

4.3 GREENHOUSE GAS EMISSIONS

This section of the Focused Tiered Final EIR presents potential greenhouse gas (GHG) impacts of the Project. The preparation of this Focused Tiered Final EIR was preceded by the Tiered Initial Study, which determined that an EIR would be prepared to consider the potential for the Project to result in significant impacts on GHGs. Notably, the 2007 CMP EIR (SF State 2007) did not analyze potential campus-wide impacts related to GHG emissions, as Appendix G of the CEQA Guidelines at that time did not address GHG emissions and there were no established thresholds. This section presents the environmental setting, impacts of the Project on the environment, and proposed measures to mitigate any identified significant impacts.

Public and agency comments related to GHGs were received during the public scoping period in response to the Notice of Preparation, and are summarized below:

- The City of San Francisco Planning Department noted that the City considers projects that are consistent with the City and County of San Francisco's Qualified GHG Reduction Strategy to have less-than-significant GHG emissions impacts and suggested San Francisco State University could consider a similar approach with GHG reduction strategies and policies that CSU has adopted.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to CEQA, and/or were raised by responsible and trustee agencies, they are identified and addressed in this EIR. For a complete list of public comments received during the public scoping period refer to Appendix B.

4.3.1 Environmental Setting

Study Area

The Project site is located in the City and County of San Francisco (City), within the boundaries of the San Francisco Bay Area Air Basin (SFBAAB). The SFBAAB encompasses all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties, and the southern portions of Solano and Sonoma Counties. Although there is a broad consensus in the scientific community that human activities are contributing to climate change, there is limited guidance available on how to properly analyze the impact of local development projects with respect to this global effect. Thus, although the Project is located in the SFBAAB, GHG emissions have broader impacts with regards to statewide GHG reduction goals and global climate stabilization.

The Greenhouse Effect

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, lasting for an extended period of time (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). If the atmospheric concentrations of GHGs rise, the average temperature of the lower atmosphere will gradually increase. Global climate change concerns are focused on whether human activities are leading to an enhancement of the greenhouse effect.

Greenhouse Gases and Global Warming Potential

GHGs include, but are not limited to, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), O₃, water vapor, 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. Manufactured 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

¹ The descriptions of GHGs are summarized from the Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report (1995), IPCC Fourth Assessment Report (2007), CARB's Glossary of Terms Used in GHG Inventories (2015), and EPA's Glossary of Climate Change Terms (2016a).

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 N_2O 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 N_2O 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.
- **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:** SF_6 is a colorless gas that is soluble in alcohol and ether and slightly soluble in water. SF_6 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., affect cloud formation or albedo) (EPA 2016b). The Intergovernmental Panel on Climate Change (IPCC) developed the global warming potential (GWP) concept 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 (1995). 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. GWP used in EPA's 2016 Inventory of U.S. Greenhouse Gas Emissions and Sinks and CARB's California 2016 GHG emissions inventory 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.

Greenhouse Gas Emissions Inventories

Per the EPA's *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2014* (EPA 2016b), total United States GHG emissions were approximately 6,870.5 million metric tons (MMT) CO₂E in 2014. 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 4.3-1.

Table 4.3-1
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%
Totals	441.54	100%

Source: CARB 2016.

Notes: Emissions reflect the 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 MT per person to 11.4 MT 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).

The GHG inventory for San Francisco State University (SF State) was developed for the year 2006. Of the total 61,184 MT CO₂E in 2006, 44.9% were from purchased utilities, 48.5% were generated by on-road vehicle commuting of students and staff, 5.2% from air travel, 1.1% from the SF State fleet, and less than 1% associated with solid waste (SF State 2008).

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 temperatures and precipitation patterns. The 2014 *Intergovernmental Panel on Climate Change Synthesis Report* (IPCC 2014) 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 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 (0.36°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 Nevada 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 twenty-first century in central, and most notably, Southern California. By the 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 the 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 by 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).

Greenhouse Gas Regulations

Federal

Massachusetts vs. EPA. On April 2, 2007, in *Massachusetts v. EPA*, the Supreme Court directed the 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 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 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 (RFS) 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 vehicles 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 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 Corporate Average Fuel Economy 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. In August 2012, the EPA and NHTSA approved a second round of GHG and Corporate Average Fuel Economy 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 nonresidential 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):

- 20% mandatory reduction in indoor water use

- 50% of construction and demolition waste must be diverted from landfills
- Mandatory inspections of energy systems to ensure optimal working efficiency
- 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 I 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.

AB 939 and AB 341. In 1989, AB 939, known as the Integrated Waste Management Act (California 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.

AB 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 (SB) 1078. 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, EOs S-14-08, and S-21-09).

Executive Order (EO) 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 Environmental Protection Agency 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 2010a) 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 2010b) 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.

AB 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 and cleaner transportation, and reducing waste.

As required under AB 32, on December 6, 2007, CARB approved the 1990 GHG emissions inventory, establishing the emissions limit for 2020. The 2020 emissions limit was set at 427 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 percent 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 Building on the Framework Pursuant to AB 32 – The California Global Warming Solutions Act of 2006* (Scoping Plan Update; CARB 2014), 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 2014).

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.

SB 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).

SB 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.

EO 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.

SB 97. SB 97 (Dutton) (August 2007) directs the Governor’s Office of Planning and Research to develop guidelines under CEQA for the mitigation of GHG emissions. The Governor’s 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 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))
- 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 greenhouse gas 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 greenhouse gases?

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.² 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.³

SB 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. 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

² “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 2009b, p. 84).

³ “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 2009b, p. 100).

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. CARB set a target of 7% per capita reduction by 2020 and a 15% per capita reduction by 2035 for the Bay Area. The Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission, which is the metropolitan planning organization for the Bay Area, adopted the *Plan Bay Area: Regional Transportation Plan and Sustainable Communities Strategy for the San Francisco Bay Area 2013 – 2040* (Plan Bay Area) in July 2013 (ABAG and MTC 2013). The Plan Bay Area is a long-range plan for transportation projects within the planning area and established 10 performance targets to achieve the following goals/outcomes: Climate Protection, Adequate Housing, Healthy and Safe Communities, Open Space and Agricultural Preservation, Equitable Access, Economic Vitality, and Transportation System Effectiveness. Two of these targets are mandatory to comply with SB 375, and the Plan Bay Area establishes strategies to achieve 15% reduction per capita in GHG emissions from light-trucks and cars by 2035 (Climate Protection Goal), and plans to house 100% of the region’s projected growth (from a 2010 baseline year) by income level without displacing current low-income residents (Adequate Housing Goal).

EO 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.

EO 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 (formerly the California Department of Fish and Game), is directed to lead this effort. Pursuant to a Memorandum of Understanding between the CEC and California Department of Fish and Wildlife regarding creating the Renewable Energy Action Team, these agencies will create a “one-stop” process for permitting renewable energy power plants.

EO 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.

SB XI 2. SB XI 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 XI 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.

EO 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.

EO 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.

SB 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). 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.

EO 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.

EO 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 were 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.”

SB 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

The SF State Climate Action Plan (CAP) establishes the campus GHG reduction goals below 1990 levels: 25% by 2020 and 40% by 2030. The CAP outlines the reduction efforts in nine major planning areas, including transportation, energy efficiency, renewable and clean energy, green building, academics, waste and compost, water, procurement, and food service. As noted in the CAP, SF State is in a unique position among Universities since the campus emissions were already 5% below 1990 levels at the time of CAP development (SF State 2010).

4.3.2 Impacts and Mitigation Measures

Standards of Significance

Office of Planning and Research’s Guidance and the CEQA Guidelines

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

Section 15064.4 of the CEQA Guidelines, Determining the Significance of Impacts from Greenhouse Gas Emissions, states the following:

- A. The determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in Section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions

resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:

- i. Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model or methodology it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; and/or
 - ii. Rely on a qualitative analysis or performance based standards.
- B. A lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:
- i. The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;
 - ii. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
 - iii. 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 greenhouse gas emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project (14 CCR 15064.4).

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.” 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 CEQA thresholds related to GHGs, and these will be used to discuss the significance of Project impacts (14 CCR 15000 et seq.):

- a. Would the Project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?
- b. 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, establish specific thresholds of significance, or mandate specific mitigation measures. Rather, the CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance that are consistent with the manner in which other impact areas are handled in CEQA (CNRA 2009b).

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 in the SFBAAB, such as the 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 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 since 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 noncumulative 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 a project-level impact (CNRA 2009c). Similarly, the *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* (CNRA 2009b) confirm that an environmental impact report or other environmental document must analyze the incremental contribution of a project to GHG levels and determine whether those emissions are cumulatively considerable. Accordingly, further discussion of the Project's GHG emissions and their impact on global climate are addressed in the following section.

Bay Area Air Quality Management District Thresholds

The Bay Area Air Quality Management District (BAAQMD) does not recommend any specific significance thresholds for construction and operational GHG emission impacts pending the conclusion of litigation, which does not involve the question of whether the BAAQMD thresholds are supported by substantial evidence. Instead, the current BAAQMD guidelines suggest that lead agencies have options, including referencing BAAQMD's *CEQA Thresholds*

Options and Justification Report developed by BAAQMD staff in 2009, in selecting the lead agency's own significance threshold based on substantial evidence. With regard to impacts from GHGs, both BAAQMD and CAPCOA consider GHG impacts to be exclusively cumulative impacts (BAAQMD 2009; CAPCOA 2008); therefore, assessment of significance is based on a determination of whether the GHG emissions from a project represent a cumulatively considerable contribution to the global atmosphere. Separate thresholds of significance are established for operational emissions from stationary sources (such as generators, furnaces, and boilers) and non-stationary sources (such as on-road vehicles). As no threshold has been established for construction-related emissions, the operational emissions thresholds apply. The threshold for stationary sources is 10,000 MT CO₂E per year (i.e., emissions above this level may be considered significant). For non-stationary sources, three separate thresholds have been established:

- Compliance with a Qualified Greenhouse Gas Reduction Strategy (i.e., if a project is found to be out of compliance with a Qualified Greenhouse Gas Reduction Strategy, its GHG emissions may be considered significant); or
- 1,100 MT CO₂E per year (i.e., emissions above this level may be considered significant); or
- 4.6 MT CO₂E per service population per year (i.e., emissions above this level may be considered significant). (Service population is the sum of residents plus employees expected for a development project.)

The threshold of 1,100 MT CO₂E annually proposed by BAAQMD in its 2009 Justification Report is applied to this analysis. If the Project construction and operational GHG emissions would exceed this threshold then, consistent with BAAQMD Guidelines, it would be considered to have a cumulatively considerable contribution of GHG emissions and a cumulatively significant impact on climate change.

Analytical Method

Construction

CalEEMod Version 2013.2.2. was used to estimate potential Project-generated GHG emissions during construction. Construction of the Project would result in GHG emissions primarily associated with use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. All details for construction criteria air pollutants discussed in Section 4.2, Air Quality, are also applicable for the estimation of construction-related GHG emissions. As such, see Section 4.2 for a discussion of construction emissions calculation methodology and assumptions.

Operations

GHG emissions from the operational phase of the Project were estimated using CalEEMod for the first year of Project operations (year 2020) and for existing (year 2016) uses to be demolished for vehicular sources, area sources (natural gas combustion and landscape maintenance), electrical generation (including electrical generation associated with water supply and wastewater treatment), and solid waste. Emissions from each category—area sources, energy sources, mobile sources, solid waste, and water supply and wastewater treatment—is discussed in the following text with respect to the Project. For additional details, see Section 4.2, *Air Quality*, for a discussion of operational emission calculation methodology and assumptions, specifically for area, energy (natural gas), and mobile sources.

SF State has committed to Leadership in Energy and Environmental Design (LEED) Gold certification for the Project, which would, at a minimum, reduce the Project's energy consumption and water usage, thereby reducing GHG emissions compared to a non-LEED-certified building. A building can earn credits toward LEED certification through performance in five key areas including sustainable sites, water savings, energy and atmosphere, materials and resources, and indoor environmental quality (USGBC 2016).

Mobile Sources. All details for criteria air pollutants discussed in Section 4.2, *Air Quality*, are also applicable for the estimation of operational mobile source GHG emissions. Regulatory measures related to mobile sources include AB 1493 (Pavley) and related federal standards. AB 1493 required that CARB establish GHG emission standards for automobiles, light-duty trucks, and other vehicles determined by CARB to be vehicles that are primarily used for noncommercial personal transportation in the state. In addition, the NHTSA and EPA have established corporate fuel economy standards and GHG emission standards, respectively, for automobiles and light-, medium-, and heavy-duty vehicles. Implementation of these standards and fleet turnover (replacement of older vehicles with newer ones) will gradually reduce emissions from the Project's motor vehicles. In addition, the Low Carbon Fuel Standard calls for a 10% reduction in the "carbon intensity" of motor vehicle fuels by 2020. The effectiveness of fuel economy improvements and the Low Carbon Fuel Standard was evaluated by using the CalEEMod emission factors for motor vehicles in 2020 for the Project.

Area Sources. CalEEMod was used to estimate GHG emissions from the Project's area sources, which include operation of gasoline-powered landscape maintenance equipment, which produce minimal GHG emissions. Consumer product use and architectural coatings result in VOC emissions, which are analyzed in air quality analysis only, and produce little to no GHG emissions.

Energy Sources. The estimation of operational energy emissions was based on CalEEMod land use defaults and units or total area (i.e., square footage) of the Project's land uses.

Emissions are calculated by multiplying the energy use by the utility carbon intensity (pounds of GHGs per kilowatt-hour for electricity or 1,000 British thermal units for natural gas) for CO₂ and other GHGs. Annual natural gas (non-hearth) and electricity emissions were estimated in CalEEMod using the emissions factors for PG&E, which would be the energy source provider for the Project.

It was assumed that the Project would meet the 2013 California Building Energy Efficiency Standards (24 CCR Part 6). The Project would be required to comply with 2016 Title 24 standards because it is anticipated to be constructed during and after 2017. Conservatively, this analysis does not quantify the increase in energy efficiency associated with the more stringent 2016 Title 24 standards. For the purposes of estimating Project-generated energy emissions, a mitigation measure was applied in CalEEMod to assume a 25% reduction from the 2008 standards (the basis for the default energy usage factors in CalEEMod) to reflect the benefits of compliance with the 2013 standards. In addition, it was assumed that the Project would exceed the current Title 24 standard by 20% in order to achieve at least LEED Gold, which was also incorporated into the mitigation in CalEEMod.

CalEEMod default energy intensity factors (CO₂, CH₄, and N₂O mass emissions per kilowatt hour) for PG&E is based on the value for the utility's energy mix in 2008. SB XI 2 established a target of 25% and 33% from renewable energy sources for all electricity providers in California by 2016 and 2020, respectively. SB 350 calls for further development of renewable energy, with a target of 50% by 2030. The 25% RPS was accounted for in the modeling for existing land uses to be demolished. The 33% RPS was incorporated in the modeling for the Project GHG emissions.

Solid Waste. The Project would generate solid waste, and therefore, result in CO₂E emissions associated with landfill off-gassing. CalEEMod default values for solid waste generation were used to estimate GHG emissions associated with solid waste. A 50% solid waste diversion was assumed for the existing scenario pursuant to AB 939. Project compliance with the 75% diversion rate by 2020, consistent with AB 341, has been included in the GHG assessment.

Water and Wastewater. Supply, conveyance, treatment, and distribution of water for the Project require the use of electricity, which would result in associated indirect GHG emissions. Similarly, wastewater generated by the Project requires the use of electricity for conveyance and treatment, along with GHG emissions generated during wastewater treatment. Water consumption estimates for both indoor and outdoor water use and associated electricity consumption from water use and wastewater generation were estimated using CalEEMod default values for the Project and existing land uses.

In regards to indoor water use, the Project would install low-flow bathroom and kitchen faucets, low-flow toilets, and low-flow showers. In regards to outdoor water, the Project would use non-potable water for irrigation. It was assumed that the Project would apply a water conservation strategy resulting in a 20% reduction in indoor water use per CALGreen and a minimum 20% reduction in outdoor water use.

Project Impacts and Mitigation Measures

Tiered Initial Study Results

As described in the Tiered IS (Appendix A), the CMP EIR (SF State 2007) did not analyze potential campus-wide impacts related to GHG emissions, as Appendix G of the CEQA Guidelines at that time did not address GHG emissions and there were no established thresholds. The Project would involve construction of three buildings on two sites in the southern portion of the SF State campus: the Creative Arts replacement building and the concert hall on Block 1, also referred to as the Tapia Triangle, and the student housing/mixed use building on Block 6, located on the south side of Holloway Avenue. Given the above, the Tiered IS concluded that the Focused Tiered EIR should quantify the net increase in GHG emissions with the Project and determine whether those emissions could have a significant impact on the environment and whether the Project would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions to determine whether there may be new impacts related to GHG emissions that were not identified in the 2007 CMP EIR. This analysis is provided below.

Project and Cumulative Impacts

As the CMP EIR did not evaluate GHGs, only Project impacts are presented below.

Project Impact GHG-I: The Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment (*Less-than-significant impact / New impact*).

Construction Impacts

Construction of the Project would result in GHG emissions, which are primarily associated with use of off-road construction equipment, on-road vendor trucks, and worker vehicles. The total construction GHG emissions were calculated, amortized over 30 years, and added to the total operational emissions for comparison with the BAAQMD GHG significance threshold of 1,100 MT CO₂E per year. The determination of significance, therefore, is addressed in the operational emissions discussion following the estimated construction emissions.

CalEEMod was used to calculate the annual GHG emissions based on the construction scenario described in Section 4.2, Air Quality. Construction of the Project is anticipated to commence in August 2017 and reach completion in December 2019, lasting a total of 29 months. On-site sources of GHG emissions include off-road equipment and off-site sources including vendor trucks and worker vehicles. Table 4.3-2 presents construction emissions for the Project in 2017, 2018, and 2019 from on-site and off-site emission sources.

**Table 4.3-2
Estimated Annual Construction GHG Emissions**

Year	CO ₂	CH ₄	N ₂ O	CO ₂ E
	<i>Metric Tons per Year</i>			
2017	374.42	0.05	0.00	375.47
2018	685.29	0.09	0.00	687.15
2019	586.43	0.08	0.00	588.07
Total	1,646.14	0.22	0.00	1,650.69

Source: Appendix C

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

As shown in Table 4.3-2, the estimated total GHG emissions during construction of the Project would be approximately 1,651 MT CO₂E over the construction period. Estimated Project-generated construction emissions amortized over 30 years would be approximately 55 MT CO₂E per year. As with Project-generated construction air quality pollutant emissions, GHG emissions generated during construction of the Project would be short-term in nature, lasting only for the duration of the construction period, and would not represent a long-term source of GHG emissions. Because there is no separate GHG threshold for construction, the evaluation of significance is discussed in the operational emissions analysis in the following section.

Operational Impacts

Operation of the Project would generate GHG emissions through motor vehicle trips to and from the Project site; landscape maintenance equipment operation; energy use (natural gas and generation of electricity consumed by the Project); solid waste disposal; and generation of electricity associated with water supply, treatment, and distribution and wastewater treatment. As described in the “Analytical Method” discussion above, GHG emissions associated with long-term operations were quantified using CalEEMod for the existing uses to be demolished and for the Project uses to be developed. CalEEMod was used to model a non-event day and an event day for the Project, with annual emissions estimated based on the proportion of non-event days (265 days) and event days (80 days). Table 4.3-3 summarizes the annual GHG emissions that would be generated by development of the Project, as well as emissions of existing land uses to be demolished. Detailed calculations are presented in Appendix C.

**Table 4.3-3
Estimated Annual Operational GHG Emissions**

Emission Source	CO ₂	CH ₄	N ₂ O	CO ₂ E
	metric tons per year			
Proposed Project	876.44	1.49	0.02	915.25
Existing Uses	253.08	0.35	0.00	261.95
Net Increase (Project minus Existing)	623.36	1.14	0.02	653.30
			<i>Amortized Construction Emissions</i>	55.02
	Net Increase Operational Emissions + Amortized Construction Total			708.32

Source: Appendix C

Notes: The values shown for the Project and existing use scenarios are the combined annual emissions from mobile, area, energy, water/wastewater, and solid waste sources from CalEEMod. Project annual emissions were estimated based on the weighted average of non-event days (265 days) and event day (80 days) emissions. In addition, Project emissions are based on the "Mitigated" CalEEMod outputs in order to incorporate the 2013 Title 24 standards (i.e., 25% reduction versus 2008 Title 24) and the 20% beyond Title 24 development standard to approximate LEED Gold, 20% indoor and outdoor water conservation per CALGreen, and 75% waste diversion pursuant to AB 341 even though compliance with these standards would not be considered actual mitigation. Existing emissions based on the "historical" energy intensity factors in CalEEMod and are also based on the "Mitigated" CalEEMod outputs in order to incorporate 50% waste diversion pursuant to AB 939.

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

Table 4.3-4 indicates that the Project would result in a net GHG emission increase of approximately 708 MT CO₂E per year from all sources, which would be below BAAQMD's GHG threshold of 1,100 MT CO₂E per year. This would represent a less-than-significant cumulative GHG impact. This is considered to be a new less-than-significant impact, as the CMP EIR did not evaluate GHG emissions.

Project Mitigation GHG-1: Mitigation not required.

Project Impact GHG-2: The Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs (*Less-than-significant impact / New impact*).

SF State adopted a CAP in 2010, which established GHG reduction goals for the campus and outlined strategies to accomplish the goals. Multiple GHG reduction measures would be incorporated into the Project design consistent with the CAP, including increased on-campus student housing that would reduce student commute vehicle trips, at least LEED Gold certification (with a target of LEED Platinum or Zero Net Energy), water conservation strategies such as recycled water use and low-flow toilets and sinks, implementation of transportation demand management strategies to minimize the need for parking, and the use of locally sources materials with recycled content when possible for construction. However, since the SF State CAP did not go through CEQA review, it is not considered a Qualified Greenhouse Gas Reduction Strategy for purposes of CEQA-streamlining. Thus, at this time, no

mandatory GHG plans, policies, or regulations or finalized agency guidelines would apply to implementation of the Project. Additionally, the City’s GHG Reduction Strategy does not apply to the Project.

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. As such, the Scoping Plan is not directly applicable to specific projects. Relatedly, in the Final Statement of Reasons for the Amendments to the CEQA Guidelines, the CNRA observed that “[t]he [Scoping Plan] may not be appropriate for use in determining the significance of individual projects because it is conceptual at this stage and relies on the future development of regulations to implement the strategies identified in the Scoping Plan” (CNRA 2009b). Under the Scoping Plan, however, there are several state regulatory measures aimed at the identification and reduction of GHG emissions. CARB and other state agencies have adopted many of the measures identified in the Scoping Plan. Most of these measures focus on area source emissions (e.g., energy usage, high-GWP GHGs in consumer products) and changes to the vehicle fleet (i.e., hybrid, electric, and more fuel-efficient vehicles) and associated fuels (e.g., LCFS), among others.

The Scoping Plan recommends strategies for implementation at the statewide level to meet the goals of AB 32 and establishes an overall framework for the measures that will be adopted to reduce California’s GHG emissions. Table 4.3-4 highlights measures that have been, or will be, developed under the Scoping Plan and the Project’s consistency with Scoping Plan measures. To the extent that these regulations are applicable to the Project, its inhabitants, or uses, the Project would comply with all regulations adopted in furtherance of the Scoping Plan to the extent required by law.

Table 4.3-4
Project Consistency with Scoping Plan GHG Emission Reduction Strategies

Scoping Plan Measure	Measure Number	Project Consistency
<i>Transportation Sector</i>		
Advanced Clean Cars	T-1	The Project’s residents, staff, and event attendees would 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 Project’s residents, staff, and event attendees would use compliant fuels.
Regional Transportation-Related GHG Targets	T-3	The Project includes transportation demand management features intended to enhance transit usage and encourage non-vehicular mobility to supplement ongoing statewide efforts to increase fuel efficiency standards, promote electric and hybrid vehicles, and promote vehicular fuels from renewable resources. The Project would result in a decrease in vehicle commute trips and GHG emissions based on the increased on-campus student

**Table 4.3-4
Project Consistency with Scoping Plan GHG Emission Reduction Strategies**

Scoping Plan Measure	Measure Number	Project Consistency
		housing, which would allow 355 additional off-campus students to live on-campus.
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 Project's residents, staff, and event attendees would maintain proper tire pressure when their vehicles are serviced. The Project's residents, staff, and event attendees would replace tires in compliance with CARB vehicle standards that are in effect at the time of vehicle purchase and their motor vehicles would use low-friction oils when their vehicles are serviced. The Project's residents, staff, and event attendees 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. Transport Refrigeration Units Cold Storage Prohibition 3. Cargo Handling Equipment, Anti-Idling, Hybrid, Electrification 4. Goods Movement Systemwide Efficiency Improvements 5. Commercial Harbor Craft Maintenance and Design Efficiency 6. Clean Ships 7. Vessel Speed Reduction	T-6	Not applicable.
Heavy-Duty Vehicle GHG Emission Reduction 1. Tractor-Trailer GHG Regulation 2. 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 Project would comply with current Title 24, Part 6, of the California Code of Regulations energy efficiency standards for electrical appliances and other devices at the time of building construction. In addition, the Project buildings would be certified at least LEED Gold, with the target of LEED Platinum or Zero Net Energy.
Energy Efficiency (Natural Gas)	CR-1	The Project would comply with current Title 24, Part 6, of the California Code of Regulations energy efficiency standards for natural gas appliances and other devices at the time of building construction. In addition, the Project buildings would be certified at least LEED Gold, with the target of LEED Platinum or Zero Net Energy.

**Table 4.3-4
Project Consistency with Scoping Plan GHG Emission Reduction Strategies**

Scoping Plan Measure	Measure Number	Project Consistency
Solar Water Heating (California Solar Initiative Thermal Program)	CR-2	Based on information provided by SF State, on-site renewable energy likely would include roof-mounted solar arrays.
Combined Heat and Power	E-2	Not applicable.
Renewable Portfolios Standard (33% by 2020)	E-3	The electricity used by the Project would benefit from reduced GHG emissions resulting from increased use of renewable energy sources.
SB 1 Million Solar Roofs (California Solar Initiative, New Solar Home Partnership, Public Utility Programs) and Earlier Solar Programs	E-4	Based on information provided by SF State, on-site renewable energy likely would include roof-mounted solar arrays.
<i>Water Sector</i>		
Water Use Efficiency	W-1	The Project would include installation of recycled water infrastructure and other water reuse strategies. Targeted strategies could include ultra-water-efficient bathroom fixtures, dual plumbing to allow use of recycled water for toilet and urinal flushing, and recycled water infrastructure for irrigation. In regards to outdoor water, the Project would install water-efficient devices and landscaping in accordance with applicable ordinances, including use of drought-tolerant species appropriate to the climate and region.
Water Recycling	W-2	The Project includes installation of recycled water infrastructure.
Water System Energy Efficiency	W-3	This is applicable for the transmission and treatment of water, but it is not applicable for the Project.
Reuse Urban Runoff	W-4	The Project would minimize disruption of natural hydrology by implementing low-impact design approaches such as reduced impervious cover, reuse of stormwater, or increased infiltration. It is expected that the following types of features would be evaluated for inclusion in the Project: infiltration zones/dry wells, permeable pavement, planted roof, cistern, and bio-retention zones.
Renewable Energy Production	W-5	Applicable for wastewater treatment systems. Not applicable for the 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 Project would 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 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	Not applicable
4. Greening Existing Buildings (Greening Existing Homes and Commercial Buildings)	GB-1	This is applicable for existing buildings only. It is not applicable for the Project except as future standards may become applicable to existing buildings.

**Table 4.3-4
Project Consistency with Scoping Plan GHG Emission Reduction Strategies**

Scoping Plan Measure	Measure Number	Project Consistency
<i>Industry Sector</i>		
Energy Efficiency and Co-Benefits Audits for Large Industrial Sources	I-1	Not applicable.
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	Not applicable.
Increasing the Efficiency of Landfill Methane Capture	RW-2	Not applicable.
Mandatory Commercial Recycling	RW-3	During both construction and operation of the Project, the 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.
Increase Production and Markets for Compost and Other Organics	RW-3	Not applicable.
Anaerobic/Aerobic Digestion	RW-3	Not applicable.
Extended Producer Responsibility	RW-3	Not applicable (applicable to product designer and producers).
Environmentally Preferable Purchasing	RW-3	Not applicable (applicable to product designer and producers).
<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 Project's residents, staff, and event attendees would be prohibited from performing air conditioning repairs and would be 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 Project's residents, staff, and event attendees would use consumer products that would comply with the regulations that are in effect at the time of manufacture.

**Table 4.3-4
Project Consistency with Scoping Plan GHG Emission Reduction Strategies**

Scoping Plan Measure	Measure Number	Project Consistency
Air Conditioning Refrigerant Leak Test During Vehicle Smog Check	H-5	Motor vehicles driven by the Project's residents, staff, and event attendees 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 2008.

CARB = California Air Resources Board; CCR = California Code of Regulations; GHG = greenhouse gas; GWP = global warming potential; LEED = Leadership in Energy and Environmental Design; SB = Senate Bill; SF₆ = sulfur hexafluoride

Based on the analysis in Table 4.3-4, the Project would be consistent with the applicable strategies and measures in the Scoping Plan.

In regards to consistency with EO B-30-15 (goal of reducing GHG emissions to 40% below 1990 levels by 2030) and EO S-3-05 (goal of reducing GHG emissions to 80% below 1990 levels by 2050), there are no established protocols or thresholds of significance for that future year analysis. However, CARB forecasts that compliance with the current Scoping Plan puts the state on a trajectory of meeting these long-term GHG goals, although the specific path to compliance is unknown (CARB 2014). As discussed previously, the Project is consistent with the GHG emission reduction measures in the Scoping Plan and would not conflict with the state's trajectory toward future GHG reductions. In addition, since the specific path to compliance for the state in regards to the long-term goals will likely require development of technology or other changes that are not currently known or available, specific additional mitigation measures for the Project would be speculative and cannot be identified at this time. With respect to future GHG targets under the EOs, CARB has also made clear its legal interpretation that it has the requisite authority to adopt whatever regulations are necessary, beyond the AB 32 horizon year of 2020, to meet EO S-3-05's 80% reduction target in 2050; this legal interpretation by an expert agency provides evidence that future regulations will be adopted to continue the state on its trajectory toward meeting these future GHG targets. Finally, the Project would not exceed the BAAQMD's threshold of 1,100 MT CO₂E per year (BAAQMD 2009). Because the Project would not exceed the threshold, this analysis provides

support for the conclusion that the Project would not conflict with EO S-3-05's GHG reduction goals for California.

Based on the preceding considerations, the Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. This impact would be less than significant. This is considered to be a new less-than-significant impact, as the CMP EIR did not evaluate GHG emissions or related plans.

Project Mitigation GHG-2: Mitigation not required.

Project Impact GHG-3: The Project would not result in cumulatively considerable emissions of GHGs (*Less-than-significant impact / New impact*).

GHG impacts are cumulative impacts (BAAQMD 2009; CAPCOA 2008); therefore, assessment of significance is based on a determination of whether the GHG emissions from a project represent a cumulatively considerable contribution to the global atmosphere. If a project exceeds the identified significance thresholds, its contribution of GHG emissions would be cumulatively considerable, resulting in a cumulatively significant impact on climate change. As discussed above, cumulative impacts would be less than significant.

Project Mitigation GHG-3: Mitigation not required.

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