sources of GHG emissions for which SCAQMD is the designated lead agency. To provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents, SCAQMD convened a GHG CEQA Significance Threshold Working Group (Working Group). Based on the last Working Group meeting (Meeting No. 15) in September 2010, SCAQMD identified a tiered approach for evaluating GHG emissions for development projects where SCAQMD is not the lead agency (SCAQMD 2010).

- **Tier 1.** If a project is exempt from CEQA, project-level and 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 cumulative GHG emissions are less than significant.
- **Tier 3.** If GHG emissions are less than the screening-level threshold, project-level and cumulative GHG emissions are less than significant.

For projects that are not exempt or where no qualifying GHG reduction plans are directly applicable, SCAQMD 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 SCAQMD 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. SCAQMD identified a screening-level threshold of 3,000 MTCO_{2e} annually for all land use types or the following land-use-specific thresholds: 1,400 MTCO_{2e} for commercial projects, 3,500 MTCO_{2e} for residential projects, and 3,000 MTCO_{2e} for mixed-use projects. These bright-line thresholds 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,

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projects that do not exceed the bright-line threshold would have a nominal, and therefore, less than cumulatively considerable impact on GHG emissions:

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

SCAQMD has identified an efficiency target for projects that exceed the bright-line threshold: a 2020 efficiency target of 4.8 MTCO_{2e}/year/SP for project-level analyses and 6.6 MTCO_{2e}/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

For projects that would be implemented beyond year 2020, the GHG emissions reduction target is extrapolated based on the 2050 climate stabilization goals. The project-level GHG threshold is based on the trajectory needed to achieve the year 2030 GHG reduction target under SB 32 (40 percent below 1990 levels by 2030) and Executive Order S-03-05 (80 percent below 1990 levels by 2050) for the horizon year of the project. Table 5.5-6, *Post-2030 GHG Reduction Targets*, shows that the estimated 2035 GHG project-level efficiency target would be 2.4 MTCO_{2e} per service population per year to be on a trajectory to achieve the GHG reduction goal of Executive Order S-03-05.

Table 5.5-6 Post-2030 GHG Reduction Targets

GHG Sector ¹	Scoping Plan Scenario GHG Emissions MMTCO _{2e}
2017 Scoping Plan End Use Sector 2030 – Land Use Only Sectors	
Residential – residential energy consumption	38.4
Commercial – commercial energy consumption	26.8
Transportation – transportation energy consumption	104.1
Transportation Communications and Utilities – energy that supports public infrastructure like street lighting and waste treatment facilities	4.3
Non-Energy Solid Waste – methane emissions from solid waste disposal	9.17
Total 2017 Scoping Plan Land Use Sector Target	182.8
Scoping Plan 2030 Project-Level Efficiency Target	
2030 Population ²	44,085,600
2030 Employment ³	17,394,580
2030 Service Population	61,480,180
2030 Efficiency Target	3.0 MTCO_{2e}/SP

⁵ SCAQMD 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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Table 5.5-6 Post-2030 GHG Reduction Targets

Scoping Plan 2050 Project-Level Efficiency Target	
2050 Population ²	49,779,362
2050 Employment ³	20,698,460
2050 Service Population	70,477,822
2050 Efficiency Target	1.2 MTCO_{2e}/SP
Estimated 2035 Project-Level Efficiency Target⁴	
2035 Land Use Sector Target Estimate	151,400,000
2035 Population Estimate	47,233,240
2035 Employment Estimate	18,992,870
2035 Service Population Estimate	66,266,110
2035 Efficiency Target	2.4 MTCO_{2e}/SP

Sources:
¹ CARB 2017d.
² CDOF 2014.
³ Caltrans 2016. Without industrial and agricultural sectors.
⁴ The 2035 efficiency target is derived by interpolating the 2030 land use emissions target of 183 MMTCO_{2e} (40 percent below 1990 levels by 2030) and the 2050 land use emissions goal of 57.4 MMTCO_{2e} (80 percent below 1990 levels by 2050), which equates to approximately 47 percent below 1990 levels by 2035. The population and employment estimates are based on a similar forecast to estimate the service population in California in 2035.

5.5.3 Environmental Impacts

5.5.3.1 METHODOLOGY

This GHG evaluation was prepared in accordance with the requirements of CEQA to determine if significant GHG impacts are likely in conjunction with the Proposed Project. SCAQMD has published guidelines that are intended to provide local governments with guidance for analyzing and mitigating environmental impacts and which were used in this analysis. The analysis in this section is based on buildout of the Proposed Project as modeled using CalEEMod, version 2016.3.1, for the following sectors:

- **Transportation:** Based on the annual average trip generation and VMT data provided by Fehr and Peers (see Appendix F of this DEIR). Average trip distances of 7.0 and 6.0 miles per trip are used for the existing and project buildout scenarios, respectively (Fehr and Peers 2018). Based on the estimated 20,289 average daily trips (ADT) generated under existing conditions and the 77,256 ADTs generated under full buildout conditions, approximately 142,023 vehicle miles per day are generated currently and 463,533 vehicle miles per day would be generated under full buildout conditions (Fehr and Peers 2018).
- **Area Sources:** For fireplaces, it is assumed that condominiums, townhomes, and single-family dwellings are equipped with gas fireplaces per SCAQMD 445. In addition, it is assumed that apartment units and mobile homes do not and would not have fireplaces.
- **Solid Waste Disposal:** Indirect emissions from waste generation are based on CalRecycle solid waste generation rates (see Table 5.15-12, *Solid Waste Generation Rates*, for further details).

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- **Water/Wastewater:** GHG emissions from this sector are associated with the embodied energy used to supply, treat, and distribute water and treat wastewater and with fugitive GHG emissions from wastewater treatment. Emissions are based on average water demand and wastewater generation provided by Fuscoe Engineering (see Appendix G).
- **Energy:** GHG emissions from this sector are from use of electricity and natural gas by the proposed buildings and the existing buildings. New buildings are assumed to comply with the 2016 Building Energy Efficiency Standards, which are 28 percent more energy efficient for residential buildings and 5 percent more energy efficient for nonresidential buildings and residential buildings of four or more stories than the 2013 Building Energy Efficiency Standards. Existing buildings are assumed to comply with the 2005 Building Energy Efficiency Standards.
- **Construction:** Development of the Proposed Project would generally begin at the start of 2018. The construction phasing uses the CalEEMod default schedule based on the anticipated new land uses, and the duration of each activity is normalized to an 18-year building period (2018 to 2035). In addition, although the specific timeline for Project development is unknown, this analysis assumes that the various construction activities (e.g., site preparation, demolition, building construction) would overlap. Furthermore, some of the existing residential and nonresidential land uses in the Project Area would be demolished (see Appendix C for further details). Construction assumptions were based on CalEEMod defaults such as construction equipment mix and worker, vendor, and haul trips. Table 5.5-7, *Construction Activities, Phasing, and Equipment*, shows the assumed construction activities and the start and end dates (based on 18-year buildout) and equipment mix for each of the activities.

Table 5.5-7 Construction Activities, Phasing and Equipment

Activities ¹	Start/End Dates ¹	Equipment ²
Demolition	1/1/2018 – 11/14/2018	1 concrete/industrial saw; 3 excavators; 2 rubber tired dozers; 1 water truck
Site Preparation	1/1/2018 – 7/10/2018	3 rubber tired dozers; 4 tractors/loaders/backhoes; 1 water truck
Grading	1/1/2018 – 5/8/2019	2 excavators; 1 grader; 1 rubber tired dozer; 2 scrapers; 2 tractors/loaders/backhoes; 1 water truck
Building Construction	1/1/2018 – 7/16/2031	1 crane; 3 forklifts; 1 generator set; 3 tractors/loaders/backhoes; 1 welder
Asphalt Paving	1/1/2018 – 12/17/2018	2 pavers; 2 paving equipment; 2 rollers
Architectural Coating	1/1/2018 – 12/17/2021	1 air compressor

¹ Based on CalEEMod defaults and normalized to an 18-year buildout duration. Start/end dates represent the total number of workdays per activity condensed to begin on January 1, 2018, since actual dates of construction activities are unknown.

² Based on CalEEMod defaults.

Life cycle emissions are not included in this analysis because not enough information is available for the Proposed Project, and therefore life cycle GHG emissions would be speculative.⁶ Black carbon emissions are

⁶ 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

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not included in the GHG analysis because CARB does not include this pollutant in the state's AB 32 inventory but treats this short-lived climate pollutant separately.⁷ Additionally, while not anticipated, industrial sources of emissions that require a permit from SCAQMD (permitted sources) are not included in the Proposed Project community inventory since they have separate emission reduction requirements. GHG modeling is included in Appendix C of this Draft EIR.

5.5.3.2 IMPACT ANALYSIS

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

Impact 5.5-1: Although the Proposed Project at buildout would result in lower emissions per service population compared to existing conditions, it would exceed the forecast year-2035 GHG emissions efficiency metric significance threshold and would have a significant impact on the environment. [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.

Implementation of the Proposed Project would contribute to global climate change through direct emissions of GHG from on-site area sources and vehicle trips generated by the Proposed Project, and indirectly through off-site energy production required for on-site activities, water use, and waste disposal. The total and net annual GHG emissions associated with full buildout of the Proposed Project are shown in Table 5.5-8, *BBSP Total and Net Annual Operational Phase GHG Emissions at Buildout*. Annual GHG emissions were calculated for construction and operation of the Proposed Project. The emissions associated with the Proposed Project includes emissions associated with the new facilities, with the overall growth in the service population (e.g., mobile-source emissions), and with the existing remaining facilities. Total construction emissions were amortized over 30 years and included in the emissions inventory to account for the short-term, one-time GHG emissions from the construction phase of the Proposed Project.

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 Proposed Project 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).

⁷ 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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Table 5.5-8 BBSP Total and Net Annual Operational Phase GHG Emissions at Buildout

Sector	GHG Emissions MTCO _{2e} /Year			
	Existing	Specific Plan Buildout	Percent of the Specific Plan Forecast	Change from Existing
Area	392	1,287	1%	875
Energy ¹	18,441	41,748	42%	23,307
On-Road Transportation ²	19,444	37,154	37%	17,709
Solid Waste Disposal	5,327	12,090	12%	6,763
Water/Wastewater ³	2,383	5,259	5%	2,876
Amortized Construction ⁴	NA	1,632	2%	1,632
Total	45,987	99,150	100%	53,163
Tier 3 SCAQMD Bright-Line Threshold	—	—	—	3,000
Exceed Threshold?	—	—	—	Yes
Service Population (SP) ⁵	6,766	21,896	—	
MTCO _{2e} /SP	6.8	4.5	—	-2.3
Tier 4 2035 Project-Level Efficiency Threshold ⁶	—	2.4	—	—
Exceed Threshold?	—	Yes	—	—

Source: CalEEMod 2016.3.1.

Notes: Totals may not add to 100 percent due to rounding. MTCO_{2e}: Metric Tons of Carbon Dioxide-Equivalent.

¹ Existing residential and nonresidential building energy use modeled using historical energy demand rates in CalEEMod. New buildings would achieve the 2016 Building Energy Efficiency Standards.

² Transportation emissions are based on trip generation and VMT data provided by Fehr & Peers.

³ Based on water demand and wastewater generation rates provided by Fuscoe Engineering (see Appendix G).

⁴ Total construction emissions during the buildout period are amortized over a 30-year project lifetime in accordance with SCAQMD guidance and incorporated into the operational emissions analysis.

⁵ Existing service population consists of 5,139 residents and 1,627 employees. Buildout service population consists of 16,166 residents and 5,730 employees.

⁶ Based on the SCAQMD 2020 per capita target of 4.8 MTCO_{2e} per service population and extrapolating it for the midterm year 2030 GHG reduction target of SB 32 and the long term GHG reduction goals of Executive Order S-03-05 for 2050. Project-level thresholds are based only on the State's land use emissions inventory sectors identified in the Scoping Plan to ensure consistency with the scope of emissions included in a development project's GHG emissions inventory, and are therefore more stringent than the plan-level thresholds, which include all GHG sectors.

As shown in the table, implementation of the proposed Specific Plan would result in a net increase of GHG emissions by 53,163 MTCO_{2e} per year compared to the existing conditions in the Project Area. This net increase would exceed SCAQMD's bright-line threshold of 3,000 MTCO_{2e} per year; therefore, emissions are compared to the efficiency metric, which is based on achieving a trajectory toward the state's long-term climate stabilizations goals under Executive Order S-03-05. As identified in this table, the Proposed Project would generate 4.5 MTCO_{2e}/SP and would exceed the 2035 efficiency target of 2.4 MTCO_{2e}/SP.

While implementation of the Proposed Project would generate a substantial increase in GHG emissions and would result in per service population emissions that exceed the efficiency target, its guiding principles, design guidelines, and proposed land use designations for the plan area would contribute to minimizing emissions to the extent feasible. Guiding principles and objectives in the BBSP include providing for a balanced mix of uses, boosting the economy, and promoting sustainable development. Additionally, objectives of the Proposed Project include removing barriers to infill development, reusing underutilized properties, encouraging a balanced mix of uses, and promoting development that reduces VMT and encourages active transit. As an example, the Proposed Project would create a Mixed-Use Medium and a Mixed-Use High

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development area in the Project Area in addition to integrating a Neighborhood Commercial Development Area that would provide daily services and amenities for nearby residences and businesses. In addition to the proposed land use changes and focus, the City's Bicycle Master Plan, adopted in 2017, also proposes new bicycle facilities in the Project Area, such as a Class I bicycle lane along Carbon Creek Channel, a Class II lane along Lincoln Avenue and Orange Avenue, and upgrade from an existing Class III to Class II on Ball Road between Beach Boulevard and Western Avenue. Furthermore, the Orange County Transit Authority has identified portions of Beach Boulevard and Lincoln Avenue in the Project Area as opportunity areas for future high-quality transit service (e.g., streetcar, bus rapid transit). Overall, the general proposed guiding principles toward land use planning and the proposed land use changes and transportation improvements would contribute to reducing vehicle trips and VMT per service population to the extent feasible compared to a no-project buildout scenario.

In addition to components of the Proposed Project that would contribute to reducing vehicle trips and VMT, the Implementation Action Plan of the Proposed Project contains action items that would contribute to reducing energy demand and usage and increasing the use of alternative-fueled vehicles. As outlined in Table 3-4 of this EIR, Action Item I.1 would promote the use of gray water systems in both commercial and residential developments. Use of gray water systems would contribute to reducing GHG emissions associated with treatment and distribution. In addition, Sustainability Actions such as Action Items S.3 through S.6 (installation of solar panels at various parks and other facilities) would increase renewable energy use, and Action Item S.10 (net zero energy) would contribute to reducing building energy demands. Furthermore, Action Items S.14 through S.16 would promote the installation of more EV charging stations as well as hydrogen and compressed natural gas fueling stations. Installation of these alternative-energy fueling stations would contribute to encouraging the use of more alternative-fueled vehicles and fewer GHG-emitting vehicles.

Although implementation of the proposed Specific Plan under full buildout conditions would result in lower GHG emissions per service population compared to the existing conditions, the forecast year 2035 threshold of 2.4 MTCO_{2e} per service population per year would be exceeded in the Project Area. The increases in overall emissions would be attributable to the additional nonresidential and residential land uses proposed. In addition, an increase in service population would contribute to an increase in wastewater generation, water demand, and vehicle trips. New buildings would be more energy efficient, but there would be an overall increase in energy usage due to the magnitude of new building space that would be constructed. Overall, the Proposed Project's cumulative contribution to the long-term GHG emissions in the state would be considered potentially significant.

Impact 5.5-2: Implementation of the Proposed Project would not conflict with plans adopted for the purpose of reducing GHG emissions. [Threshold GHG-2]

Impact Analysis: Applicable plans adopted for the purpose of reducing GHG emissions include CARB's Scoping Plan and SCAG's 2016-2040 RTP/SCS. A consistency analysis with these plans is presented below:

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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 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 Proposed Project 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 Proposed Project would meet the current CALGreen and Building Energy Efficiency standards. The CEC anticipates that new residential buildings will be required to achieve ZNE by 2020 and that new nonresidential buildings will be required to achieve ZNE by 2030. Project GHG emissions shown in Table 5.5-8 include reductions associated with statewide strategies that have been adopted since AB 32. Therefore, the Proposed Project would not obstruct implementation of the CARB Scoping Plan.

SCAG's Regional Transportation Plan/Sustainable Communities Strategy

SCAG's 2016-2040 RTP/SCS was adopted April 7, 2016. The RTP/SCS identifies multimodal transportation investments, including bus rapid transit, light rail transit, heavy rail transit, commuter rail, high-speed rail, active transportation strategies (e.g., bike ways and sidewalks), transportation demand management strategies, transportation systems management, highway improvements (interchange improvements, high-occupancy vehicle lanes, high-occupancy toll lanes), arterial improvements, goods movement strategies, aviation and airport ground access improvements, and operations and maintenance to the existing multimodal transportation system.

SCAG's RTP/SCS identifies that land use strategies that focus on new housing and job growth in areas served by high quality transit and other opportunity areas would be consistent with a land use development pattern that supports and complements the proposed transportation network. The overarching strategy in the 2016-2040 RTP/SCS is to allow the southern California region to grow in more compact communities in existing urban areas; provide neighborhoods with efficient and plentiful public transit and abundant and safe opportunities to walk, bike, and pursue other forms of active transportation; and preserve more of the region's remaining natural lands (SCAG 2016). The 2016-2040 RTP/SCS contains transportation projects to help more efficiently distribute population, housing, and employment growth as well as a forecast development that is generally consistent with regional-level general plan data. The projected regional development pattern—when integrated with the proposed regional transportation network identified in the RTP/SCS—would reduce per capita vehicular-travel-related GHG emissions and achieve the GHG reduction per capita targets for the SCAG region. The RTP/SCS does not require that local general plans, specific

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plans, or zoning be consistent with the RTP/SCS, but provides incentives for consistency for governments and developers.

Table 5.5-9, *Proposed Project Consistency with SCAG’s 2016-2040 RTP/SCS*, provides an evaluation of the Proposed Project in comparison to the three primary transportation-land-use strategies in the 2016-2040 RTP/SCS. As shown in the table, the Proposed Project would be consistent with the applicable strategy. Additionally, as demonstrated in Table 5.8-1, *Consistency with SCAG’s 2016–2040 RTP/SCS Goals*, of Section 5.8, *Land Use and Planning*, the Proposed Project would be consistent with the 2016-2040 RTP/SCS goals. Based on the existing average service population of 6,766 persons and an estimated 142,023 VMT per day, the current VMT efficiency is approximately 21.0 VMT/SP. At full buildout of the Proposed Project, the average daily service population in the Project Area would be 21,896 persons who would generate approximately 463,533 VMT per day (Fehr and Peers 2017). VMT efficiency at buildout would be 21.2 VMT/SP, which would be a slight increase over existing conditions (0.9 percent increase from existing). However, it would be consistent with SCAG’s year 2040 daily VMT goal of 21.4 miles per person for Orange County. Therefore, implementation of the Proposed Project would not interfere with SCAG’s ability to implement the regional strategies outlined in the 2016–2040 RTP/SCS.

Table 5.5-9 Proposed Project Consistency with SCAG’s 2016-2040 RTP/SCS

SCAG Transportation-Land Use Strategies	Implementing Policies/Strategies	Consistency
<p>Focus new growth around high quality transit areas (HQTAs). The 2016 RTP/SCS overall land use pattern reinforces the trend of focusing new housing and employment in the region’s HQTAs. The 2016 RTP/SCS assumes that 46 percent of new housing and 55 percent of new employment locations developed between 2012 and 2040 will be in HQTAs, which comprise only 3 percent of the total land area in the SCAG region (SCAG 2016).</p>	<p>Additional local policies that ensure that development in HQTAs achieve the intended reductions in VMT and GHG emissions include:</p> <ul style="list-style-type: none"> • Affordable housing requirements. • Reduced parking requirements. • Adaptive reuse of existing structures. • Density bonuses tied to family housing units such as three- and four-bedroom units. • Mixed-use development standards that include local serving retail. • Increased Complete Streets investments around HQTAs. 	<p>Consistent: The Project Area is in a designated HQTA (SCAG 2017a). Additionally, the portion of the Project Area north of Orange Avenue is in a designated Transit Priority Area (SCAG 2017b). Implementation of the proposed Specific Plan would increase the development intensities in the HQTA. Guiding principles of the Proposed Project include providing for a balanced mix of uses, boosting the economy, and promoting sustainable development. Additionally, objectives of the Proposed Project include removing barriers to infill development, reusing underutilized properties, encouraging a balanced mix of uses, and promoting development that reduces VMT and encourages active transit. Furthermore, the Proposed Project includes a Mixed-Use land use designation.</p>
<p>Plan for growth around livable corridors. SCAG’s livable-corridors strategy seeks to revitalize commercial strips through integrated transportation and land use planning that results in increased economic activity and improved mobility options.</p>	<p>Additional livable corridors strategies include:</p> <ul style="list-style-type: none"> • Transit improvements, including dedicated lane bus rapid transit (BRT) or semidicated BRT-light. The remaining corridors have the potential to support other features that improve bus performance (enhanced bus shelters, real-time travel information, off-bus ticketing, all door boarding, and longer distances between stops to improve speed and reliability). 	<p>Consistent: As stated, guiding principles of the Proposed Project include providing for a balanced mix of uses, boosting the economy, and promoting sustainable development. Additional objectives of the Proposed Project include removing barriers to infill development, reusing underutilized properties, encouraging</p>

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Table 5.5-9 Proposed Project Consistency with SCAG's 2016-2040 RTP/SCS

SCAG Transportation-Land Use Strategies	Implementing Policies/Strategies	Consistency
	<ul style="list-style-type: none"> Active transportation improvements: Livable corridors include increased investments in complete streets to make these corridors and the intersecting arterials safe for biking and walking. Land use policies: Livable corridor strategies include the development of mixed-use retail centers at key nodes along the corridors, increasing neighborhood-oriented retail at more intersections, and zoning that allows for the replacement of underperforming auto-oriented strip retail between nodes with higher density residential and employment. 	<p>a balanced mix of uses, and promoting development that reduces VMT and encourages active transit. Furthermore, the Proposed Project includes a Mixed-Use land use designation. The City's Bicycle Master Plan, adopted in 2017, also proposes new bicycle facilities in the Project Area, such as a Class I bicycle lane along Carbon Creek Channel, a Class II lane along Lincoln Avenue and Orange Avenue, and upgrade from the existing Class III Class II on Ball Road between Beach Boulevard and Western Avenue. Regarding public transit options, the Orange County Transit Authority has identified portions of Beach Boulevard and Lincoln Avenue in the Project Area as opportunity areas for future high-quality transit service (e.g., streetcar, bus rapid transit).</p>
<p>Provide more options for short trips in neighborhood mobility areas and complete communities. Neighborhood mobility areas have a high intersection density, low to moderate traffic speeds, and robust residential retail connections. These areas are suburban in nature, but can support slightly higher density in targeted locations. The land use strategies include shifting retail growth from large centralized retail strip malls to smaller distributed centers throughout a neighborhood mobility area.</p>	<ul style="list-style-type: none"> Neighborhood mobility area land use strategies include pursuing local policies that encourage replacing motor vehicle use with neighborhood electric vehicle (NEV) use. NEVs are a federally designated class of passenger vehicle rated for use on roads with posted speed limits of 35 miles per hour or less. Steps needed to support NEV use include providing state and regional incentives for purchases, local planning for charging stations, designating a local network of low speed roadways, and adopting local regulations that allow smaller NEV parking stalls. Complete communities strategies include creation of mixed-use districts through a concentration of activities with housing, employment, and a mix of retail and services in close proximity to each other. Focusing a mix of land uses in strategic growth areas creates complete communities wherein most daily needs can be met within a short distance of home, providing residents with the opportunity to patronize their local area and run daily errands by walking or cycling rather than traveling by automobile. 	<p>Consistent: Guiding principles for the Proposed Project would support developing a mix of land uses, attracting local service businesses, improving and beautifying Beach Boulevard through implementation of complete street improvements, increasing nonmotorized transportation, and creating public spaces that would encourage social interaction. The Proposed Project would create a Mixed-Use Medium and a Mixed-Use High development areas and a Neighborhood Commercial Development Area that would provide daily services and amenities for the nearby residences and businesses. In addition, Action Item S.14 would promote the installation of more EV charging stations, which would contribute to increasing the use of EVs in general.</p>

Source: SCAG 2016.

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5.5.4 Cumulative Impacts

Project-related GHG emissions are not confined to a particular air basin, but are dispersed worldwide. Therefore, impacts under Impact 5.5-1 are not project-specific impacts to global warming, but the Proposed Project's contribution to this cumulative impact. The recommended mitigation measures would ensure that GHG emissions from buildout of the Proposed Project would be minimized. However, additional federal, state, and local measures would be necessary to reduce GHG emissions under the Proposed Project to meet the mid-term GHG reduction target set by SB 32 and the long-term GHG reduction goal under Executive Order S-03-05. Based on SCAQMD's 2020 efficiency target, the SB 32 target, and the reduction goal under Executive Order S-03-05, this would equate to 2.4 MTCO₂e/SP at the full buildout. The buildout GHG emissions inventory for the proposed Specific Plan would generate 4.5 MTCO₂e/SP and would exceed the forecast efficiency target of 2.4 MTCO₂e/SP. CARB's Draft 2017 Scoping Plan identifies additional state strategies to achieve the 2030 target established under SB 32 as well as strategies to be on a trajectory to achieve the 2050 target identified under Executive Order S-03-05. However, as identified by the California Council on Science and Technology, the state cannot meet the 2050 goal without major advances in technology (CCST 2012). Overall, as no additional statewide measures are currently available to further minimize GHG emissions, cumulative GHG emissions impacts would remain significant and unavoidable.

5.5.5 Existing Regulations and Standard Conditions

State

- California Global Warming Solutions Act (AB 32)
- California Global Warming Solutions Act of 2006: Emissions Limit (SB 32)
- Sustainable Communities and Climate Protection Act (SB 375)
- Greenhouse Gas Emission Reduction Targets (Executive Order S-03-05)
- Clean Car Standards – Pavley (AB 1493)
- Renewables Portfolio Standards (SB 1078)
- California Integrated Waste Management Act of 1989 (AB 939)
- California Mandatory Commercial Recycling Law (AB 341)
- California Advanced Clean Cars CARB (Title 13 CCR)
- Low-Emission Vehicle Program – LEV III (Title 13 CCR)
- Heavy-Duty Vehicle Greenhouse Gas Emissions Reduction Measure (Title 17 CCR)
- Low Carbon Fuel Standard (Title 17 CCR)
- California Water Conservation in Landscaping Act of 2006 (AB 1881)
- California Water Conservation Act of 2009 (SBX7-7)
- Statewide Retail Provider Emissions Performance Standards (SB 1368).
- Airborne Toxics Control Measure to Limit School Bus Idling and Idling at Schools (13 CCR 2480)
- Airborne Toxic Control Measure to Limit Diesel-Fuel Commercial Vehicle Idling (13 CCR 2485)

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- In-Use Off-Road Diesel Idling Restriction (13 CCR 2449)
- Building Energy Efficiency Standards (Title 24, Part 6)
- California Green Building Code (Title 24, Part 11)
- Appliance Energy Efficiency Standards (Title 20)

5.5.6 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, one impact would be less than significant: 5.5-2.

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

- **Impact 5.5-1** Implementation of the Proposed Project would generate a substantial increase in GHG emissions compared to existing conditions and would have a significant impact on the environment.

5.5.7 Mitigation Measures

Impact 5.5-1

Mitigation Measures AQ-5 through AQ-7 from Section 5.2, *Air Quality*, apply here and would reduce GHG emissions of the Proposed Project.

Stationary Source

AQ-5 Prior to the issuance of building permits for new development projects in the Project Area, the applicant shall show on the building plans that all major appliances (dishwashers, refrigerators, clothes washers, and dryers) provided/installed are Energy Star certified or of equivalent energy efficiency. Installation of Energy Star or equivalent appliances shall be verified by the City of Anaheim prior to the issuance of a Certificate of Occupancy.

Transportation and Motor Vehicles

AQ-6 Prior to issuance of building permits for multifamily residential and mixed-use residential development projects in the Project Area, the project applicant shall indicate on the building plans that the following features have been incorporated into the design of the building(s). Proper installation of these features shall be verified by the City of Anaheim prior to the issuance of a Certificate of Occupancy.

- Electric vehicle charging shall be provided as specified in Section A4.106.8.2 (Residential Voluntary Measures) of the CALGreen Code.
- Bicycle parking shall be provided as specified in Section A4.106.9 (Residential Voluntary Measures) of the CALGreen Code.

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AQ-7 Prior to the issuance of building permits for nonresidential development projects in the Project Area, project applicants shall indicate on the building plans that the following features have been incorporated into the design of the building(s). Proper installation of these features shall be verified by the City of Anaheim prior to the issuance of a Certificate of Occupancy.

- For buildings with more than 10 tenant-occupants, changing/shower facilities shall be provided as specified in Section A5.106.4.3 (Nonresidential Voluntary Measures) of the CALGreen Code.
- Preferential parking for low-emitting, fuel-efficient, and carpool/van vehicles shall be provided as specified in Section A5.106.5.1 (Nonresidential Voluntary Measures) of the CALGreen Code.
- Facilities shall be installed to support future electric vehicle charging at each nonresidential building with 30 or more parking spaces. Installation shall be consistent with Section A5.106.5.3 (Nonresidential Voluntary Measures) of the CALGreen Code.

Mitigation Measures T-1 through T-3 from Section 5.13, *Transportation and Traffic*, would also reduce operational emissions of the Proposed Project.

T-1 Prior to the first final building and zoning inspection for any nonresidential project generating 50 or more employees, the property owners/developer shall complete the following steps below to develop, implement, and administer a comprehensive Transportation Demand Management (TDM) program.

- a) The property owner/developer shall provide to the City of Anaheim Public Works Department, for review and approval, a comprehensive TDM program that includes a menu of TDM program strategies and elements for both existing and future employees' commute options.
- b) The property owner/developer shall record a covenant on the property that requires ongoing implementation of the approved TDM program and designation of an on-site contact who will be responsible for coordinating the TDM program.
- c) The form of the covenant shall be approved by the City Attorney's Office prior to recordation.

T-2 Prior to the first final building and zoning inspection for any nonresidential project generating 50 or more employees, the property owner/developer shall join and financially participate in a clean fuel shuttle program, if established. The property owner/developer shall record a covenant on the property that requires ongoing participation in the program during project operation. The form of the covenant shall be approved by the City Attorney's Office prior to recordation.

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T-3 Prior to the first final building and zoning inspection for any nonresidential project generating 50 or more employees, the property owner/developer shall participate in the Anaheim Transportation Network (ATN)/Transportation Management Association. The property owner/developer shall record a covenant on the property that requires ongoing participation in the program and designation of an on-site contact who will be responsible for coordinating and representing the project with the ATN. The form of the covenant shall be approved by the City Attorney's Office prior to recordation.

5.5.8 Level of Significance After Mitigation

Impact 5.5-1

Incorporation of Mitigation Measures AQ-6 through AQ-7 would encourage and accommodate use of alternative-fueled vehicles and nonmotorized transportation and ensure that mobile-source GHG emissions from the buildout of the Proposed Project would be minimized. Mitigation Measures T-1 through T-3 would contribute to reducing VMT. In addition, Mitigation Measure AQ-5 would contribute to minimizing GHG emissions from the energy sector. However, additional federal, state, and local measures would be necessary to reduce GHG emissions under the Proposed Project to meet the long-term GHG reduction goals of Executive Order S-03-05 and SB 32. Although the emissions per service population would improve from implementation of the Proposed Project—from the current 6.80 MTCO₂e/SP to 4.53 MTCO₂e/SP—it would exceed the forecast year 2035 efficiency target of 2.4 MTCO₂e/SP. As stated, CARB's Draft 2017 Scoping Plan identifies additional state strategies to achieve the 2030 target established under SB 32. It also outlines strategies to be on a trajectory to achieve the 2050 target identified under Executive Order S-03-05 although it is estimated that the state cannot meet the 2050 goal without major advances in technology (CCST 2012). Since no additional statewide measures are currently available, Impact 5.5-1 would remain *significant and unavoidable*.

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