

4.5 GREENHOUSE GAS EMISSIONS

This section evaluates short-term (construction) and long-term (operational) impacts related to greenhouse gas (GHG) emissions and climate change that would potentially occur as a result of implementation of the proposed Cypress College Facilities Master Plan (proposed project). Applicable laws, regulations, and standards enacted by the federal and state governments, and thresholds of significance used in this analysis are provided in Section 4.5.2, Relevant Plans, Policies, and Ordinances, and Section 4.5.3, Thresholds of Significance, respectively. Emissions associated with the proposed project were calculated using the California Emissions Estimator Model (CalEEMod), Version 2013.2.2 (available online at www.caleemod.com), and are discussed in Section 4.6.4, Impacts Analysis.

No comments related to GHG emissions were received in response to the Notice of Preparation.

4.5.1 Existing Conditions

4.5.1.1 The Greenhouse Effect

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind, lasting for an extended period (decades or longer). A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. The greenhouse effect is the trapping and build-up of heat in the atmosphere (troposphere) near the Earth's surface. The greenhouse effect traps heat in the troposphere through a threefold process as follows: Short-wave radiation emitted by the Sun is absorbed by the Earth, the Earth emits a portion of this energy in the form of long-wave radiation, and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and toward the Earth. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature. Without it, the temperature of the Earth would be about 0°F (-18°C) instead of its present 57°F (14°C). Global climate change concerns are focused on whether human activities are leading to an enhancement of the greenhouse effect (National Climatic Data Center 2015).

4.5.1.2 Greenhouse Gases and Global Warming Potential

GHGs include, but are not limited to, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), ozone (O₃), water vapor (H₂O), hydrofluorocarbons (HFCs), hydrochlorofluorocarbons (HCFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). Some GHGs, such as CO₂, CH₄, and N₂O, occur naturally and are emitted to the atmosphere through natural processes and human activities. Of these gases, CO₂ and CH₄ are emitted in the greatest quantities from human activities. Man-made GHGs, which have a much greater heat-absorption potential than CO₂, include fluorinated gases, such as HFCs, HCFCs, PFCs, and SF₆, which are associated with

certain industrial products and processes. A summary of the most common GHGs and their sources is included in the following text.¹

Carbon Dioxide

CO₂ is a naturally occurring gas and a by-product of human activities, and is the principal anthropogenic GHG that affects the Earth's radiative balance. Natural sources of CO₂ include respiration of bacteria, plants, animals, and fungus; evaporation from oceans; volcanic out-gassing; and decomposition of dead organic matter. Human activities that generate CO₂ are from the combustion of coal, oil, natural gas, and wood.

Methane

CH₄ is a flammable gas and is the main component of natural gas. Methane is produced through anaerobic (without oxygen) decomposition of waste in landfills, flooded rice fields, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.

Nitrous Oxide

Sources of N₂O include soil cultivation practices (microbial processes in soil and water), especially the use of commercial and organic fertilizers, manure management, industrial processes (such as in nitric acid production, nylon production, and fossil fuel-fired power plants), vehicle emissions, and the use of N₂O as a propellant (such as in rockets, racecars, aerosol sprays).

Fluorinated Gases

Fluorinated gases are synthetic, powerful GHGs that are emitted from a variety of industrial processes. Several prevalent fluorinated gases include the following:

- **Hydrofluorocarbons:** HFCs are compounds containing only hydrogen, fluorine, and carbon atoms. HFCs are synthetic chemicals that are used as alternatives to ozone-depleting substances in serving many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are used in manufacturing.

¹ The descriptions of GHGs are summarized from the Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report, IPCC Fourth Assessment Report, California Air Resources Board's (CARB's) Glossary of Terms Used in GHG Inventories (CARB 2015), and the U.S. Environmental Protection Agency's (EPA's) Glossary of Climate Change Terms (EPA 2016a).

- **Hydrochlorofluorocarbons:** HCFCs are compounds containing hydrogen, fluorine, chlorine, and carbon atoms. HFCs are synthetic chemicals that are used as alternatives to ozone-depleting substances (chlorofluorocarbons).
- **Perfluorocarbons:** PFCs are a group of human-made chemicals composed of carbon and fluorine only. These chemicals were introduced as alternatives, along with HFCs, to the ozone-depleting substances. The two main sources of PFCs are primarily aluminum production and semiconductor manufacturing. Since PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere, these chemicals have long lifetimes, ranging between 10,000 and 50,000 years.
- **Sulfur Hexafluoride:** SF₆ is a colorless gas that is soluble in alcohol and ether and slightly soluble in water. SF₆ is used for insulation in electric power transmission and distribution equipment, semiconductor manufacturing, the magnesium industry, and as a tracer gas for leak detection.

Gases in the atmosphere can contribute to climate change both directly and indirectly. Direct effects occur when the gas itself absorbs radiation. Indirect radiative forcing occurs when chemical transformations of the substance produce other GHGs, when a gas influences the atmospheric lifetimes of other gases, and/or when a gas affects atmospheric processes that alter the radiative balance of the Earth (e.g., affects cloud formation or albedo [reflective power of a surface or body, such as the moon or a cloud]) (EPA 2016b). The Intergovernmental Panel on Climate Change (IPCC) developed the concept of Global Warming Potential (GWP) to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP of a GHG is defined as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram of a trace substance relative to that of 1 kilogram of a reference gas (IPCC 2014). The reference gas used is CO₂; therefore, GWP-weighted emissions are measured in metric tons of CO₂ equivalent (MT CO₂E).

CalEEMod assumes that the GWP for CH₄ is 21 (which means that emissions of 1 MT of CH₄ are equivalent to emissions of 21 MT of CO₂), and the GWP for N₂O is 310, based on the IPCC Second Assessment Report (IPCC 1996). The IPCC has released subsequent assessment reports with updated GWPs, and statewide documents are beginning to transition to the use of the GWPs in the IPCC Fourth Assessment Report (IPCC 2007). GWP used in EPA's *Inventory of U.S. Greenhouse Gas Emissions and Sinks* (EPA 2016b) and California Air Resources Board's (CARB's) California 2016 GHG emissions inventory (CARB 2016) are based on the IPCC Fourth Assessment Report (IPCC 2007), which includes 1 for CO₂, 25 for CH₄, and 298 for N₂O. Nonetheless, the use of the different GWPs would not substantially change the overall project-generated GHG emissions, which are primarily CO₂. As such, for the purposes of this analysis, it is appropriate to use the hardwired GWP values in CalEEMod from the IPCC Second Assessment Report.

4.5.1.3 Climate Change Conditions and Inventories

Contributions to Greenhouse Gas Emissions

Per EPA’s *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2014* total United States GHG emissions were approximately 6,870.5 MMT CO₂E in 2014 (EPA 2016b). The primary GHG emitted by human activities in the United States was CO₂, which represented approximately 80.9% of total GHG emissions (5,556.0 MMT CO₂E). The largest source of CO₂, and of overall GHG emissions, was fossil-fuel combustion, which accounted for approximately 93.7% of CO₂ emissions in 2014 (5,208.2 MMT CO₂E). Total United States GHG emissions have increased by 7.4% from 1990 to 2014, and emissions increased from 2013 to 2014 by 1.0% (70.5 MMT CO₂E). Since 1990, United States GHG emissions have increased at an average annual rate of 0.3%; however, overall, net emissions in 2014 were 8.6% below 2005 levels (EPA 2016b).

According to California’s 2000–2014 GHG emissions inventory (2016 edition), California emitted 441.5 MMT CO₂E in 2014, including emissions resulting from out-of-state electrical generation (CARB 2016). The sources of GHG emissions in California include transportation, industry, electric power production from both in-state and out-of-state sources, residential and commercial activities, agriculture, high global-warming potential substances, and recycling and waste. The California GHG emission source categories and their relative contributions in 2014 are presented in Table 4.5-1, Greenhouse Gas Emissions Sources in California.

**Table 4.5-1
GHG Emissions Sources in California**

Source Category	Annual GHG Emissions (MMT CO ₂ E)	Percent of Total ^a
Transportation	159.53	36%
Industrial Uses	93.32	21%
Electricity Generation ^b	88.24	20%
Residential and Commercial uses	38.34	9%
Agriculture	36.11	8%
High Global Warming Potential Substances	17.15	4%
Recycling and Waste	8.85	2%
Total	441.54	100%

Source: CARB 2016.

Notes:

Emissions reflect 2014 California GHG inventory

MMT CO₂E = million metric tons of carbon dioxide equivalent per year

^a Percentage of total has been rounded and total may not sum due to rounding.

^b Includes emissions associated with imported electricity, which account for 36.51 MMT CO₂E annually.

During the 2000 to 2014 period, per capita GHG emissions in California have continued to drop from a peak in 2001 of 13.9 metric tons per person to 11.4 metric tons per person in 2014, representing an 18% decrease. In addition, total GHG emissions in 2014 were 2.8 MMT CO₂E less than 2013

emissions. The declining trend in GHG emissions, coupled with programs that will continue to provide additional GHG reductions going forward, demonstrates that California is on track to meet the 2020 target of 431 MMT CO₂E (CARB 2016).

Potential Effects of Human Activity on Climate Change

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

In California, climate change impacts have the potential to affect sea level rise, agriculture, snowpack and water supply, forestry, wildfire risk, public health, and electricity demand and supply (CCCC 2006). The primary effect of global climate change has been a 0.2°C (32.4°F) rise in average global tropospheric temperature per decade, determined from meteorological measurements worldwide between 1990 and 2005. Scientific modeling predicts that continued emissions of GHGs at or above current rates would induce more extreme climate changes during the twenty-first century than were observed during the twentieth century. A warming of about 0.2°C (32.4°F) per decade is projected, and there are identifiable signs that global warming could be taking place.

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California. The average temperatures in California have increased, leading to more extreme hot days and fewer cold nights; shifts in the water cycle have been observed, with less winter precipitation falling as snow, and both snowmelt and rainwater running off earlier in the year; sea levels have risen; and wildland fires are becoming more frequent and intense due to dry seasons that start earlier and end later (CAT 2010a).

An increase in annual average temperature is a reasonably foreseeable effect of climate change. Observed changes over the last several decades across the western United States reveal clear signals 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). 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°F to 8.6°F, depending on emissions levels. Springtime warming—a critical influence on snowmelt—will be particularly pronounced. Summer temperatures will rise more than winter temperatures,

and the increases will be greater in inland California, compared to the coast. Heat waves will be more frequent, hotter, and longer. There will be fewer extremely cold nights (CCCC 2012). A decline of Sierra snowpack, which accounts for approximately half of the surface water storage in California, by 30% to as much as 90% is predicted over the next 100 years (CAT 2006).

Model projections for precipitation over California continue to show the Mediterranean pattern of wet winters and dry summers with seasonal, year-to-year, and decade-to-decade variability. For the first time, however, several of the improved climate models shift toward drier conditions by the mid-to-late 21st century in Central and, most notably, Southern California. By late-century, all projections show drying, and half of them suggest 30-year average precipitation will decline by more than 10% below the historical average (CCCC 2012).

Wildfire risk in California will increase as a result of climate change. 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. However, human activities will continue to be the biggest factor in ignition risk. It is estimated that the long-term increase in fire occurrence associated with a higher emissions scenario is substantial, with increases in the number of large fires statewide ranging from 58% to 128% above historical levels by 2085. Under the same emissions scenario, estimated burned area will increase by 57% to 169%, depending on location (CCCC 2012).

Reduction in the suitability of agricultural lands for traditional crop types may occur. While effects may occur, adaptation could allow farmers and ranchers to minimize potential negative effects on agricultural outcomes through adjusting timing of plantings or harvesting and changing crop types.

Public health-related effects of increased temperatures and prolonged temperature extremes, including heat stroke, heat exhaustion, and exacerbation of existing medical conditions, could be particular problems for the elderly, infants, and those who lack access to air conditioning or cooled spaces (CNRA 2009a).

4.5.1.4 Existing Emissions

GHG emissions generated during operation of existing Cypress College buildings and facilities were estimated to provide a baseline for comparison to projected operational emissions generated by buildout of buildings and facilities of the proposed project. Year 2015 was used to represent

existing conditions.² Operation of Cypress College currently results in GHG emissions through energy use (natural gas and generation of electricity consumed by the existing buildings and facilities); motor vehicle trips to existing Cypress College land uses; generation of electricity associated with water supply, treatment, and distribution and wastewater treatment; and solid waste disposal. Annual GHG emissions from these sources were estimated using CalEEMod.

Cypress College currently generates GHG emissions primarily through vehicular traffic (mobile sources) generated by students, faculty and staff, employees, and visitors to the campus. Emissions associated with existing daily traffic were modeled using weekday trip-generation rates, which were calculated using the project traffic generation values provided in the traffic impact analysis report (Appendix F). CalEEMod default Saturday and Sunday trip-generation rates were adjusted based on weekday trip-generation rates per land use type, as weekend trip-generation rates were not provided in the traffic impact analysis report. CalEEMod default data for temperature, variable start information, and emission factors were conservatively used for the model inputs. Project-related traffic was assumed to consist of a mixture of vehicles in accordance with the model outputs for traffic. Emission factors representing the vehicle mix and emissions for 2016 emission factors were used to represent existing conditions.

In addition to estimating mobile source emissions, CalEEMod was used to estimate emissions from the project area sources, which include gasoline-powered landscape maintenance equipment, consumer products, and architectural coatings for the maintenance of buildings. The estimated existing operational emissions were based on existing land use defaults and total area (i.e., square footage) of Cypress College buildings and facilities that were in operation in 2015. Existing development of academic, general administrative, auxiliary, and recreational land uses on the campus totals 847,019 gross square feet (GSF) and 4,306 parking lot spaces.

Emissions from energy sources, which include natural gas appliances, space and water heating, and building electricity, were also estimated using CalEEMod. Indoor and outdoor water use was assumed to be 18,150,720 and 42,335,255 gallons per year, respectively, based on Cypress College's water consumption from November 2014 through October 2015. The project's solid waste generation rate was changed to 2,368 tons per year based on total solid waste generated by Cypress College in the year 2015. Natural gas consumption defaults were also revised through Title 24 and non-Title 24 natural gas energy intensities to values of 37.37 and 18.28 thousand British thermal units per 1,000 square feet per year, respectively, to reflect Cypress College's natural gas consumption for the 2014–2015 fiscal year. Electricity consumption defaults were also revised through Title 24 and non-Title 24 electricity intensities, and lighting energy

² Most of the existing data for the campus reflect conditions in the 2014 to 2016 time frame; 2015 was selected as an average for purposes of the baseline analysis because the majority of the data used in this analysis came from the year 2015 (natural gas consumption, electricity consumption, potable water consumption, and solid waste generation).

intensities to values of 2.88, 1.28, and 1.59 kilowatt-hours per 1,000 square feet per year, respectively, to reflect Cypress College’s natural gas consumption for the 2014–2015 fiscal year. The estimated existing operational GHG emissions from electricity usage, mobile sources, water consumption, wastewater treatment, and solid waste generation in 2015 are shown in Table 4.5-2, Estimated Existing Operational GHG Emissions. Details of the emission calculations are provided in Appendix B to this Program Environmental Impact Report (EIR).

Table 4.5-2
Estimated Existing Operational GHG Emissions

Emission Source	CO ₂	CH ₄	N ₂ O	CO ₂ E
	<i>metric tons per year</i>			
Area	0.13	<0.01	0.00	0.14
Energy (natural gas and electricity)	3,909.12	0.11	0.06	3,929.89
Mobile source	27,258.07	1.17	0.00	27,282.56
Solid waste	480.68	28.41	0.00	1,077.24
Water supply and wastewater	207.96	0.60	0.02	225.49
Total	31,855.96	30.29	0.08	32,515.32

Note: See Appendix B for complete results.

GHG = greenhouse gas; CO₂ = carbon dioxide; CH₄ = methane; N₂O = nitrous oxide; CO₂E = carbon dioxide equivalent

4.5.2 Relevant Plans, Policies, and Ordinances

Federal

Massachusetts vs. EPA

On April 2, 2007, in *Massachusetts v. EPA*, the Supreme Court directed the U.S. Environmental Protection Agency (EPA) Administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the EPA Administrator is required to follow the language of Section 202(a) of the Clean Air Act. On December 7, 2009, the EPA Administrator signed a final rule with the following two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act:

- The EPA Administrator found that elevated concentrations of GHGs—CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆—in the atmosphere threaten the public health and welfare of current and future generations. This is referred to as the “endangerment finding.”
- The EPA Administrator further found the combined emissions of GHGs—CO₂, CH₄, N₂O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is referred to as the “cause or contribute finding.”

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

Energy Independence and Security Act of 2007

On December 19, 2007, President George W. Bush signed the Energy Independence and Security Act of 2007. Among other key measures, the Act would do the following, which would aid in the reduction of national GHG emissions:

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

EPA and NHTSA Joint Final Rules for Vehicle Standards

On April 1, 2010, the EPA and NHTSA announced a joint final rule to establish a national program consisting of new standards for light-duty vehicle model years 2012 through 2016 that is intended to reduce GHG emissions and improve fuel economy. The EPA approved the first-ever national GHG emissions standards under the Clean Air Act, and NHTSA approved Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act (75 FR 25324–25728), which became effective on July 6, 2010. The EPA’s GHG standards require new passenger cars, light-duty trucks, and medium-duty passenger vehicles to meet an estimated combined average emissions level of 250 grams of CO₂ per mile in model year 2016. The CAFE standards for passenger cars and light trucks will be phased in between 2012 and 2016. The rules will simultaneously reduce GHG emissions, improve energy security, increase fuel savings, and provide clarity and predictability for manufacturers (EPA 2010). In August 2012, the EPA and NHTSA approved a second round of GHG and CAFE standards for model years 2017 and beyond (77 FR 62624–63200). These standards will reduce motor vehicle GHG emissions for cars and light-duty trucks by model year 2025.

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

On October 23, 2015, EPA published a final rule (effective December 22, 2015) establishing the Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units (80 FR 64510–64660), also known as the Clean Power Plan. These guidelines prescribe how states must develop plans to reduce GHG emissions from existing fossil-fuel-fired electric generating units. The guidelines establish CO₂ emission performance rates representing the best system of emission reduction for two subcategories of existing fossil-fuel-fired electric generating units: (1) fossil-fuel-fired electric utility steam-generating units, and (2) stationary combustion turbines. Concurrently, EPA published a final rule (effective October 23, 2015) establishing Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units (80 FR 64661–65120). The rule prescribes CO₂ emission standards for newly constructed, modified, and reconstructed affected fossil-fuel-fired electric utility generating units. Implementation of the Clean Power Plan has been stayed by the U.S. Supreme Court pending resolution of several lawsuits.

State

Title 24

Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California’s building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically establishes Building Energy Efficiency Standards that are designed to ensure new and existing buildings in the State of California achieve energy efficiency and preserve outdoor and indoor environmental quality. The California Energy Commission (CEC) is required by law to adopt standards every 3 years that are cost effective for homeowners over the 30-year lifespan of a building. These standards are updated to consider and incorporate new energy efficient technologies and construction methods. As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment.

The current Title 24 standards are the 2013 standards, which became effective on July 1, 2014. Buildings constructed in accordance with the 2013 standards will use 25% less energy for lighting, heating, cooling, ventilation, and water heating than the 2008 standards (CEC 2012). The 2016 Title 24 building energy efficiency standards, which will be effective January 1, 2017, will further reduce energy used and associated GHG emissions. In general, single-family homes built to the 2016 standards are anticipated to use about 28% less energy for lighting, heating, cooling, ventilation, and water heating than those built to the 2013 standards, and non-residential buildings built to the 2016 standards will use an estimated 5% less energy than those built to the 2013 standards (CEC 2015). Although the project would be required to comply with 2016 Title 24

standards because it is anticipated to be constructed during or after 2017, this analysis conservatively does not quantify the increase energy efficiency associated with the more stringent 2016 Title 24 standards.

Title 24 also includes Part 11, known as California’s Green Building Standards (CALGreen). The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential and state-owned buildings, and schools and hospitals. The mandatory standards require the following (24 CCR Part 11):

1. 20% mandatory reduction in indoor water use.
2. 50% of construction and demolition waste must be diverted from landfills.
3. Mandatory inspections of energy systems to ensure optimal working efficiency.
4. Low-pollutant emitting exterior and interior finish materials, such as paints, carpets, vinyl flooring, and particle boards.

The CALGreen standards also include voluntary efficiency measures that are provided at two separate tiers and implemented at the discretion of local agencies and applicants. CALGreen’s Tier 1 standards call for a 15% improvement in energy requirements, stricter water conservation, 65% diversion of construction and demolition waste, 10% recycled content in building materials, 20% permeable paving, 20% cement reduction, and cool/solar-reflective roofs. CALGreen’s more rigorous Tier 2 standards call for a 30% improvement in energy requirements, stricter water conservation, 75% diversion of construction and demolition waste, 15% recycled content in building materials, 30% permeable paving, 30% cement reduction, and cool/solar-reflective roofs.

Assembly Bill 939 and Assembly Bill 341

In 1989, Assembly Bill (AB) 939, known as the Integrated Waste Management Act (Public Resources Code Sections 40000 et seq.), was passed because of the increase in waste stream and the decrease in landfill capacity. The statute established the California Integrated Waste Management Board, which oversees a disposal reporting system. AB 939 mandated a reduction of waste being disposed where jurisdictions were required to meet diversion goals of all solid waste through source reduction, recycling, and composting activities of 25% by 1995 and 50% by the year 2000. AB 341 (Chapter 476, Statutes of 2011 (Chesbro)) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the state that not less than 75% of solid waste generated be source-reduced, recycled, or composted by the year 2020 and annually thereafter. In addition, AB 341 required the California Department of Resources Recycling and Recovery (CalRecycle) to develop strategies to achieve the state’s policy goal. CalRecycle conducted several stakeholder workshops, and in May 2012,

published a discussion document titled *California's New Goal: 75 Percent Recycling*, which identifies concepts that CalRecycle believes would assist the state in reaching the 75% goal by 2020 (CalRecycle 2012).

Assembly Bill 1493

In a response to the transportation sector accounting for more than half of California's CO₂ emissions, AB 1493 (Pavley) was enacted in July 2002. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the state board to be vehicles that are primarily used for noncommercial personal transportation in the state. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. When fully phased in, the near-term (2009–2012) standards will result in a reduction of about 22% in GHG emissions compared to the emissions from the 2002 fleet, while the mid-term (2013–2016) standards will result in a reduction of about 30%.

Senate Bill 1078

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

Executive Order S-3-05

EO S-3-05 (June 2005) established the following goals: GHG emissions should be reduced to 2000 levels by 2010, GHG emissions should be reduced to 1990 levels by 2020, and GHG emissions should be reduced to 80% below 1990 levels by 2050. Under EO S-3-05, the California EPA is directed to report biannually on progress made toward meeting the GHG targets and the impacts to California due to global warming, including impacts to water supply, public health, agriculture, the coastline, and forestry. The Climate Action Team was formed, which subsequently issued the *2006 Climate Action Team Report to Governor Schwarzenegger and the Legislature* (CAT 2006).

The *2009 Climate Action Team Biennial Report* (CAT 2010b) expands on the policy outlined in the 2006 assessment. The 2009 report identifies the need for additional research in several different aspects that affect climate change in order to support effective climate change strategies. Subsequently, the *2010 Climate Action Team Report to Governor Schwarzenegger and the California Legislature* (CAT 2010a) reviews past climate action milestones including voluntary reporting programs, GHG standards for passenger vehicles, the Low Carbon Fuel Standard (LCFS), a statewide renewable energy standard, and the cap-and-trade program.

Assembly Bill 32

In furtherance of the goals established in EO S-3-05, the legislature enacted AB 32 (Núñez and Pavley), the California Global Warming Solutions Act of 2006 (September 27, 2006). AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020, representing a reduction of approximately 15% below emissions expected under a “business-as-usual” scenario.

AB 32 directs CARB to develop programs and requirements necessary to achieve the AB 32 goals; to adopt regulations requiring the reporting and verification of statewide GHG emissions; and to monitor compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted. AB 32 also directs Climate Action Team to coordinate the efforts set forth under EO S-3-05 to continue its role in coordinating overall climate policy. Pursuant to AB 32, CARB must adopt regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. Reductions in GHG emissions will come from virtually all sectors of the economy and will be accomplished from a combination of policies, planning, direct regulations, market approaches, incentives, and voluntary efforts. These efforts target GHG emission reductions from cars and trucks, electricity production, fuels, and other sources. The full implementation of AB 32 will help mitigate risks associated with climate change, while improving energy efficiency, expanding the use of renewable energy resources, cleaner transportation, and reducing waste.

As required under AB 32, on December 6, 2007, CARB approved the 1990 GHG emissions inventory, thereby establishing the emissions limit for 2020. The 2020 emissions limit was set at 427 million metric tons (MMT) of CO₂E. In addition to the 1990 emissions inventory, CARB also adopted regulations requiring mandatory reporting of GHGs for the large facilities that account for 94% of GHG emissions from industrial and commercial stationary sources in California. AB 32 requires CARB to develop a Scoping Plan, which lays out California’s strategy for meeting the goals and which must be updated every 5 years. On December 11, 2008, CARB approved the initial *Climate Change Scoping Plan: A Framework for Change* (Scoping Plan) (CARB 2008) to achieve the goals of AB 32. The Scoping Plan establishes an overall framework for a suite of measures that will be adopted to sharply reduce California’s GHG emissions. The Scoping Plan evaluates opportunities for sector-specific reductions, integrates all CARB and Climate Action Team early actions and additional GHG reduction measures by both entities, identifies additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program. The key elements of the Scoping Plan include the following (CARB 2008):

1. Expanding and strengthening existing energy efficiency programs as well as building and appliance standards
2. Achieving a statewide renewable energy mix of 33%

3. Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85% of California’s GHG emissions
4. Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets
5. Adopting and implementing measures pursuant to existing state laws and policies, including California’s clean car standards, goods movement measures, and the Low Carbon Fuel Standard
6. Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State of California’s long-term commitment to AB 32 implementation

In May 2014, CARB approved the *First Update to the Climate Change Scoping Plan* (Scoping Plan Update; CARB 2014a), which builds on the initial Scoping Plan with new strategies and recommendations and identifies opportunities to leverage existing and new funds to further drive GHG emission reductions through strategic planning and targeted low carbon investments. Based on updated information, the Scoping Plan Update revises the 2020 emissions target to 431 MMT CO₂E (based on updated GWPs for GHGs) (CARB 2014a).

The Scoping Plan Update highlights California’s progress toward meeting the near-term 2020 GHG emission reduction goals defined in the initial Scoping Plan, summarizes the latest climate change science, defines CARB’s climate change priorities for the next 5 years, and provides direction on how to achieve the long-term emission reduction goal described in EO S-3-05 and B-16-12 (see EO B-16-12). The Scoping Plan Update identified nine key focus areas, including energy, transportation, agriculture, water, waste management, and natural and working lands, along with short-lived climate pollutants, green buildings, and the cap-and-trade program. The update also recommends that a statewide mid-term target and mid-term and long-term sector targets be established toward meeting the 2050 goal established by EO S-3-05 (i.e., reduce California’s GHG emissions to 80% below 1990 levels), although no specific recommendations are made.

Senate Bill 107

SB 107 (Simitian) (September 2006) requires investor-owned utilities, such as Pacific Gas and Electric, Southern California Edison, and San Diego Gas & Electric, to generate 20% of their electricity from renewable sources by 2010. Previously, state law required that this target be achieved by 2017 (see SB 1078).

Senate Bill 1368

SB 1368 (September 2006) requires the CEC to develop and adopt regulations for GHG emissions performance standards for the long-term procurement of electricity by local, publicly owned utilities. These standards must be consistent with the standards adopted by the California Public Utilities Commission (CPUC). This effort will help protect energy customers from financial risks associated with investments in carbon-intensive generation by allowing new capital investments in power plants that have GHG emissions that are as low or lower than new combined-cycle natural gas plants. This will be done by requiring imported electricity to meet GHG performance standards in California, and by requiring that the standards be developed and adopted in a public process.

Executive Order S-1-07

EO S-1-07 (January 2007) sets a declining LCFS for GHG emissions measured in CO₂E gram per unit of fuel energy sold in California. The target of the LCFS is to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020. The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered. CARB adopted the implementing regulation in April 2009. The regulation is expected to increase the production of biofuels, including those from alternative sources such as algae, wood, and agricultural waste. In addition, the LCFS would drive the availability of plug-in hybrid, battery electric, and fuel-cell power motor vehicles. The LCFS is anticipated to replace 20% of the fuel used in motor vehicles with alternative fuels by 2020.

Senate Bill 97

SB 97 (Dutton) (August 2007) directs the Governor's Office of Planning and Research to develop guidelines under the California Environmental Quality Act (CEQA) for the mitigation of GHG emissions. The Office of Planning and Research was tasked to develop proposed guidelines by July 1, 2009, and the California Natural Resources Agency (CNRA) directed to adopt guidelines by January 1, 2010. On June 19, 2008, the Governor's Office of Planning and Research issued a technical advisory as interim guidance regarding the analysis of GHG emissions in CEQA documents (OPR 2008). The advisory indicated that a project's GHG emissions, including those associated with vehicular traffic, energy consumption, water usage, and construction activities, should be identified and estimated. The advisory further recommended that the lead agency determine significance of the impacts and impose all mitigation measures that are necessary to reduce GHG emissions to a less-than-significant level.

On April 13, 2009, the Governor's Office of Planning and Research submitted to the CNRA its proposed amendments to the state CEQA Guidelines relating to GHG emissions. On July 3, 2009, the CNRA commenced the Administrative Procedure Act rulemaking process for certifying and

adopting the proposed amendments, starting the public comment period. The CNRA adopted CEQA Guidelines amendments on December 30, 2009, and transmitted them to the Office of Administrative Law on December 31, 2009. On February 16, 2010, the Office of Administrative Law completed its review and filed the amendments with the secretary of state. The amendments became effective on March 18, 2010. The amended guidelines establish several new CEQA requirements concerning the analysis of GHGs, including the following:

- Requiring a lead agency to “make a good faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of GHG emissions resulting from a project” (Section 15064.4(a));
- Providing a lead agency with the discretion to determine whether to use quantitative or qualitative analysis or performance standards to determine the significance of GHG emissions resulting from a particular project (Section 15064.4(a));
- Requiring a lead agency to consider the following factors when assessing the significant impacts from GHG emissions on the environment;
- The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting;
- Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project;
- The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (Section 15064.4(b)); and
- Allowing lead agencies to consider feasible means of mitigating the significant effects of GHG emissions, including reductions in emissions through the implementation of project features or off-site measures, including offsets that are not otherwise required (Section 15126.4(c)).

The amended guidelines also establish two new guidance questions regarding GHG emissions in the Environmental Checklist set forth in CEQA Guidelines Appendix G (14 CCR 15000 et seq):

- Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?
- Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?

The adopted amendments do not establish a GHG emission threshold, and instead allow a lead agency to develop, adopt, and apply its own thresholds of significance or those developed by other

agencies or experts.³ The CNRA also acknowledges that a lead agency may consider compliance with regulations or requirements implementing AB 32 in determining the significance of a project's GHG emissions.⁴

Senate Bill 375

SB 375 (Steinberg) (September 2008) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. Regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035, as determined by CARB, are required to consider the emission reductions associated with vehicle emission standards (see SB 1493), the composition of fuels (see EO S-1-07), and other CARB-approved measures to reduce GHG emissions. Regional metropolitan planning organizations will be responsible for preparing a Sustainable Communities Strategy (SCS) within their Regional Transportation Plan (RTP). The goal of the SCS is to establish a development plan for the region, which, after considering transportation measures and policies, will achieve, if feasible, the GHG reduction targets. If an SCS is unable to achieve the GHG reduction target, a metropolitan planning organization must prepare an Alternative Planning Strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies. SB 375 provides incentives for streamlining CEQA requirements by substantially reducing the requirements for "transit priority projects," as specified in SB 375, and eliminating the analysis of the impacts of certain residential projects on global warming and the growth-inducing impacts of those projects when the projects are consistent with the SCS or Alternative Planning Strategy.

On September 23, 2010, CARB adopted the SB 375 targets for the regional metropolitan planning organizations. The targets for the Southern California Association of Governments (SCAG) are an 8% reduction in emissions per capita by 2020 and a 13% reduction by 2035. Achieving these goals through adoption of a SCS will be the responsibility of the metropolitan planning organizations. SCAG prepared its Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS), which was adopted by the SCAG Regional Council in April 2012. The plan quantified a 9% reduction by 2020 and a 16% reduction by 2035.

³ "The CEQA Guidelines do not establish thresholds of significance for other potential environmental impacts, and SB 97 did not authorize the development of a statement threshold as part of this CEQA Guidelines update. Rather, the proposed amendments recognize a lead agency's existing authority to develop, adopt and apply their own thresholds of significance or those developed by other agencies or experts" (CNRA 2009c, p. 84).

⁴ "A project's compliance with regulations or requirements implementing AB 32 or other laws and policies is not irrelevant. Section 15064.4(b)(3) would allow a lead agency to consider compliance with requirements and regulations in the determination of significance of a project's greenhouse gas emissions" (CNRA 2009c, p. 100).

Executive Order S-13-08

EO Order S-13-08 (November 2008) is intended to hasten California’s response to the impacts of global climate change, particularly sea-level rise. It directs state agencies to take specified actions to assess and plan for such impacts. It directs the CNRA, in cooperation with the California Department of Water Resources, CEC, California’s coastal management agencies, and the Ocean Protection Council, to request that the National Academy of Sciences prepare a Sea Level Rise Assessment Report by December 1, 2010. The Ocean Protection Council, California Department of Water Resources, and CEC, in cooperation with other state agencies, are required to conduct a public workshop to gather information relevant to the Sea Level Rise Assessment Report. The Business, Transportation, and Housing Agency was ordered to assess within 90 days of issuance of the EO the vulnerability of the state’s transportation systems to sea-level rise. The Governor’s Office of Planning and Research and the CNRA are required to provide land use planning guidance related to sea-level rise and other climate change impacts. The EO also required the other state agencies to develop adaptation strategies by June 9, 2009, to respond to the impacts of global climate change that are predicted to occur over the next 50 to 100 years. A discussion draft adaptation strategies report was released in August 2009, and the final *2009 California Climate Adaptation Strategy* report was issued in December 2009 (CNRA 2009a). To assess the state’s vulnerability, the report summarizes key climate change impacts to the state for the following areas: public health, ocean and coastal resources, water supply and flood protection, agriculture, forestry, biodiversity and habitat, and transportation and energy infrastructure. The report then recommends strategies and specific responsibilities related to water supply, planning and land use, public health, fire protection, and energy conservation.

Executive Order S-14-08

EO S-14-08 (November 2008) focuses on the contribution of renewable energy sources to meet the electrical needs of California while reducing the GHG emissions from the electrical sector. This EO requires that all retail suppliers of electricity in California serve 33% of their load with renewable energy by 2020. Furthermore, the EO directs state agencies to take appropriate actions to facilitate reaching this target. The CNRA, through collaboration with the CEC and California Department of Fish and Wildlife (CDFW; formerly California Department of Fish and Game), is directed to lead this effort. Pursuant to a Memorandum of Understanding between the CEC and CDFW creating the Renewable Energy Action Team, these agencies will create a “one-stop” process for permitting renewable energy power plants.

Executive Order S-21-09

EO S-21-09 (September 2009) directed CARB to adopt a regulation consistent with the goal of EO S-14-08 by July 31, 2010. CARB is further directed to work with the CPUC and CEC to ensure that

the regulation builds upon the RPS program and is applicable to investor-owned utilities, publicly owned utilities, direct access providers, and community choice providers. Under this order, CARB is to give the highest priority to those renewable resources that provide the greatest environmental benefits with the least environmental costs and impacts on public health and can be developed the most quickly in support of reliable, efficient, cost-effective electricity system operations. On September 23, 2010, CARB adopted regulations to implement a Renewable Electricity Standard, which would achieve the goal of the EO with the following intermediate and final goals: 20% for 2012–2014, 24% for 2015–2017, 28% for 2018–2019, and 33% for 2020 and beyond. Under the regulation, wind; solar; geothermal; small hydroelectric; biomass; ocean wave, thermal, and tidal; landfill and digester gas; and biodiesel would be considered sources of renewable energy. The regulation would apply to investor-owned utilities and public (municipal) utilities.

Senate Bill XI 2

SB X1 2 (April 2011) expanded the RPS by establishing a goal of 20% of the total electricity sold to retail customers in California per year by December 31, 2013, and 33% by December 31, 2020, and in subsequent years. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation of 30 megawatts or less, digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current, and that meets other specified requirements with respect to its location. In addition to the retail sellers covered by SB 107, SB X1 2 adds local, publicly owned electric utilities to the RPS. By January 1, 2012, the CPUC is required to establish the quantity of electricity products from eligible renewable energy resources to be procured by retail sellers in order to achieve targets of 20% by December 31, 2013; 25% by December 31, 2016; and 33% by December 31, 2020. The statute also requires that the governing boards for local publicly owned electric utilities establish the same targets, and the governing boards would be responsible for ensuring compliance with these targets. The CPUC will be responsible for enforcement of the RPS for retail sellers, while the CEC and CARB will enforce the requirements for local publicly owned electric utilities.

Executive Order B-16-12

EO B-16-12 (March 2012) directs state entities under the Governor’s direction and control to support and facilitate development and distribution of zero-emission vehicles. This EO also sets a long-term target of reaching 1.5 million zero-emission vehicles on California’s roadways by 2025. On a statewide basis, EO B-16-12 also establishes a GHG emissions reduction target from the transportation sector equaling 80% less than 1990 levels by 2050.

Executive Order B-18-12

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

Senate Bill 605

SB 605 (September 2014) requires CARB to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants in the state no later than January 1, 2016. As defined in the statute, short-lived climate pollutant means “an agent that has a relatively short lifetime in the atmosphere, from a few days to a few decades, and a warming influence on the climate that is more potent than that of carbon dioxide.” SB 605, however, does not prescribe specific compounds as short-lived climate pollutants or add to the list of GHGs regulated under AB 32. In developing the strategy, the CARB must complete an inventory of sources and emissions of short-lived climate pollutants in the state based on available data, identify research needs to address any data gaps, identify existing and potential new control measures to reduce emissions, and prioritize the development of new measures for short-lived climate pollutants that offer co-benefits by improving water quality or reducing other air pollutants that impact community health and benefit disadvantaged communities. The draft strategy released by CARB in September 2015 focuses on methane, black carbon, and fluorinated gases, particularly HFCs, as important short-lived climate pollutants. The draft strategy recognizes emission reduction efforts implemented under AB 32 (e.g., refrigerant management programs) and other regulatory programs (e.g., in-use diesel engines, solid waste diversion) along with additional measures to be developed.

Executive Order B-29-15

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

Executive Order B-30-15

EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under S-3-05 and AB 32. EO B-30-15 set an interim target goal of reducing GHG emissions to 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing GHG emissions to 80% below 1990 levels by 2050 as set forth in S-3-05. To facilitate achievement of this goal, B-30-15 calls for an update to CARB’s Scoping Plan to express the 2030 target in terms of MMT CO₂E. The EO also calls for state agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets. Sector-specific agencies in transportation, energy, water, and forestry will be required to prepare GHG reduction plans by September 2015, followed by a report on action taken in relation to these plans in June 2016. EO B-30-15 does not require local agencies to take any action to meet the new interim GHG reduction threshold. It is important to note that EO B-30-15 was not adopted by a public agency through a public review process that requires analysis pursuant to CEQA Guidelines Section 15064.4, and that it has not been subsequently validated by a statute as an official GHG reduction target of the State of California. EO B-30-15 itself states it is “not intended to create, and does not, create any rights of benefits, whether substantive or procedural, enforceable at law or in equity, against the State of California, its agencies, departments, entities, officers employees, or any other person.”

Senate Bill 350

SB 350 (October 2015) expands the RPS by establishing a goal of 50% of the total electricity sold to retail customers in California per year by December 31, 2030. In addition, SB 350 includes the goal to double the energy efficiency savings in electricity and natural gas final end uses (such as heating, cooling, lighting, or class of energy uses on which an energy efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also requires the CPUC, in consultation with the CEC, to establish efficiency targets for electrical and gas corporations consistent with this goal. SB 350 also provides for the transformation of the California Independent System Operator into a regional organization to promote the development of regional electricity transmission markets in the western states and to improve the access of consumers served by the California Independent System Operator to those markets, pursuant to a specified process.

California Air Pollution Control Officers Association

The California Air Pollution Control Officers Association is the association of Air Pollution Control Officers representing all 35 air quality agencies throughout California. The California Air Pollution Control Officers Association is not a regulatory body, but has been an active organization in providing guidance in addressing the CEQA significance of GHG emissions and climate change as well as other air quality issues.

Local

Southern California Association of Governments 2012 Regional Transportation Plan/Sustainable Communities Strategy

SB 375 requires metropolitan planning organizations to prepare an SCS in their RTP. The SCAG Regional Council adopted the 2012 RTP/SCS in April 2012 (SCAG 2012). The RTP/SCS establishes a development pattern for the region, which, when integrated with the transportation network and other policies and measures, would reduce GHG emissions from transportation (excluding goods movement). The RTP/SCS links the goals of sustaining mobility with the goals of fostering economic development, enhancing the environment, reducing energy consumption, promoting transportation-friendly development patterns, and encouraging that all residents affected by socioeconomic, geographic, and commercial limitations are provided with fair access. The RTP/SCS does not require that local general plans, specific plans, or zoning be consistent with it, but provides incentives for consistency for governments and developers.

City of Cypress General Plan

The City's General Plan has relevant policies that promote energy conservation, including the following (City of Cypress 2001).

Air Quality Element Goals and Policies

Reduce Energy Consumption

- **AQ-4:** Reduce emissions through reduced energy consumption.
 - **AQ-4.1:** Promote energy conservation in all sectors of the City including residential, commercial, and industrial.
 - **AQ-4.2:** Promote local recycling of wastes and the use of recycled materials.
 - **AQ-4.3:** Adopt incentives and regulations to reduce emissions from swimming pool heaters and residential and commercial water heaters.

4.5.3 Thresholds of Significance

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

1. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

2. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

OPR Guidance

The Governor’s Office of Planning and Research’s Technical Advisory titled *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review* states that “public agencies are encouraged but not required to adopt thresholds of significance for environmental impacts. Even in the absence of clearly defined thresholds for GHG emissions, the law requires that such emissions from CEQA projects must be disclosed and mitigated to the extent feasible whenever the lead agency determines that the project contributes to “a significant, cumulative climate change impact” (OPR 2008). Furthermore, the advisory document indicates that “in the absence of regulatory standards for GHG emissions or other scientific data to clearly define what constitutes a ‘significant impact,’ individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice” (OPR 2008).

Cumulative Nature of Climate Change

Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHGs. There are currently no established thresholds for assessing whether the GHG emissions of a project would be considered a cumulatively considerable contribution to global climate change; however, all reasonable efforts should be made to minimize a project’s contribution to global climate change.

While the proposed project would result in emissions of GHGs during construction and operation, no guidance exists to indicate what level of GHG emissions would be considered substantial enough to result in a significant adverse impact on global climate. However, it is generally believed that an individual project is of insufficient magnitude by itself to influence climate change or result in a substantial contribution to the global GHG inventory as scientific uncertainty regarding the significance of a project’s individual and cumulative effects on global climate change remains.

Thus, GHG impacts are recognized exclusively as cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective (CAPCOA 2008). This approach is consistent with that recommended by the CNRA, which noted in its public notice for the proposed CEQA amendments that the evidence before it indicates that in most cases, the impact of GHG emissions should be considered in the context of a cumulative impact, rather than as a project-level impact (CNRA 2009b). Similarly, the *Final Statement of Reasons for Regulatory Action on the CEQA Amendments* confirm that an EIR or other environmental document must

analyze the incremental contribution of a project to GHG levels and determine whether those emissions are cumulatively considerable (CNRA 2009c). Accordingly, further discussion of the project’s GHG emissions and their impact on global climate are addressed below.

CEQA Guidelines

The CNRA adopted amendments to the CEQA Guidelines on December 30, 2009, which became effective on March 18, 2010. With respect to GHG emissions, the amended CEQA Guidelines state in Section 15064.4(a) that lead agencies should “make a good faith effort, to the extent possible on scientific and factual data, to describe, calculate or estimate” GHG emissions. The CEQA Guidelines note that an agency may identify emissions by either selecting a “model or methodology” to quantify the emissions or by relying on “qualitative analysis or other performance based standards” (14 CCR 15000 et seq.). Section 15064.4(b) provides that the lead agency should consider the following when assessing the significance of impacts from GHG emissions on the environment:

- The extent a project may increase or reduce GHG emissions as compared to the existing environmental setting.
- Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
- The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)).

In addition, Section 15064.7(c) of the CEQA Guidelines specifies that “[w]hen adopting thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence” (14 CCR 15064.7(c)). Similarly, the revisions to Appendix G, Environmental Checklist Form, which is often used as a basis for lead agencies’ selection of significance thresholds, do not prescribe specific thresholds. Rather, the CEQA Guidelines establish two new CEQA thresholds related to GHGs, and these will therefore be used to discuss the significance of project impacts:

1. Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?
2. Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?

Accordingly, the CEQA Guidelines do not prescribe specific methodologies for performing an assessment, do not establish specific thresholds of significance, and do not mandate specific

mitigation measures. Rather, the CEQA Guidelines emphasize the lead agency’s discretion to determine the appropriate methodologies and thresholds of significance consistent with the manner in which other impact areas are handled in CEQA (CNRA 2009c).

Status of Proposed South Coast Air Quality Management District Thresholds

The South Coast Air Quality Management District (SCAQMD) has not adopted recommended numeric CEQA significance thresholds for GHG emissions for lead agencies to use in assessing GHG impacts of development projects. In October 2008, SCAQMD presented to the Governing Board the *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold* (SCAQMD 2008). The guidance document was not adopted or approved by the Governing Board. This document, which builds on the previous guidance prepared by the California Air Pollution Control Officers Association, explored various approaches for establishing a significance threshold for GHG emissions. Among the concepts discussed, the document considered a “de minimis,” or screening, threshold to “identify small projects that would not likely contribute to significant cumulative GHG impacts” (SCAQMD 2008). As further explained in this document, “Projects with GHG emissions less than the screening level are considered to be small projects, that is, they would not likely be considered cumulatively considerable” (SCAQMD 2008). The SCAQMD formed a GHG CEQA Significance Threshold Working Group to work with SCAQMD staff on developing GHG CEQA significance thresholds until statewide significance thresholds or guidelines are established. The SCAQMD proposed three tiers of compliance that may lead to a determination that impacts are less than significant, including the following:

1. Projects with GHGs within budgets set out in approved regional plans to be developed under the SB 375 process.
2. Projects with GHG emissions that are below designated quantitative thresholds:
 - a. Industrial projects with an incremental GHG emissions increase that falls below (or is mitigated to be less than) 10,000 MT CO₂E per year.
 - b. Commercial and residential projects with an incremental GHG emissions increase that falls below (or is mitigated to be less than) 3,000 MT CO₂E per year, provided that such projects also meet energy efficiency and water conservation performance targets that have yet to be developed.
3. Projects that purchase GHG offsets that, either alone or in combination with one of the three tiers mentioned above, achieve the target significance screening level.

From December 2008 to September 2010, the SCAQMD hosted working group meetings and revised the draft threshold proposal several times, although it did not officially provide these proposals in a subsequent document. The most recent working group meeting on September 28,

2010 (SCAQMD 2010), proposed two options that lead agencies can select from to screen thresholds of significance for GHG emissions in residential and commercial projects, and proposed to expand the industrial threshold to other lead agency industrial projects. Option 1 proposed a threshold of 3,000 MT CO₂E per year for all residential and commercial projects, and Option 2 proposed a threshold value by land use type where the numeric threshold is 3,500 MT CO₂E per year for residential projects, 1,400 MT CO₂E per year for commercial projects, and 3,000 MT CO₂E per year for mixed use projects (SCAQMD 2010). Per the SCAQMD guidance, construction emissions should be amortized over the operational life of the project, which is assumed to be 30 years (SCAQMD 2008).

4.5.4 Impacts Analysis

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

Construction Impacts

Construction of the proposed project would result in GHG emissions that would primarily be associated with use of off-road construction equipment, on-road hauling and vendor trucks, and worker vehicles. CalEEMod was used to calculate the annual GHG emissions based on the construction scenario described in Section 4.2, Air Quality.

During Phase 1, new construction of the Baseball Clubhouse, new construction of the Science, Engineering, and Mathematics (SEM) building, expansion and renovation of the Student Activities Center, which includes the new Veterans' Resource Center, expansion of the Library and Learning Resources Center, and construction of the Veteran's Memorial Plaza, would total 146,604 GSF, and the total size of buildings demolished (baseball storage/clubhouse and temporary restrooms) would be 1,917 GSF.⁵ Construction was assumed to commence in January 2017 and reach completion by January 2020, for a total duration of approximately 36 months. Table 4.5-3 presents the estimated maximum unmitigated daily construction emissions generated during construction of the proposed project in Phase 1.

Concurrent building construction of the Student Activities Center renovation, expansion of the Student Activities Center, which includes the new Veterans' Resource Center, and the photovoltaic (PV; solar) carport installation, would occur in 2018. Concurrent building

⁵ The estimated number of buildings to be constructed in each phase and the construction schedule are based on current estimates. The actual number and schedule may change; however, these assumed estimates are representative for purposes of assessing the potential for significant air quality impacts. Building size estimates are provided in assignable square feet in Chapter 3. To estimate gross square feet for an accurate construction scenario, it was assumed that assignable square feet = 0.59 × GSF. This is based on an average conversion rate of gross square feet to assignable square feet for existing Cypress College buildings and facilities.

construction would also occur in 2018 between the new SEM building, renovation of the Student Activities Center, expansion of the Student Activities Center, which includes the Veterans’ Resource Center, the Library and Learning Resource Center expansion, and Veteran’s Memorial Plaza.⁶

Table 4.5-3, Phase 1 Estimated Annual Construction GHG Emissions, presents construction emissions for the proposed project in 2017, 2018, 2019, and 2020.

**Table 4.5-3
Phase 1 Estimated Annual Construction GHG Emissions**

	CO ₂	CH ₄	N ₂ O	CO ₂ E
	<i>metric tons per year</i>			
<i>2017</i>				
Parking Reconfiguration	31.47	0.01	0.00	31.57
Baseball Clubhouse	62.04	0.02	0.00	62.41
Total	93.51	0.03	0.00	93.98
<i>2018</i>				
SEM building	425.41	0.08	0.00	427.17
Expansion of Veterans’ Resource Center	118.59	0.03	0.00	119.26
Student Activities Center Renovation	75.49	0.01	0.00	75.73
PV Carport Installation	5.11	<0.01	0.00	5.13
Library and Learning Resource Center Expansion	119.34	0.03	0.00	120.00
Veteran’s Memorial Plaza Construction	108.99	0.03	0.00	109.65
Total	852.93	0.18	0.00	856.94
<i>2019</i>				
SEM Building	471.25	0.09	0.00	473.17
Total	471.25	0.09	0.00	473.17
<i>2020</i>				
SEM Building	15.36	<0.01	0.00	15.43
Total	15.36	0.00	0.00	15.43

Note: See Appendix B for complete results.
GHG = greenhouse gas; CO₂ = carbon dioxide; CH₄ = methane; N₂O = nitrous oxide; CO₂E = carbon dioxide equivalent

As shown in Table 4.5-3, the estimated total GHG emissions during construction of Phase 1 would be approximately 94 metric tons (MT) CO₂E in 2017, 857 MT CO₂E in 2018, 473 MT CO₂E in 2019, and 15 MT CO₂E in 2020. Additional details regarding these calculations are provided in Appendix B.

⁶ Timing estimates of the proposed project buildout were based on the preliminary project phasing schedule. Because CalEEMod uses real dates (e.g., January 15, 2024) to calculate construction emissions, assumptions were made as to key dates for each phase. While all dates reflected in this Program EIR are estimates and actual dates may differ depending on funding, weather, future campus needs, and other factors, this analysis represents a conservative assessment of likely air quality impacts.

Construction of the gymnasium restroom building in Phase 2 would total 11,864 GSF.⁷ No buildings would be demolished. Phase 2 would include the renovation of the Fine Arts building, Humanities building, Aquatic Center, and Gymnasiums 1 and 2. Mass communication and security upgrades would occur during building renovation. Phase 2 construction was assumed to start in August 2020 and finish in May 2022, lasting approximately 21 months.

Table 4.5-4, Phase 2 Estimated Annual Construction GHG Emissions, presents construction emissions for the proposed project in 2020, 2021, and 2022.

**Table 4.5-4
Phase 2 Estimated Annual Construction GHG Emissions**

	CO ₂	CH ₄	N ₂ O	CO ₂ E
	<i>metric tons per year</i>			
<i>2020</i>				
Fine Arts Renovation	112.28	0.02	0.00	112.60
Humanities Renovation	135.91	0.02	0.00	136.33
Total	248.19	0.04	0.00	248.93
<i>2021</i>				
Fine Arts Renovation	95.08	0.01	0.00	95.34
Humanities Renovation	139.69	0.02	0.00	140.10
Aquatic Center Renovation	48.05	0.01	0.00	48.18
Gymnasiums 1 and 2 Renovation	27.00	<0.01	0.00	27.08
Gymnasium Restroom	18.12	0.01	0.00	18.23
Total	327.94	0.05	0.00	328.93
<i>2022</i>				
Gymnasiums 1 and 2 Renovation	208.96	0.03	0.00	209.57
Gymnasium Restroom	84.13	0.03	0.00	84.66
Total	293.09	0.06	0.00	294.23

Note: See Appendix B for complete results.
GHG = greenhouse gas; MT = metric ton(s); CO₂ = carbon dioxide; CH₄ = methane; N₂O = nitrous oxide; CO₂E = carbon dioxide equivalent;

As shown in Table 4.5-4, the estimated total GHG emissions during construction of Phase 2 would be approximately 249 MT CO₂E in 2020, 329 MT CO₂E in 2021, and 294 MT CO₂E in 2022.

Phase 3 could include construction of a parking structure, which could provide 1,000 parking spaces. Renovation of Technical Education buildings 1, 2, and 3, and the Business Education

⁷ It should be noted that the estimated number of buildings to be constructed in each phase and the construction schedule are based on current estimates. The actual number and schedule may change; however, these assumed estimates are representative for purposes of assessing the potential for significant air quality impacts. Building size estimates are provided in assignable square feet in Chapter 3. To estimate gross square feet for an accurate construction scenario, it was assumed that assignable square feet = 0.59 × GSF. This is based on an average conversion rate of gross square feet to assignable square feet for existing Cypress College buildings and facilities.

building would also occur. The existing SEM building would serve as swing space during renovation of the Technical Education buildings 1, 2, 3, and Business Education buildings. Demolition of the SEM building would total 100,681 GSF and would occur after renovation of these buildings. Construction is assumed to commence in October 2024 and reach completion in November 2026, a total of 25 months of construction.

Table 4.5-5, Phase 3 Estimated Annual Construction GHG Emissions, presents construction emissions for the proposed project in 2024, 2025, and 2026.

**Table 4.5-5
Phase 3 Estimated Annual Construction GHG Emissions**

	CO ₂	CH ₄	N ₂ O	CO ₂ E
	<i>metric tons per year</i>			
<i>2024</i>				
Technical Education Buildings 1, 2, and 3 Renovation	105.88	0.02	0.00	106.27
Total	105.88	0.02	0.00	106.27
<i>2025</i>				
Technical Education Buildings 1, 2, and 3 Renovation	265.84	0.05	0.00	266.82
Parking Structure	710.46	0.11	0.00	712.81
Business Education Renovation	24.88	<0.01	0.00	24.95
Total	1,001.18	0.16	0.00	1,004.58
<i>2026</i>				
Parking Structure	110.69	0.02	0.00	111.10
Business Education Renovation	192.73	0.03	0.00	193.29
Existing SEM Demolition	36.70	0.01	0.00	36.82
Total	340.12	0.06	0.00	341.21

Note: See Appendix B for complete results.
GHG = greenhouse gas; MT = metric ton(s); CO₂ = carbon dioxide; CH₄ = methane; N₂O = nitrous oxide; CO₂E = carbon dioxide equivalent

As shown in Table 4.5-5, the estimated total GHG emissions during construction of Phase 3 would be approximately 106 MT CO₂E in 2024, 1,005 MT CO₂E in 2025, and 341 MT CO₂E in 2026.

As discussed in Section 4.5.3, Thresholds of Significance, per the SCAQMD guidance, construction emissions should be amortized over the operational life of the project, which is assumed to be 30 years (SCAQMD 2008). Table 4.5-6 presents the amortized construction emissions.

Operational Impacts

Operational Emissions Compared to Existing Conditions

Operation of the proposed project would result in GHG emissions through energy use (natural gas and generation of electricity consumed by the project); motor vehicle trips to project land uses; generation of electricity associated with water supply, treatment, and distribution and wastewater treatment; and solid waste disposal. Annual GHG emissions from these sources were estimated using CalEEMod. The proposed project would primarily generate GHG emissions through vehicular traffic generated by students, faculty and staff, and employees and visitors.

Emissions associated with existing and project-generated daily traffic were modeled using weekday trip-generation rates, which were calculated using the project traffic generation values provided in the traffic impact analysis report prepared by Linscott, Law & Greenspan (Appendix F). CalEEMod default Saturday and Sunday trip-generation rates were adjusted based on weekday trip-generation rates per land use type, as weekend trip-generation rates were not provided in the traffic impact analysis report. CalEEMod default data for temperature, variable start information, and emission factors were conservatively used for the model inputs. Project-related traffic was assumed to consist of a mixture of vehicles in accordance with the model outputs for traffic. Emission factors representing the vehicle mix and emissions for 2025 emission factors were used to represent project buildout and the first full year of operation.

CalEEMod was used to estimate emissions from the project area sources, which include gasoline-powered landscape maintenance equipment. Emissions from energy sources, which include natural gas appliances, space and water heating, and building electricity, were also estimated using CalEEMod. Default values for indoor and outdoor water use, solid waste generation, and electricity and natural gas consumption (through Title 24, non-Title 24, and lighting energy intensities and Title 24 and non-Title 24 natural gas energy intensities) were used for the new facilities constructed as part of the proposed project. Default values for electricity and natural gas consumption through Title 24 and non-Title 24 natural gas energy intensities and Title 24, non-Title 24, and lighting energy intensities were adjusted to reflect historical energy use of existing facilities (see Section 4.5.1.4, Existing Emissions).

In 2025, upon buildout of the proposed project, existing development and proposed development of academic, general administrative, auxiliary, and recreational land uses on the Cypress College campus would total approximately 976,566 GSF. A total of 5,406 parking spaces would be provided on campus.

The estimated operational GHG emissions from project area sources, electricity usage, motor vehicles, water consumption, wastewater treatment, and solid waste generation, associated with the proposed project at full buildout in 2025 are shown in Table 4.5-6, Estimated Operational

GHG Emissions. The estimated existing operational emissions in 2015, as shown in Table 4.5-2, were subtracted from the proposed project emissions to present the net change in GHG emissions. Details of the emission calculations are provided in Appendix B.

**Table 4.5-6
Estimated Operational GHG Emissions**

Emission Source	CO ₂	CH ₄	N ₂ O	CO ₂ E
	<i>metric tons per year</i>			
Area source	0.16	0.00	0.00	0.16
Energy (natural gas and electricity)	5,332.08	0.18	0.08	5,358.18
Mobile	23,616.38	0.76	0.00	23,632.26
Solid Waste	558.83	33.03	0.00	1,252.38
Water Supply and Wastewater	219.70	0.70	0.02	239.95
Construction (amortized over 30 years)	124.98	0.02	0.00	125.46
Total emissions	29,852.13	34.69	0.10	30,608.39
Existing emissions	31,855.96	30.29	0.08	32,515.32
Net change in emissions	(2,003.83)	4.40	0.02	(1,906.93)

Note: See Appendix B for complete results. Values in parentheses indicate a reduction in emissions. GHG = greenhouse gas; CO₂ = carbon dioxide; CH₄ = methane; N₂O = nitrous oxide; CO₂E = carbon dioxide equivalent

As shown in Table 4.5-6, estimated annual project-generated GHG emissions would be approximately 30,608 MT CO₂E per year. Compared to existing conditions, the proposed project would result in a decrease of GHG emissions. The net change in GHG emissions from 2015 to 2025 would be a decrease in emissions by 1,907 MT CO₂E per year.

Because the proposed project would reduce GHG emissions as compared to the existing environmental setting, impacts are less than significant.

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

As discussed in Section 4.5.2, the Scoping Plan approved by CARB on December 12, 2008, provides a framework for actions to reduce California’s GHG emissions and requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. Many of the Scoping Plan measures that have been adopted will reduce GHG emissions from all development projects and their users in California. For example, adoption of the LCFS and more stringent energy conservation standards would apply to all motor vehicle users and owners of homes and commercial properties. Given that the GHG reduction goal of AB 32 (i.e., reduction of emissions to 1990 levels by 2020) would require a statewide reduction of 28.5% from “business as usual” (i.e., the emissions that would occur in the absence of any regulation of GHG emissions), a large portion of a specific project’s GHG emission reductions will result from statewide measures.

Table 4.5-7, Consistency with Scoping Plan GHG Emission Reduction Strategies, highlights measures that have or will be developed under the Scoping Plan. The proposed project’s consistency with Scoping Plan measures is assessed in Table 4.5-7.

**Table 4.5-7
Consistency with Scoping Plan GHG Emission Reduction Strategies**

Scoping Plan Measure	Measure Number	Proposed Project Consistency
<i>Transportation Sector</i>		
Advanced Clean Cars	T-1	Students and employees would be required to purchase vehicles in compliance with CARB vehicle standards that are in effect at the time of vehicle purchase.
Low Carbon Fuel Standard	T-2	Motor vehicles driven by the proposed project’s students and employees would be required to use compliant fuels.
Regional Transportation-Related GHG Targets	T-3	As discussed in Section 4.2.4, according to the Southern California Association of Governments (SCAG) Growth Forecast (Appendix to the <i>2012–2035 Regional Transportation Plan/Sustainable Communities Strategy</i>), student and employee growth would be minimal in comparison to the anticipated increase of the SCAG Growth Forecast. Therefore, the proposed project would not stimulate population growth or a population concentration above what is assumed in local and regional land use plans or in projections made by regional planning authorities. Therefore, the Project would not conflict with the <i>2012–2035 Regional Transportation Plan/Sustainable Communities Strategy</i> GHG targets.
Vehicle Efficiency Measures 1. Tire Pressure 2. Fuel Efficiency Tire Program 3. Low Friction Oil 4. Solar Reflective Automotive Paint and Window Glazing	T-4	Motor vehicles driven by the proposed project’s students and employees would maintain proper tire pressure when their vehicles are serviced. The proposed project’s students and employees would replace tires in compliance with CARB vehicle standards that are in effect at the time of vehicle purchase. Motor vehicles driven by the proposed project’s students and employees would use low friction oils when their vehicles are serviced. The proposed project’s students and employees would purchase vehicles in compliance with CARB vehicle standards that are in effect at the time of vehicle purchase.
Ship Electrification at Ports (Shore Power)	T-5	Not applicable.
Goods Movement Efficiency Measures 1. Port Drayage Trucks 2. TRU Cold Storage Prohibition 3. Cargo Handling Equipment, Anti-Idling, Hybrid, Electrification 4. Goods Movement System-wide Efficiency Improvements	T-6	Not applicable.

**Table 4.5-7
Consistency with Scoping Plan GHG Emission Reduction Strategies**

Scoping Plan Measure	Measure Number	Proposed Project Consistency
5. Commercial Harbor Craft Maintenance and Design Efficiency 6. Clean Ships 7. Vessel Speed Reduction		
Heavy-Duty Vehicle GHG Emission Reduction <ul style="list-style-type: none"> Tractor-Trailer GHG Regulation Heavy Duty Greenhouse Gas Standards for New Vehicle and Engines (Phase I) 	T-7	Not applicable.
Medium- and Heavy-Duty Vehicle Hybridization Voucher Incentive Project	T-8	Not applicable.
High-Speed Rail	T-9	Not applicable.
<i>Electricity and Natural Gas Sector</i>		
Energy Efficiency Measures (Electricity)	E-1	The proposed project will comply with energy efficiency standards for electrical appliances and other devices at the time of building construction.
Energy Efficiency (Natural Gas)	CR-1	The proposed project will comply with energy efficiency standards for natural gas appliances and other devices at the time of building construction.
Solar Water Heating (California Solar Initiative Thermal Program)	CR-2	Applicable for residential projects only.
Combined Heat and Power	E-2	Applicable to Combined Heat and Power system owners only.
Renewable Portfolios Standard (33% by 2020)	E-3	The electricity used by the proposed project will benefit from reduced GHG emissions resulting from increased use of renewable energy sources.
Senate Bill 1 Million Solar Roofs (California Solar Initiative, New Solar Home Partnership, Public Utility Programs) and earlier solar programs.	E-4	The proposed project would involve the construction of a photovoltaic carport.
<i>Water Sector</i>		
Water Use Efficiency	W-1	Several lawn areas are being replaced with native plants currently at the Cypress College campus. Cypress College is planning to install a centralized irrigation control system that would further reduced and manage water consumption on the campus
Water Recycling	W-2	The proposed project is not located near any existing recycled water distribution infrastructure, and therefore cannot use recycled water at this time.
Water System Energy Efficiency	W-3	Applicable for the transmission and treatment of water. Not applicable for the proposed project.
Reuse Urban Runoff	W-4	Cypress College storm drains direct flows collected on campus to two interconnection points with the City of Cypress municipal storm drain system (District 2003). This storm drain line then conveys flows to the south for discharge into the Carbon Creek Channel, which consists of an earthen (upstream) and concrete

**Table 4.5-7
Consistency with Scoping Plan GHG Emission Reduction Strategies**

Scoping Plan Measure	Measure Number	Proposed Project Consistency
		(downstream) trapezoidal channel maintained by the Orange County Flood Control District (OCFCD 2012). The Carbon Creek Channel runs in a generally westerly direction until it discharges to Coyote Creek. The present or potential beneficial uses designated within the Gabriel River/Coyote Creek watershed by the Santa Ana Regional Water Quality Control Board are as follows: water contact recreation; non-contact water recreation; commercial and sport fishing; wildlife habitat; habitat for rare, threatened, or endangered species; spawning, reproduction, and development; marine habitat; and shellfish harvesting. Urban runoff from Cypress College is currently being used to supply water to Carbon Creek.
Renewable Energy Production	W-5	Applicable for wastewater treatment systems. Not applicable for the proposed project.
<i>Green Buildings</i>		
1. State Green Building Initiative: Leading the Way with State Buildings (Greening New and Existing State Buildings)	GB-1	The proposed project will be required to be constructed in compliance with state green building standards in effect at the time of building construction.
2. Green Building Standards Code (Greening New Public Schools, Residential and Commercial Buildings)	GB-1	The proposed project's buildings would meet green building standards that are in effect at the time of design and construction.
3. Beyond Code : Voluntary Programs at the Local Level (Greening New Public Schools, Residential and Commercial Buildings)	GB-1	The proposed project will be required to be constructed in compliance with green building standards in effect at the time of building construction.
4. Greening Existing Buildings (Greening Existing Homes and Commercial Buildings)	GB-1	Applicable for existing residential and commercial buildings only. Not applicable for the proposed project.
<i>Industry Sector</i>		
Energy Efficiency and Co-Benefits Audits for Large Industrial Sources	I-1	Applicable for refinery, cement, hydrogen production, power generation, and oil and gas/mineral industrial uses. Not applicable for the proposed project.
Oil and Gas Extraction GHG Emission Reduction	I-2	Not applicable.
GHG Emissions Reduction from Natural Gas Transmission and Distribution	I-3	Not applicable.
Refinery Flare Recovery Process Improvements	I-4	Not applicable .
Work with the local air districts to evaluate amendments to their existing leak detection and repair rules for industrial facilities to include methane leaks.	I-5	Not applicable.
<i>Recycling and Waste Management Sector</i>		
Landfill Methane Control Measure	RW-1	Applicable for certain municipal solid waste landfills. Not applicable for the proposed project.
Increasing the Efficiency of Landfill Methane Capture	RW-2	Applicable for certain municipal solid waste landfills. Not applicable for the proposed project.

Table 4.5-7
Consistency with Scoping Plan GHG Emission Reduction Strategies

Scoping Plan Measure	Measure Number	Proposed Project Consistency
Mandatory Commercial Recycling	RW-3	During both construction and operation of the proposed project, the proposed project would comply with all state regulations related to solid waste generation, storage, and disposal, including the California Integrated Waste Management Act as amended. During construction, all wastes would be recycled to the maximum extent possible, and per MM-UTL-3 , the Project shall prepare a construction and demolition waste reduction and recycling application addressing how its construction waste would be recycled.
Increase Production and Markets for Compost and Other Organics	RW-3	Applicable for agricultural land uses. The proposed project is not anticipated to be a large source of compostable waste. Not applicable for the proposed project.
Anaerobic/Aerobic Digestion	RW-3	Not applicable.
Extended Producer Responsibility	RW-3	Applicable to product designer and producers. Not applicable for the proposed project.
Environmentally Preferable Purchasing	RW-3	Applicable to product designer and producers. Not applicable for the proposed project.
<i>Forests Sector</i>		
Sustainable Forest Target	F-1	Not applicable.
<i>High GWP Gases Sector</i>		
Motor Vehicle Air Conditioning Systems: Reduction of Refrigerant Emissions from Non-professional Servicing	H-1	The proposed project's students and employees would be prohibited from performing air conditioning repairs and required to use professional servicing.
SF ₆ Limits in Non-utility and Non-semiconductor Applications	H-2	Not applicable.
Reduction of Perfluorocarbons in Semiconductor Manufacturing	H-3	Not applicable.
Limit High GWP Use in Consumer Products	H-4	The proposed project's employees would use consumer products that would comply with the regulations that are in effect at the time of manufacture.
Air Conditioning Refrigerant Leak Test During Vehicle Smog Check	H-5	Motor vehicles driven by the proposed project's students and employees would comply with the leak test requirements during smog checks.
Stationary Equipment Refrigerant Management Program – Refrigerant Tracking/Reporting/Repair Program	H-6	Not applicable.
Stationary Equipment Refrigerant Management Program – Specifications for Commercial and Industrial Refrigeration	H-6	Not applicable.
SF ₆ Leak Reduction Gas Insulated Switchgear	H-6	Not applicable.
<i>Agriculture Sector</i>		
Methane Capture at Large Dairies	A-1	Not applicable.

Source: CARB 2014b.

Based on the analysis in Table 4.5-7, the proposed project would be consistent with the strategies and measures in the Scoping Plan. Furthermore, neither Cypress College, nor the City of Cypress, nor the SCAQMD have adopted any GHG reduction measures that would apply to the proposed project. In light of the proposed project’s consistency with the Scoping Plan, the proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHG. Therefore, impacts would be less than significant.

4.5.5 Mitigation Measures

Because impacts related to GHG emissions are found to be less than significant, no mitigation measures are necessary.

4.5.6 Level of Significance After Mitigation

Since mitigation is not necessary, residual impacts would be less than significant.

4.5.7 Cumulative Impacts

Despite this significance conclusion, the proposed project’s contribution to global GHG emissions and the resultant effect on global climate should be evaluated on a cumulative basis, as stated previously. Under CEQA, a project would have a significant cumulative impact caused by the combined impact of past, present, and probable future projects if its incremental impact represents a “cumulatively considerable” contribution to such cumulative impacts (14 CCR 15064(h)). The proposed project would generate GHG emissions that contribute to potential cumulative impacts of GHG emissions on climate change. Because levels of GHG emissions in the atmosphere are at levels considered substantial enough to create adverse impacts (i.e., climate change), the emissions of a particular project, even if not considered to produce a significant impact, may nonetheless contribute to an adverse, unavoidable impact. In light of the previous conclusions regarding the proposed project’s reduction in GHG emissions relative to existing conditions, cumulative impacts in terms of climate change are less than significant.

4.5.8 References

CalRecycle (California Department of Resources Recycling and Recovery). 2012. *California’s New Goal: 75 Percent Recycling*.

CAPCOA (California Air Pollution Control Officers Association). 2008. *CEQA & Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*. January 2008.

- CARB (California Air Resources Board). 2008. Preliminary Draft Staff Proposal: *Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act*. Sacramento, California. October 24, 2008.
- CARB. 2014a. *First Update to the Climate Change Scoping Plan Building on the Framework Pursuant to AB 32 – The California Global Warming Solutions Act of 2006*. May 2014. Accessed August 2014. http://www.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf.
- CARB. 2014b. *Appendix B: Status of Initial Scoping Plan Measures*. March 14, 2014. Accessed August 11, 2016. http://www.arb.ca.gov/cc/scopingplan/2013_update/appendix_b.pdf.
- CARB. 2015. “Glossary of Terms Used in GHG Inventories.” Last updated May 6, 2015. Accessed August 11, 2016. http://www.arb.ca.gov/cc/inventory/faq/ghg_inventory_glossary.htm.
- CARB. 2016. *California Greenhouse Gas Emissions for 2000 to 2014 – Trends of Emissions and Other Indicators*. June 17, 2016. Accessed August 11, 2016. http://www.arb.ca.gov/cc/inventory/pubs/reports/2000_2014/ghg_inventory_trends_00-14_20160617.pdf.
- CAT (California Climate Action Team). 2006. *Climate Action Team Report to the Governor Schwarzenegger and the Legislature*. Sacramento, California. March 2006. Accessed August 11, 2016. http://www.climatechange.ca.gov/climate_action_team/reports/2006report/2006-04-03_FINAL_CAT_REPORT.PDF.
- CAT. 2010a. *Climate Action Team Biennial Report*. Sacramento, California. April 2010. Accessed August 11, 2016. <http://www.energy.ca.gov/2010publications/CAT-1000-2010-004/CAT-1000-2010-004.PDF>.
- CAT. 2010b. *Climate Action Team Report to Governor Schwarzenegger and the California Legislature*. Sacramento, California. December 2010. Accessed August 11, 2016. <http://www.energy.ca.gov/2010publications/CAT-1000-2010-005/CAT-1000-2010-005.PDF>.
- CCCC (California Climate Change Center). 2006. *Our Changing Climate: Assessing the Risks to California*. CEC-500-2006-077. July 2006. Accessed August 11, 2016. <http://www.energy.ca.gov/2006publications/CEC-500-2006-077/CEC-500-2006-077.PDF>.

- CCCC. 2012. *Our Changing Climate 2012: Vulnerability & Adaptation to the Increasing Risks from Climate Change in California*. July 2012. Accessed August 11, 2016. <http://www.energy.ca.gov/2012publications/CEC-500-2012-007/CEC-500-2012-007.pdf>.
- CEC (California Energy Commission). 2012. “Building Energy Efficiency Standards: Frequently Asked Questions.” May 2012. Accessed August 11, 2016. http://www.energy.ca.gov/title24/2013standards/rulemaking/documents/2013_Building_Energy_Efficiency_Standards_FAQ.pdf.
- CEC. 2015. “2016 Building Efficiency Standards.” Frequently Asked Questions. Accessed August 11, 2016. http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2016_Building_Energy_Efficiency_Standards_FAQ.pdf City of Cypress. 2001. *2000 General Plan Update*. Prepared by RBF Consulting for the City of Cypress. Accessed online June 15, 2016. http://www.ci.cypress.ca.us/community_develpmnt/general_plan/general_plan.htm.
- CNRA (California Natural Resources Agency). 2009a. *2009 California Climate Adaptation Strategy: A Report to the Governor of the State of California in Response to Executive Order S-13-2008*. Accessed August 11, 2016. http://resources.ca.gov/docs/climate/Statewide_Adaptation_Strategy.pdf.
- CNRA. 2009b. “Notice of Public Hearings and Notice of Proposed Amendment of Regulations Implementing the California Environmental Quality Act. Sacramento, California: CNRA.” Accessed August 11, 2016. http://www.ceres.ca.gov/ceqa/docs/Notice_of_Proposed_Action.pdf.
- CNRA. 2009c. *Final Statement of Reasons for Regulatory Action: Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB 97*. December 2009.
- District (North Orange County Community College District). 2003. *Existing Composite Utility Exhibit – Storm Drain*. Prepared by Hunsaker & Associates Irvine Inc. September 3, 2003.
- EPA (U.S. Environmental Protection Agency). 2010. *EPA and NHTSA Finalize Historic National Program to Reduce Greenhouse Gases and Improve Fuel Economy for Cars and Trucks*. April 2010. Accessed August 11, 2016. <https://www3.epa.gov/otaq/climate/regulations/420f10014.pdf>.
- EPA. 2016a. “Glossary of Climate Change Terms.” Accessed August 11, 2016. <https://www3.epa.gov/climatechange/glossary.html>.

EPA. 2016b. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2014*. April 15, 2016. Accessed August 11, 2016. <https://www3.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2016-Main-Text.pdf>.

Fee, R., and S. Rittel. 2016. “Incineration Enclosure for Mortuary Sciences Program.” Personal communication (email) from S. Rittel (Project Manager, Campus Capital Projects, Cypress College) and R. Fee (Dean of Science, Engineering, and Mathematics) to R. Struglia (Project Manager, Dudek) and C. Munson (Environmental Analyst, Dudek). April 29, 2016.

Fee, R., J. Grande, and S. Rittel. 2016. “Incineration Unit Operation Data.” Personal communication (email) from S. Rittel (Project Manager, Campus Capital Projects, Cypress College), R. Fee (Dean of Science, Engineering, and Mathematics), and J. Grande (Professor of Mortuary Science) to R. Struglia (Project Manager, Dudek) and C. Munson (Environmental Analyst, Dudek). June 1, 2016.

IPCC (Intergovernmental Panel on Climate Change). 1996. *Climate Change 1995: The Science of Climate Change, Contribution of Working Group I to the Second Assessment Report of the Intergovernmental Panel on Climate Change*. Accessed August 11, 2016. https://www.ipcc.ch/ipccreports/sar/wg_I/ipcc_sar_wg_I_full_report.pdf.

IPCC. 2007. *Climate Change 2007: The Physical Science Basis—Summary for Policymakers*. Accessed August 11, 2016. <http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-spm.pdf>.

IPCC. 2014. “Summary for Policymakers.” In *Climate Change 2014 Synthesis Report*. A Report of the Intergovernmental Panel on Climate Change. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Accessed August 11, 2016. <http://www.ipcc.ch/report/ar5/syr/>.

OCFCD (Orange County Flood Control District). 2012. “Basemap of Drainage Facilities in Orange County.” Sheet No. 12. Last revised April 23, 2012.

OPR (Governor’s Office of Planning and Research). 2008. *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review*.

SCAG (Southern California Association of Governments). 2012. *2012–2035 Regional Transportation Plan/Sustainable Communities Strategy*. Accessed August 11, 2016. <http://rtpscs.scag.ca.gov/Pages/2012-2035-RTP-SCS.aspx>.

SCAQMD (South Coast Air Quality Management District). 2008. *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold*. October 2008.

SCAQMD. 2010. “Greenhouse Gases CEQA Significance Thresholds Working Group Meeting No. 15.” September 28, 2010. Accessed August 11, 2016. [http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-\(ghg\)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-15/ghg-meeting-15-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-15/ghg-meeting-15-main-presentation.pdf?sfvrsn=2).