

## 5. Environmental Analysis

### 5.4 GREENHOUSE GAS EMISSIONS

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

This evaluation is based on the methodology recommended by the South Coast Air Quality Management District (SCAQMD). GHG emissions modeling was conducted using the California Emissions Estimator Model (CalEEMod), Version 2016.3.2, 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 (CO<sub>2</sub>) over a given period of time (20, 100, and 500 years). CO<sub>2</sub> has a GWP of 1.
- **Carbon dioxide-equivalent (CO<sub>2</sub>e).** The standard unit to measure the amount of greenhouse gases in terms of the amount of CO<sub>2</sub> that would cause the same amount of warming. CO<sub>2</sub>e is based on the GWP ratios between the various GHGs relative to CO<sub>2</sub>.
- **MTCO<sub>2</sub>e.** Metric ton of CO<sub>2</sub>e.
- **MMTCO<sub>2</sub>e.** Million metric tons of CO<sub>2</sub>e.

#### 5.4.1 Environmental Setting

##### 5.4.1.1 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 (CO<sub>2</sub>), methane (CH<sub>4</sub>), and ozone (O<sub>3</sub>)—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 (N<sub>2</sub>O), sulfur hexafluoride (SF<sub>6</sub>), hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons (IPCC 2001). The major GHGs applicable to the proposed project are briefly described.

- **Carbon dioxide (CO<sub>2</sub>)** 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

## 5. Environmental Analysis

### GREENHOUSE GAS EMISSIONS

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 (CH<sub>4</sub>)** 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 (N<sub>2</sub>O)** is emitted during agricultural and industrial activities as well as during the combustion of fossil fuels and solid waste.

GHGs are dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. Some GHGs have a stronger greenhouse effect than others. These are referred to as high GWP gases. The GWP of GHG emissions are shown in Table 5.4-1, *GHG Emissions and Their Relative Global Warming Potential Compared to CO<sub>2</sub>*. The GWP is used to convert GHGs to CO<sub>2</sub>-equivalence 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 CH<sub>4</sub>, 10 MT of CH<sub>4</sub> would be equivalent to 250 MT of CO<sub>2</sub>.

**Table 5.4-1 GHG Emissions and Their Relative Global Warming Potential Compared to CO<sub>2</sub>**

GHGs	Second Assessment Report Atmospheric Lifetime (Years)	Fourth Assessment Report Atmospheric Lifetime (Years)	Second Assessment Report Global Warming Potential Relative to CO <sub>2</sub> <sup>1</sup>	Fourth Assessment Report Global Warming Potential Relative to CO <sub>2</sub> <sup>1</sup>
Carbon Dioxide (CO <sub>2</sub> )	50 to 200	50 to 200	1	1
Methane <sup>2</sup> (CH <sub>4</sub> )	12 (±3)	12	21	25
Nitrous Oxide (N <sub>2</sub> O)	120	114	310	298

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 CO<sub>2</sub>. 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.

<sup>1</sup> Based on 100-year time horizon of the GWP of the air pollutant compared to CO<sub>2</sub>.

<sup>2</sup> 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 CO<sub>2</sub> is not included.

### California's GHG Sources and Relative Contribution

In 2018, the statewide GHG emissions inventory was updated for 2000 to 2016 emissions using the global warming potentials (GWPs) in IPCC's AR4.<sup>1</sup> Based on these GWPs, California produced 429.4 MMTCO<sub>2</sub>e GHG emissions in 2016. California's transportation sector was the single largest generator of GHG emissions, producing 40.5 percent of the state's total emissions. Industrial sector emissions made up 23.4 percent, and electric power generation made up 16.1 percent. Other major sectors of GHG emissions include commercial and residential (12.0 percent), agriculture and forestry (7.9 percent) and others (solvents and chemicals) at 0.2 percent (CARB 2018b).

<sup>1</sup> 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).

## 5. Environmental Analysis GREENHOUSE GAS EMISSIONS

California's GHG emissions have followed a declining trend since 2007. In 2016, emissions from routine GHG-emitting activities statewide were 429 MMTCO<sub>2e</sub>, 12 MMTCO<sub>2e</sub> lower than 2015 levels. This represents an overall decrease of 13 percent since peak levels in 2004 and 2 MMTCO<sub>2e</sub> below the 1990 level and the state's 2020 GHG target. During the 2000 to 2016 period, per capita GHG emissions in California have continued to drop from a peak in 2001 of 14.0 MTCO<sub>2e</sub> per capita to 10.8 MTCO<sub>2e</sub> per capita in 2016, a 23 percent decrease. Overall trends in the inventory also demonstrate that the carbon intensity of California's economy (the amount of carbon pollution per million dollars of gross domestic product) is declining, representing a 38 percent decline since the 2001 peak, while the state's gross domestic product has grown 41 percent during this period (CARB 2018c).

### 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 CO<sub>2</sub> in the atmosphere has increased by more than 35 percent since preindustrial times and has increased at an average rate of 1.4 parts per million per year since 1960, mainly due to combustion of fossil fuels and deforestation (IPCC 2007). These recent changes in the quantity and concentration of climate change pollutants far exceed the extremes of the ice ages, and the global mean temperature is warming at a rate that cannot be explained by natural causes alone. Human activities are directly altering the chemical composition of the atmosphere through the buildup of climate change pollutants (CAT 2006). In the past, gradual changes in the earth's temperature changed the distribution of species, availability of water, etc. However, human activities are accelerating this process so that environmental impacts associated with climate change no longer occur in a geologic time frame but within a human lifetime (IPCC 2007).

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

## 5. Environmental Analysis

### GREENHOUSE GAS EMISSIONS

- Intense tropical cyclone activity increases.
- Increased incidence of extreme high sea level (excluding tsunamis).

#### Potential Climate Change Impacts for California

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

In California and western North America, observations of the climate have shown: 1) a trend toward warmer winter and spring temperatures; 2) a smaller fraction of precipitation falling as snow; 3) a decrease in the amount of spring snow accumulation in the lower and middle elevation mountain zones; 4) advanced shift in the timing of snowmelt of 5 to 30 days earlier in the spring; and 5) a similar shift (5 to 30 days earlier) in the timing of spring flower blooms (CAT 2006). Overall, California has become drier over time, with five of the eight years of severe to extreme drought occurring between 2007 and 2016, with unprecedented dry years occurring in 2014 and 2015 (OEHHA 2018). Statewide precipitation has become increasingly variable from year to year, with the driest consecutive four years occurring from 2012 to 2015 (OEHHA 2018). According to the California Climate Action Team—a committee of state agency secretaries and the heads of agencies, boards, and departments, led by the Secretary of the California Environmental Protection Agency—even if actions could be taken to immediately curtail climate change emissions, the potency of emissions that have already built up, their long atmospheric lifetimes (see Table 5.4-1), and the inertia of the Earth's climate system could produce as much as 0.6°C (1.1°F) of additional warming. Consequently, some impacts from climate change are now considered unavoidable. Global climate change risks to California are shown in Table 5.4-2, *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.

**5. Environmental Analysis  
 GREENHOUSE GAS EMISSIONS**

**Table 5.4-2 Summary of GHG Emissions Risks to California**

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

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

**5.4.1.2 REGULATORY BACKGROUND**

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

**Federal**

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

## 5. Environmental Analysis

### GREENHOUSE GAS EMISSIONS

To regulate GHGs from passenger vehicles, EPA was required to issue an endangerment finding. The finding identifies emissions of six key GHGs—CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, hydrofluorocarbons, perfluorocarbons, and SF<sub>6</sub>—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 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 or more MTCO<sub>2</sub>e 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**

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

#### *Executive Order S-03-05*

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

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

## 5. Environmental Analysis GREENHOUSE GAS EMISSIONS

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

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

### *CARB 2008 Scoping Plan*

The first 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<sub>2e</sub> in 2020. In December 2007, CARB approved a 2020 emissions limit of 427 MMTCO<sub>2e</sub> (471 million tons) for the state (CARB 2008). To effectively implement the emissions cap, AB 32 directed CARB to establish a mandatory reporting system to track and monitor GHG emissions levels for large stationary sources that generate more than 25,000 MTCO<sub>2e</sub> 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<sub>2e</sub> 1990 emissions level and 2020 GHG emissions limit, established in response to AB 32, are slightly higher at 431 MMTCO<sub>2e</sub> (CARB 2014).

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

### *Executive Order B-30-15*

Executive Order B-30-15, signed April 29, 2015, sets a goal of reducing GHG emissions in the state to 40 percent below 1990 levels by year 2030. Executive Order B-30-15 also directs CARB to update the Scoping Plan to quantify the 2030 GHG reduction goal for the state and requires state agencies to implement measures to meet the interim 2030 goal as well as the long-term goal for 2050 in Executive Order S-03-05. It also requires

## 5. Environmental Analysis

### GREENHOUSE GAS EMISSIONS

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.

#### *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 December 24, 2017, CARB approved the 2017 Climate Change Scoping Plan Update, which outlines potential regulations and programs, including strategies consistent with AB 197 requirements, to achieve the 2030 target. The 2017 Scoping Plan establishes a new emissions limit of 260 MMTCO<sub>2e</sub> 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 conserve agricultural and other lands. Requirements for GHG reductions at stationary sources complement local air pollution control efforts by the local air districts to tighten 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 ZE buses and trucks;
- Low Carbon Fuel Standard (LCFS), with an increased stringency (18 percent by 2030).
- Implementation of SB 350, which expands the Renewables Portfolio Standard (RPS) to 50 percent and doubles energy efficiency savings by 2030.
- California Sustainable Freight Action Plan, which improves freight system efficiency and utilizes near-zero emissions technology and deployment of ZE trucks.
- Implementing the proposed Short-Lived Climate Pollutant Strategy, which focuses on reducing methane and hydrofluorocarbon emissions by 40 percent and anthropogenic black carbon emissions by 50 percent by year 2030.



## 5. Environmental Analysis GREENHOUSE GAS EMISSIONS

- Post-2020 Cap-and-Trade Program that includes declining caps.
- Continued implementation of SB 375.
- Development of a Natural and Working Lands Action Plan to secure California’s land base as a net carbon sink.

In addition to 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 recommended local actions to reduce GHG emissions—for example, statewide targets of no more than 6 MTCO<sub>2e</sub> or less per capita by 2030 and 2 MTCO<sub>2e</sub> 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 sustainable development objectives and develop plans to achieve the local goals. The statewide per capita goals were developed by applying the percent reductions necessary to reach the 2030 and 2050 climate goals (i.e., 40 percent and 80 percent, respectively) to the state’s 1990 emissions limit established under AB 32. For CEQA projects, CARB states that lead agencies have discretion to develop evidenced-based numeric thresholds (mass emissions, per capita, or per service population) consistent with the Scoping Plan and the state’s long-term GHG goals. To the degree a project relies on GHG mitigation measures, CARB recommends that lead agencies prioritize on-site design features that reduce emissions, especially from vehicle miles traveled (VMT), and direct investments in GHG reductions within the project’s region that contribute potential air quality, health, and economic co-benefits. Where further project design or regional investments are infeasible or not proven to be effective, CARB recommends mitigating potential GHG impacts through purchasing and retiring carbon credits.

The Scoping Plan scenario is set against what is called the “business as usual” yardstick—that is, what would the GHG emissions look like if the state did nothing at all beyond the policies that are already required and in place to achieve the 2020 limit, as shown in Table 5.4-3, *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. Also shown in the table, the known commitments are expected to result in emissions that are 60 MMTCO<sub>2e</sub> 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 5.4-3 2017 Climate Change Scoping Plan Emissions Reductions Gap**

Modeling Scenario	2030 GHG Emissions MMTCO <sub>2e</sub>
Reference Scenario (Business-as-Usual)	389
With Known Commitments	320
2030 GHG Target	<b>260</b>
Gap to 2030 Target	<b>60</b>

Source: CARB 2017b.

## 5. Environmental Analysis

### GREENHOUSE GAS EMISSIONS

Table 5.4-4, *2017 Climate Change Scoping Plan Emissions Change by Sector*, provides GHG emissions by sector for 1990, the range of GHG emissions for each sector estimated for 2030, and the percent change compared to 1990 levels.

**Table 5.4-4 2017 Climate Change Scoping Plan Emissions Change by Sector**

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

Source: CARB 2017b.

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

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

### *Senate Bill 375*

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

### *SCAG's 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 VMT from automobiles and light duty trucks and thereby reduce GHG emissions from these sources.

## 5. Environmental Analysis GREENHOUSE GAS EMISSIONS

SCAG's targets for the 2016-2040 RTP/SCS were 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 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.

### *2017 Update to the SB 375 Targets*

CARB is required to update the targets for the MPOs every eight years. CARB adopted revised SB 375 targets for the MPOs in March 2018. The updated targets become effective on October 1, 2018; and are therefore, applicable for the 2019 RTP/SCS update being initiated by SCAG. CARB's updated SB 375 targets for the SCAG region are an 8 percent per capita GHG reduction in 2020 from 2005 levels (unchanged from the 2010 target) and a 19 percent per capita GHG reduction in 2035 from 2005 levels (compared to the 2010 target of 13 percent) (CARB 2018a).

The targets consider the need to further reduce VMT, as identified in the 2017 Scoping Plan Update (for SB 32), 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 SCS to achieve the SB 375 targets. CARB foresees that the additional GHG emissions reductions in 2035 may be achieved from land use changes, transportation investment, and technology strategies (CARB 2018a).

### *Transportation Sector Specific Regulations*

#### *Assembly Bill 1493*

California vehicle GHG emission standards were enacted under AB 1493 (Pavley I). Pavley I is a clean-car standard that reduces GHG emissions from new passenger vehicles (light-duty auto to medium-duty vehicles) from 2009 through 2016 and is anticipated to reduce GHG emissions from new passenger vehicles by 30 percent in 2016. California implements the Pavley I standards through a waiver granted to California by the EPA. In 2012, the EPA issued a Final Rulemaking that sets even more stringent fuel economy and GHG

## 5. Environmental Analysis

### GREENHOUSE GAS EMISSIONS

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 (CARB 2011).

#### *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 CO<sub>2</sub>e gram per unit of fuel energy sold in California. The LCFS requires a reduction of 2.5 percent in the carbon intensity of California's transportation fuels by 2015 and a reduction of at least 10 percent by 2020. The standard applies to refiners, blenders, producers, and importers of transportation fuels, and would use market-based mechanisms to allow these providers to choose how they reduce emissions during the "fuel cycle" using the most economically feasible methods.

#### *Executive Order B-16-2012*

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

#### *Renewables Portfolio: Carbon Neutrality Regulations*

##### *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.

## 5. Environmental Analysis GREENHOUSE GAS EMISSIONS

### *Senate Bill 350*

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

### *Senate Bill 100*

On September 10, 2018, Governor Brown signed SB 100, which raises California’s RPS requirements to 60 percent by 2030, with interim targets, and 100 percent by 2045. The bill establishes a state policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045. Under the bill, the state cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target.

### *Executive Order B-55-18*

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

### *Energy Efficiency Regulations*

#### *California Building Code: Building Energy Efficiency Standards*

Energy conservation standards for new residential and nonresidential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the CEC) in June 1977 and most recently revised in 2019 (Title 24, Part 6, of the California Code of Regulations [CCR]). Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. On June 10, 2015, the CEC adopted the 2016 Building Energy Efficiency Standards, which went into effect on January 1, 2017. The 2019 Building Energy Efficiency Standards, which were adopted on May 9, 2018, go into effect starting January 1, 2020.

The 2019 standards move toward cutting energy use in new homes by more than 50 percent and will require installation of solar photovoltaic systems for single-family homes and multifamily buildings of three stories and less. The 2019 standards focus on four key areas: 1) smart residential photovoltaic systems; 2) updated thermal envelope standards (preventing heat transfer from the interior to exterior and vice versa); 3) residential and nonresidential ventilation requirements; 4) and nonresidential lighting requirements (CEC 2018a). Under the 2019 standards, nonresidential buildings will be 30 percent more energy efficient compared to the 2016 standards, and single-family homes will be 7 percent more energy efficient (CEC 2018b). When

## 5. Environmental Analysis

### GREENHOUSE GAS EMISSIONS

accounting for the electricity generated by the solar photovoltaic system, single-family homes would use 53 percent less energy compared to homes built to the 2016 standards (CEC 2018b).

#### *California Building Code: CALGreen*

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (24 CCR, Part 11, known as "CALGreen") was adopted as part of the California Building Standards Code. CALGreen established planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants.<sup>2</sup> The mandatory provisions of the California Green Building Code Standards became effective January 1, 2011. The CEC adopted the voluntary standards of the 2019 CALGreen on October 3, 2018. The 2019 CALGreen standards become effective January 1, 2020.

#### *2006 Appliance Efficiency Regulations*

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

#### *Solid Waste Diversion Regulations*

##### *AB 939: Integrated Waste Management Act of 1989*

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

##### *AB 341*

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

##### *AB 1327*

The California Solid Waste Reuse and Recycling Access Act (AB 1327, Public Resources Code §§ 42900 et seq.) requires areas to be set aside for collecting and loading recyclable materials in development projects. The act required the California Integrated Waste Management Board to develop a model ordinance for adoption

---

<sup>2</sup> The green building standards became mandatory in the 2010 edition of the code.

## 5. Environmental Analysis GREENHOUSE GAS EMISSIONS

by any local agency requiring adequate areas for collection and loading of recyclable materials as part of development projects. Local agencies are required to adopt the model or an ordinance of their own.

### ***AB 1826***

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

### ***Water Efficiency Regulations***

#### ***SBX7-7***

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

#### ***AB 1881: Water Conservation in Landscaping Act***

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

### ***Short-Lived Climate Pollutant Reduction Strategy***

#### ***Senate Bill 1383***

On September 19, 2016, the governor signed SB 1383 to supplement the GHG reduction strategies in the Scoping Plan to consider short-lived climate pollutants, including black carbon and CH<sub>4</sub>. Black carbon is the light-absorbing component of fine particulate matter produced during incomplete combustion of fuels. SB 1383 required the state board, no later than January 1, 2018, to approve and begin implementing a comprehensive strategy to reduce emissions of short-lived climate pollutants to achieve a reduction in methane by 40 percent, hydrofluorocarbon gases by 40 percent, and anthropogenic black carbon by 50 percent below 2013 levels by 2030. The bill also established targets for reducing organic waste in landfills. On March 14, 2017, CARB adopted the Short-Lived Climate Pollutant Reduction Strategy, which identifies the state’s approach to reducing anthropogenic and biogenic sources of short-lived climate pollutants.

## 5. Environmental Analysis

### GREENHOUSE GAS EMISSIONS

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.

#### Local

##### *Los Angeles County Community Climate Action Plan*

In August 2015, Los Angeles County released the Final Unincorporated Los Angeles County Community Climate Action Plan 2020 (CCAP), which was adopted as part of the Los Angeles County 2035 General Plan on October 6, 2015. The plan addresses the County’s local GHG reduction goals for 2020 pursuant to AB 32.

The purpose of the CCAP is to: 1) establish a baseline emissions inventory and reduction needed to meet County goals; 2) identify specific actions that will measurably reduce GHG emissions consistent with AB 32; 3) establish a framework for implementing state and local level actions; and 4) provide a mechanism for ongoing tracking and updates to the CCAP.

The CCAP describes the County’s GHG reduction target from community activities in unincorporated areas of Los Angeles County by at least 11 percent below 2010 levels by 2020. In addition, it identifies 26 local actions, designed for implementation in the near term, to meet the reduction target for GHG emissions by 2020 for these unincorporated areas. Implementing these community and statewide actions would avoid generating more than 1.95 MMTCO<sub>2e</sub> of GHG emissions in the unincorporated areas (see Table 5.4-5, *Unincorporated Areas CCAP GHG Reductions*).

**Table 5.4-5 Unincorporated Areas CCAP GHG Reductions**

Reductions	GHG Emissions (MTCO <sub>2e</sub> )
LA County 2020 forecast	9,055,469
Target for 2020—at least 11% below 2010 levels	7,104,621
Total <sub>1</sub> : Reductions needed to reach interim target (2020 forecast minus 2020 target)	1,950,849
Total reductions from state level actions	1,571,658
Total reductions from local programs	384,045
Total <sub>2</sub> : GHG reductions achieved by the CCAP (state plus local reductions)	1,955,570
Exceeds reduction target by (Total <sub>2</sub> minus Total <sub>1</sub> )	4,722

Source: Los Angeles County 2015. Based on the GWPs in IPCC’s Fourth Assessment Report.

#### 5.4.1.3 EXISTING CONDITIONS

The project site is currently with the existing Wedgeworth Elementary School and baseball fields. The existing Wedgeworth Elementary school generates GHG emissions from transportation sources, energy use, area sources, water use and wastewater generation, and solid waste disposal. Table 5.4-6, *Existing GHG Emissions*



## 5. Environmental Analysis GREENHOUSE GAS EMISSIONS

*Inventory*, shows the existing emissions currently associated with the school and baseball field, modeled using CalEEMod 2016.3.2.

**Table 5.4-6 Existing GHG Emissions Inventory**

Sector	GHG Emissions MTCO <sub>2e</sub> /Year	Percent of Total
Area	<1	<1%
Energy <sup>1</sup>	70	4%
On-Road Transportation <sup>2</sup>	1,610	92%
Solid Waste Disposal	55	3%
Water/Wastewater	16	1%
<b>Total</b>	<b>1,751</b>	<b>100%</b>

Source: CalEEMod 2016.3.2.

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

<sup>1</sup> Existing structure energy use modeled using historical energy demand rates in CalEEMod.

<sup>2</sup> Trip generation based on vehicle trips from students and baseball field users. Assumes a roster of 12 players and use of all four fields, 3-4 times per day with games on Saturday and Sunday.

### 5.4.2 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<sub>2e</sub> 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 2010a). This following tiered approach has not been formally adopted by SCAQMD.

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

## 5. Environmental Analysis

### GREENHOUSE GAS EMISSIONS

- **Tier 3.** If GHG emissions are less than the screening-level criterion, project-level and contribution to significant cumulative GHG emissions are less than significant.

For projects that are not exempt or where no qualifying GHG reduction plans are directly applicable, 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<sub>2e</sub> annually for all land use types. The bright-line screening-level criteria is 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 threshold. Therefore, projects that do not exceed the bright-line threshold would have a nominal; and therefore, less than cumulatively considerable, impact on GHG emissions. SCAQMD recommends use of the 3,000 MTCO<sub>2e</sub> interim bright-line screening-level criterion for all project types (SCAQMD 2010b).

- **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<sub>2e</sub> per year per service population (MTCO<sub>2e</sub>/year/SP) for project-level analyses and 6.6 MTCO<sub>2e</sub>/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.<sup>3</sup>

For purposes of this analysis, because it has not developed its own numeric GHG significance threshold, the District utilizes the SCAQMD’s interim bright-line screening-level criterion of 3,000 MTCO<sub>2e</sub> per year as the significance threshold for this project. If the project’s operation-phase emissions exceed the bright-line screening-level criterion, GHG emissions would be considered potentially significant in the absence of mitigation measures.

### 5.4.3 Plans, Programs, and Policies

#### Regulatory Requirements

RR GHG-1      New buildings are required to achieve the current California Building Energy and Efficiency Standards (Title 24, Part 6) and California Green Building Standards Code (CALGreen)

---

<sup>3</sup> 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.

## 5. Environmental Analysis GREENHOUSE GAS EMISSIONS

(Title 24, Part 11). The 2019 Building and Energy Efficiency Standards will become effective on January 1, 2020. The Building Energy and Efficiency Standards and CALGreen are updated tri-annually with a goal to achieve zero net energy for residential buildings by 2020 and nonresidential buildings by 2030.

- RR GHG-2 Construction activities are required to adhere to California Code of Regulations (CCR), Title 13, Section 2499, which restricts nonessential idling of construction equipment to five minutes or less.
- RR GHG-3 New buildings are required to adhere to the California Green Building Standards Code and Water Efficient Landscape Ordinance requirements to increase water efficiency and reduce urban per capita water demand.
- RR GHG-4 CARB's Renewable Portfolio Standard (RPS) is a foundational element of the State's emissions reduction plan. These mandates apply directly to investor-owned utilities, which in the case of the Proposed Project is Southern California Edison. On September 10, 2018, Senate Bill 100 was signed into law and established the following RPS targets: 50 percent renewable resources target by December 31, 2026, and 60 percent target by December 31, 2030. SB 100 also requires that retail sellers and local publicly owned electric utilities procure a minimum quantity of electricity products from eligible renewable energy resources so that the total kilowatt hours of those products sold to their retail end-use customers achieve 44 percent of retail sales by December 31, 2024; 52 percent by December 31, 2027; and 60 percent by December 31, 2030.
- RR GHG-5 On January 18, 2007, Governor Arnold Schwarzenegger issued Executive Order S-1-07 requiring the establishment of a Low Carbon Fuel Standard (LCFS) for transportation fuels. The LCFS was amended in 2011 and readopted in 2015. This statewide goal requires that California's transportation fuels reduce their carbon intensity by at least 10 percent by 2020.
- RR GHG-6 The 2007 Energy Bill creates new federal requirements for increases in fleetwide fuel economy for passenger vehicles and light trucks under the Federal Corporate Average Fuel Economy Standards. The federal legislation requires a fleetwide average of 35 miles per gallon to be achieved by 2020. The National Highway Traffic Safety Administration is directed to phase in requirements to achieve this goal. Analysis by CARB suggests that this will require an annual improvement of approximately 3.4 percent between 2008 and 2020.
- RR GHG-7 On July 22, 2002, Governor Gray Davis signed Assembly Bill 1493 (Pavley) requiring CARB to develop and adopt regulations designed to reduce greenhouse gases emitted by passenger vehicles and light-duty trucks beginning with the 2009 model year. The standards set within the Pavley regulations are expected to reduce GHG emissions from California passenger vehicles by about 22 percent in 2012 and about 30 percent in 2016. California had petitioned the USEPA in December 2005 to allow these more stringent standards and California executive agencies have repeated their commitment to higher mileage standards. On July 1,

## 5. Environmental Analysis

### GREENHOUSE GAS EMISSIONS

2009, the USEPA granted California a waiver that will enable the state to enforce stricter tailpipe emissions on new motor vehicles.

RR GHG-8 SB 375 requires the reduction of GHG emissions from light trucks and automobiles through land use and transportation efforts that will reduce vehicle miles traveled (VMT). In essence, SB 375's goal is to control GHGs by curbing urban sprawl and through better land use planning. SB 375 essentially becomes the land use contribution to the GHG reduction requirements of AB 32, California's global warming bill enacted in 2006, and SB 32.

RR GHG-9 California's Green Building Standards Code (CALGreen) requires the recycling and/or salvaging for reuse at minimum of 65 percent of the nonhazardous construction and demolition waste generated during most "new construction" projects (CALGreen Sections 4.408 and 5.408). Construction contractors are required to submit a construction waste management plan that identifies the construction and demolition waste materials to be diverted from disposal by recycling, reuse on the project, or salvaged for future use or sale and the amount (by weight or volume).

### 5.4.4 Environmental Impacts

#### 5.4.4.1 METHODOLOGY

This GHG emissions evaluation was prepared in accordance with the requirements of CEQA to determine if significant GHG emissions impacts are likely in conjunction with the type and scale of development associated with the proposed project. GHG emissions modeling was completed for the project using the California Emissions Estimator Model (CalEEMod) recommended by the SCAQMD. GHG emissions modeling datasheets are in Appendix C. Life cycle emissions are not included in the GHG analysis consistent with California Resources Agency directives.<sup>4</sup> Black carbon emissions are not included in the GHG analysis because CARB does not include this pollutant in the state's AB 32/SB 32 inventory and treats this short-lived climate pollutant separately.<sup>5</sup>

#### Operation Phase

The operational-phase, project-related emissions are based on development of the new residences. The modeling accounts for emissions from area sources (e.g., landscaping equipment), the average daily vehicle

---

<sup>4</sup> 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 analysis was not warranted for project-specific CEQA analysis in most situations, for a variety of reasons, including lack of control over some sources, and the possibility of double-counting emissions (see Final Statement of Reasons for Regulatory Action, December 2009). Because the amount of materials consumed during the operation or construction of the proposed project is not known, the origin of the raw materials purchased is not known, and manufacturing information for those raw materials is also not known, calculation of life cycle emissions would be speculative. A life-cycle analysis is not warranted (OPR 2008).

<sup>5</sup> Particulate matter emissions, which include black carbon, are analyzed under *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).

## 5. Environmental Analysis GREENHOUSE GAS EMISSIONS

trips generated, energy (i.e., natural gas and electricity) usage, water demand, and wastewater and solid waste generation from operation of the proposed project.

- **Transportation.** Implementation of the proposed project would increase the school population from 600 students to 1,200 students. As seen in Section 5.8, *Transportation*, the proposed elementary school would generate an additional 1,134 weekday ADTs and no trips on the weekends to account for the additional 600 students the proposed school would house and typical after school activities onsite such as PTA meetings and after school club meetings. As seen in Section 5.8, *Transportation*, the residential use would generate 1,171 weekday ADTs, 1,302 Saturday ADTs, and 1,005 Sunday ADTs (PlaceWorks 2019). The average VMT of 0.85 mile on weekdays for students was determined using the distance between the school and locations along the school district boundary. A weekday VMT of 7.32 miles, Saturday VMT of 8.14 miles, and Sunday VMT of 6.28 miles for proposed residents was based on CalEEMod default values. The CalEEMod default vehicle mix for the elementary school was adjusted to exclude emissions from heavy heavy-duty trucks, motorhomes, and all buses except school buses. The CalEEMod default vehicle mix for the residential use was adjusted to exclude light heavy-duty trucks, medium heavy-duty trucks, heavy heavy-duty trucks, and bus emissions.
- **Energy Use.** The proposed buildings would be built to meet the 2019 Building Energy Efficiency Standards.
- **Water/Wastewater.** Water use/wastewater generation associated with the proposed project is based on CalEEMod default generation rates.
- **Solid Waste.** Solid waste generation associated with the proposed project is based on CalEEMod default generation rates.
- **Area Sources.** Area source emissions from use of landscaping equipment are based on CalEEMod default values and the square footage of the proposed buildings and surface parking lot.

### Construction Phase

Construction of Phase 1, the elementary school, would commence in March 2020 and be completed in July 2021, a duration of approximately 16.5 months. The Phase 2 construction schedule was based on the construction activities provided by the applicant for Phase 1 and CalEEMod defaults normalized over a 16.5-month time frame, starting in August 2024 ending in December 2025. See Table 5.1-9 in Chapter 5.1, *Air Quality*, for further details regarding the specific construction activities, durations, and construction equipment mix. Construction emissions associated with the proposed project are amortized based on a 30-year building lifetime, in accordance with SCAQMD methodology (SCAQMD 2009).

#### 5.4.4.2 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.

## 5. Environmental Analysis

### GREENHOUSE GAS EMISSIONS

**Impact 5.4-1: Implementation of the proposed project would not generate a net increase in GHG emissions, either directly or indirectly, that would have a significant impact on the environment. [Threshold GHG-1]**

Implementation of a development project could contribute to global climate change through direct emissions of GHGs from on-site area sources and vehicle trips generated by the project, and indirectly through off-site energy production required for on-site activities, water use, and waste disposal. Because no single project is large enough to result in a measurable increase in global concentrations of GHGs, global warming impacts of a project are considered on a cumulative basis.

The GHG emissions that would result from project implementation are shown in Table 5.4-7, *Net Increase in Project-Related GHG Emissions*. Annual GHG emissions were calculated for construction and operation of the proposed project. As shown in the table, neither the proposed 2021 elementary school buildout nor the 2026 combined school and residential buildout would exceed the SCAQMD bright-line threshold of 3,000 MTCO<sub>2e</sub>/yr. Therefore, the project would result in GHG emissions that are less than significant and would not cumulatively contribute to statewide GHG emissions.

**Table 5.4-7 Net Increase in Project-Related GHG Emissions**

Source	GHG Emissions (MTCO <sub>2e</sub> Per Year) <sup>1</sup>	
	Opening Year 2021 Elementary School Buildout	Buildout Year 2026 School + Residential Buildout
Area	<1	41
Energy <sup>2</sup>	193	527
Mobile <sup>3</sup>	85	1,257
Solid Waste	55	92
Water	13	59
Amortized Construction Emissions <sup>4</sup>	32	60
<b>Total</b>	<b>379</b>	<b>2,037</b>
Proposed SCAQMD Bright-Line Threshold	<b>3,000</b>	<b>3,000</b>
<b>Exceeds Threshold?</b>	<b>No</b>	<b>No</b>

Source: CalEEMod, Version 2016.3.2.

<sup>1</sup> Based on additional students and new residents. Model does not include emissions generated from use of the baseball field.

<sup>2</sup> Buildings would meet the 2019 California Green Building Standards Code (CALGreen) and 2019 Building Energy Efficiency Standards.

<sup>3</sup> Based on year 2021 and 2026 emission rates in CalEEMod.

<sup>4</sup> Construction emissions are amortized over a 30-year project lifetime per recommended SCAQMD methodology.

**Level of Significance Before Mitigation:** Less than significant.

**Impact 5.4-2: Implementation of the proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. [Threshold GHG-2]**

Applicable plans adopted for the purpose of reducing GHG emissions include CARB's Scoping Plan, SCAG's 2016-2040 RTP/SCS, and the Los Angeles County CCAP. A consistency analysis with these plans for the proposed project is presented below.

## 5. Environmental Analysis GREENHOUSE GAS EMISSIONS

### **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 energy and 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 also include the LCFS and changes in the corporate average fuel economy standards (e.g., Pavley I and Pavley California Advanced Clean Cars program). Although measures in the Scoping Plan apply to state agencies and not the proposed project, the project's GHG emissions would be reduced by compliance with statewide measures that have been adopted since AB 32 and SB 32 were adopted. For example, where applicable, the proposed structures would be built to meet the latest Building Energy Efficiency Standards and CALGreen standards in effect at the time in which the building permits are requested. Compliance with these statewide building and design standards would contribute in reducing energy demand and water consumption. Therefore, the proposed project would be consistent with the CARB Scoping Plan, and impacts are considered less than significant.

### **SCAG's Regional Transportation Plan/Sustainable Communities Strategy**

SCAG's 2016-2040 RTP/SCS was adopted April 7, 2016. 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 plan for 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 efficiently distribute population, housing, and employment growth. In addition, it provides a forecast development that is generally consistent with jurisdictional general plan data. The projected regional development pattern, when integrated with the proposed regional transportation network identified in the 2016-2040 RTP/SCS, would reduce GHG emissions related to per capita vehicular travel and achieve the GHG reduction per capita targets for the SCAG region. The 2016-2040 RTP/SCS does not require that local general plans, specific plans, or zoning be consistent with the 2016-2040 RTP/SCS but offers incentives for consistency to governments and developers.

The proposed project would include an elementary school expansion and new residential development that would serve the local population by increasing student capacity at Wedgeworth Elementary School and incorporating more housing in Hacienda Heights. The proposed project would increase trips generated from the project site due to the increased student capacity and providing more housing. However, it should be noted that a school is not a growth inducing project that increases VMT in the region, instead, the trips represent replacement trips that would otherwise be taken to other schools in the District boundaries, not a completely new trips. As such, the driving distance would increase for some and decrease for others. The

## 5. Environmental Analysis

### GREENHOUSE GAS EMISSIONS

proposed project would generate a total of 4,162,073 VMT based on the CalEEMod (see Table 5.8-11 in Section 5.8, *Transportation*). However, this information is provided for informational purposes only, and does not indicate that the proposed project would actually increase the overall regional VMT by that amount. There are a number of commercial and services establishments in close proximity to the project site (less than 0.5 mile radius). The Puente Hills Mall and the City of Industry provide various services and major employment opportunities; therefore, providing additional housing units in close proximity to these uses could contribute to reducing the VMT between residential and service needs. The proposed project would not interfere with SCAG’s ability to implement the regional strategies outlined in the RTP/SCS, and impacts are considered less than significant.

### Los Angeles County CCAP

Los Angeles County adopted a CCAP that examines feasible and effective policies to address GHG emissions reduction in order to reduce the impacts of climate change, protect air quality, and improve the economy and the environment. The policies identified in the CCAP represent how the County plans to achieve the GHG reduction target of 11 percent below 2010 levels for target year 2020. A consistency analysis comparing the proposed residential component of the project to the applicable measures in the CCAP is shown in Table 5.4-8, *Consistency with the County CCAP*. Based on this analysis, the proposed project would be consistent with the measures in the CCAP. The proposed project would not conflict with the CCAP and impacts would be less than significant.

**Table 5.4-8 Consistency with the County CCAP**

#	Applicable Measure	Consistency
BE-1	<b>Green Building Development.</b> Promote and incentivize at least Tier 1 voluntary standards within CALGreen for all new residential and nonresidential buildings. Develop a heat island reduction plan and facilitate green building development by removing regulatory and procedural barriers.	<b>Consistent:</b> The 2019 Building Energy Efficiency Standards are scheduled to take effect on January 1, 2020, and would be applicable to the proposed residential component. Pursuant to the County’s Green Building Ordinance, the proposed project would achieve at least the Tier 1 CALGreen voluntary standards described by the State DSA CALGreen Checklist. The redevelopment of the project site is consistent with the State’s Climate Commitment to double energy saving in existing buildings because it would replace structures that were built prior to adoption of the California Building and Energy Efficiency Code with newer facilities that achieve the latest Building and Energy Efficiency Standards (see RR GHG-1 and GHG-9).
BE-3	<b>Solar Installations.</b> Promote and incentivize solar installations for new and existing homes, commercial buildings, carports and parking areas, water heaters, and warehouses.	<b>Consistent:</b> The current Building Energy Efficiency Standards do not mandate that new buildings have solar panels. Solar power is only viable as an energy alternative in areas where there is sufficient solar reflection (e.g., enough sunlight). However, the current Building Standards require that new buildings be constructed to accommodate the rooftop load and wiring necessary to support solar panels. In accordance with Executive Order B-30-15, approximately 50 percent of total energy demand in the state would be through renewable resources in order to achieve the 50 percent RPS goal.



5. Environmental Analysis  
 GREENHOUSE GAS EMISSIONS

**Table 5.4-8 Consistency with the County CCAP**

#	Applicable Measure	Consistency
LUT-6	<b>Land Use Design and Density:</b> Promote sustainability in land use design, including diversity of urban and suburban developments.	<b>Consistent:</b> The proposed residential component would comply with the 2016 California Green Building Standard Code, Section A4.103.2 “Community connectivity,” as it is located within half a mile walking distance of one supermarket, the proposed Wedgeworth Elementary School, Glen A. Wilson High School, one park, and three different banks.
LUT-8	<b>Electric Vehicle Infrastructure:</b> Install 500 electric vehicle (EV) charging facilities at County owned public venues (e.g., hospitals, beaches, stand-alone parking facilities, cultural institutions, and other facilities) and ensure that at least one-third of these charging stations will be available for visitor use	<b>Consistent:</b> As a residential mandatory measure from the 2016 California Green Building Standards Code, new construction shall comply with CALGreen Section 4.106.4, “Electric vehicle (EV) charging for new construction,” to facilitate future installation and use of EV charging.
LUT-9	<b>Idling Reduction Goal:</b> Encourage idling limits of 3 minutes for heavy-duty construction equipment, as feasible within manufacturer’s specifications.	<b>Consistent:</b> The proposed residential construction would adhere to idling limitations consistent with those outlined by CARB.
LUT-12	<b>Electrify Construction and Landscaping Equipment.</b> Utilize electric equipment wherever feasible for construction projects. Reduce the use of gas-powered landscaping equipment.	<b>Consistent:</b> Pursuant to the California Building Code (Title 24), buildings are now required to include electrical outlets on the exterior of buildings to support the use of electric landscaping equipment.
WAW-1	<b>Per Capita Water Use Reduction Goal.</b> Meet the State established per capita water use reduction goal, as identified by SB X7-7 for 2020.	<b>Consistent:</b> The proposed project would comply with CALGreen Section 4.303.1 “Water conserving plumbing fixtures and fittings,” which requires plumbing fixtures and fittings not to exceed the listed flush volumes for water closets (1.28 gallons/flush) and urinals (0.125 gallons/flush) and flow rates for single or multiple showerheads (2.0 gallons/ min at 80 psi) and residential lavatory faucets (1.2 gallons/min at 60 psi), lavatory faucets in common and public areas ( 0.5 gallons/min at 60 psi), metering faucets (0.25 gallons/cycle), and kitchen faucets (1.8 gallons/minute at 60 psi).
SW-1	<b>Waste Diversion Goal.</b> For the County’s unincorporated areas, adopt a waste diversion goal to comply with all state mandates associated with diverting from landfill disposal at least 75% of the waste by 2020.	<b>Consistent:</b> In accordance with the 2016 California Green Building Standards Code, Section 4.408.1 and 4.408.2 “Construction waste management” and “Construction waste management plan,” the construction of the residential component would be required to divert a minimum of 65 percent of the C&D debris by weight and submit a Recycling and Reuse Plan to the County’s Construction & Demolition Unit for review and approval (see RR GHG-9).

Source: County of Los Angeles 2015.

*Level of Significance Before Mitigation:* Less than significant.

**5.4.5 Cumulative Impacts**

Project-related GHG emissions are not confined to a particular air basin but are dispersed worldwide. Therefore, impacts under Impact 5.4-1 are not project-specific impacts to global warming, but the proposed project’s contribution to this cumulative impact. As discussed under Impact 5.4-1, implementation of the project would not exceed SCAQMD’s bright-line threshold. Therefore, project-related GHG emissions and their contribution to global climate change would not be cumulatively considerable, and GHG emissions impacts would not be significant.

## 5. Environmental Analysis

### GREENHOUSE GAS EMISSIONS

*Level of Significance Before Mitigation:* Less than significant.

#### 5.4.6 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, the following impacts would be less than significant: 5.4-1 and 5.4-2.

#### 5.4.7 Mitigation Measures

No mitigation measures are required.

#### 5.4.8 Level of Significance After Mitigation

Potential GHG impacts of the project are less than significant, and no mitigation measures are required. Therefore, no significant unavoidable impacts related to these emissions have been identified.

#### 5.4.9 References

California Air Pollution Control Officers Association (CAPCOA). 2017. California Emissions Estimator Model (CalEEMod). Version 2016.3.2. Prepared by: BREEZE Software, A Division of Trinity Consultants in collaboration with South Coast Air Quality Management District and the California Air Districts.

California Air Resources Board. 2007, November. California Greenhouse Gas Inventory (millions of metric tons of CO<sub>2</sub> equivalent): Summary by Economic Sector. 1990 to 2004 Inventory Data and Documentation web page. Accessible from <https://www.arb.ca.gov/cc/inventory/1990level/1990data.htm>.

———. 2008, October. Climate Change Proposed Scoping Plan: A Framework for Change.

———. 2010, August. Staff Report Proposed Regional Greenhouse Gas Emission Reduction Targets for Automobiles and Light Trucks Pursuant to Senate Bill 375.

———. 2011, Facts About the Advanced Clean Car Program.  
[https://www.arb.ca.gov/msprog/zevprog/factsheets/advanced\\_clean\\_cars\\_eng.pdf](https://www.arb.ca.gov/msprog/zevprog/factsheets/advanced_clean_cars_eng.pdf)

———. 2014, May 15. First Update to the Climate Change Scoping Plan: Building on the Framework, Pursuant to AB 32, The California Global Warming Solutions Act of 2006.  
<http://www.arb.ca.gov/cc/scopingplan/scopingplan.htm>.

———. 2017a, March. Short-Lived Climate Pollutant Reduction Strategy.  
<https://www.arb.ca.gov/cc/shortlived/shortlived.htm>.

## 5. Environmental Analysis GREENHOUSE GAS EMISSIONS

- . 2017b, November. California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target.  
[https://www.arb.ca.gov/cc/scopingplan/2030sp\\_pp\\_final.pdf](https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf).
- . 2018a, February. Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets.  
[https://www.arb.ca.gov/cc/sb375/sb375\\_target\\_update\\_final\\_staff\\_report\\_feb2018.pdf](https://www.arb.ca.gov/cc/sb375/sb375_target_update_final_staff_report_feb2018.pdf).
- . 2018b, July 11. 2018 Edition California Greenhouse Gas Inventory for 2000-2016: By Category as Defined in the 2008 Scoping Plan. <https://www.arb.ca.gov/cc/inventory/data/data.htm>.
- . 2018c, July 11. California Greenhouse Emissions for 2000 to 2016: Trends of Emissions and Other Indicators. <https://www.arb.ca.gov/cc/inventory/data/data.htm>.
- California Climate Action Team (CAT). 2006, March. Climate Action Team Report to Governor Schwarzenegger and the Legislature.
- California Climate Change Center (CCCC). 2012, July. Our Changing Climate 2012: Vulnerability and Adaptation to the Increasing Risks from Climate Change in California.
- California Department of Finance (CDOF). 2018, March 8. Report P-1 (County): State and County Total Population Projections, 2010–2060 (1-year increments).  
<http://www.dof.ca.gov/Forecasting/Demographics/Projections/>.
- California Department of Transportation (Caltrans). 2017. Long-Term Socio-Economic Forecasts by County. [http://www.dot.ca.gov/hq/tpp/offices/eab/socio\\_economic.html](http://www.dot.ca.gov/hq/tpp/offices/eab/socio_economic.html).
- California Energy Commission (CEC). 2006. Our Changing Climate: Assessing the Risks to California. 2006 Biennial Report. CEC-500-2006-077. California Climate Change Center.
- . 2015. 2016 Building Energy Efficiency Standards, Adoption Hearing Presentation.  
<http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/June10>.
- . 2018b. 2019 Building Energy and Efficiency Standards Frequently Asked Questions.  
[http://www.energy.ca.gov/title24/2019standards/documents/2018\\_Title\\_24\\_2019\\_Building\\_Standards\\_FAQ.pdf](http://www.energy.ca.gov/title24/2019standards/documents/2018_Title_24_2019_Building_Standards_FAQ.pdf).
- California Natural Resources Agency (CNRA). 2014, July. Safeguarding California: Reducing Climate Risk: An Update to the 2009 California Climate Adaptation Strategy.
- Department of Regional Planning. 2011, May 24 (adopted). Hacienda Heights Community Plan. Los Angeles County. [http://planning.lacounty.gov/assets/upl/project/HHCP\\_Adopted\\_Plan\\_052411.pdf](http://planning.lacounty.gov/assets/upl/project/HHCP_Adopted_Plan_052411.pdf).
- Governor's Office of Planning and Research (OPR). 2008, June. CEQA and Climate Change: Addressing Climate Change through CEQA Review. Technical Advisory.  
<http://www.opr.ca.gov/ceqa/pdfs/june08-ceqa.pdf>.
- Intergovernmental Panel on Climate Change (IPCC). 1995. *Second Assessment Report: Climate Change 1995*.

## 5. Environmental Analysis

### GREENHOUSE GAS EMISSIONS

———. 2001. *Third Assessment Report: Climate Change 2001*. New York: Cambridge University Press.

———. 2007. *Fourth Assessment Report: Climate Change 2007*. New York: Cambridge University Press.

Office of Environmental Health Hazards Assessment (OEHHA). 2018, May. Indicators of Climate Change in California. <https://oehha.ca.gov/media/downloads/climate-change/report/2018caindicatorsreportmay2018.pdf>.

South Coast Air Quality Management District (SCAQMD). 2009, November 19. GHG Meeting 14 Main Presentation. Greenhouse Gases (GHG) CEQA Significance Threshold Working Group. [http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-\(ghg\)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-14/ghg-meeting-14-main-presentation.pdf?sfvrsn=2](http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-14/ghg-meeting-14-main-presentation.pdf?sfvrsn=2).

Southern California Association of Governments (SCAG). 2016, April 7. Final 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS): A Plan for Mobility, Accessibility, Sustainability, and a High Quality of Life. <http://scagrtpscs.net/Pages/FINAL2016RTPSCS.aspx>.

US Environmental Protection Agency (USEPA). 2009, December. EPA: Greenhouse Gases Threaten Public Health and the Environment: Science overwhelmingly shows greenhouse gas concentrations at unprecedented levels due to human activity. [https://archive.epa.gov/epapages/newsroom\\_archive/newsreleases/08d11a451131bca585257685005bf252.html](https://archive.epa.gov/epapages/newsroom_archive/newsreleases/08d11a451131bca585257685005bf252.html).