IV. Environmental Impact Analysis
C. Greenhouse Gas Emissions

1. Introduction

This section provides a discussion of global climate change, existing regulations pertaining to global climate change, an inventory of the approximate greenhouse gas (GHG) emissions that would result from the Project, and an analysis of the significance of the impact of these GHGs. Calculation worksheets, assumptions, and model outputs used in the analysis are contained in Appendix D of this Draft EIR.

2. Environmental Setting

Global climate change refers to changes in average climatic conditions on Earth as a whole, including changes in temperature, wind patterns, precipitation, and storms. Global warming, a related concept, is the observed increase in average temperature of the Earth's surface and atmosphere. One identified cause of global warming is an increase of GHGs in the atmosphere. GHGs are those compounds in the Earth's atmosphere that play a critical role in determining the Earth's surface temperature.

The Earth's natural warming process is known as the "greenhouse effect." It is called the greenhouse effect because the Earth and the atmosphere surrounding it are similar to a greenhouse with glass panes in that the glass allows solar radiation (sunlight) into the Earth's atmosphere, but prevents radiative heat from escaping, thus warming the Earth's atmosphere. Some levels of GHGs keep the average surface temperature of the Earth close to a hospitable 60 degrees Fahrenheit. However, it is believed that excessive concentrations of anthropogenic GHGs in the atmosphere can result in increased global mean temperatures, with associated adverse climatic and ecological consequences.

Scientists studying the particularly rapid rise in global temperatures have determined that human activity has resulted in increased emissions of GHGs, primarily from the burning of fossil fuels (from motor vehicle travel, electricity generation, consumption of natural gas, industrial activity, manufacturing, etc.), deforestation, agricultural activity, and the decomposition of solid waste. Scientists refer to the global warming context of the past

century as the "enhanced greenhouse effect" to distinguish it from the natural greenhouse effect.[1]

Changes in atmospheric concentrations of GHGs and aerosols, land cover, and solar radiation alter the energy balance of the climate system. Global GHG emissions due to human activities have grown since pre-industrial times, with an increase of 70 percent between 1970 and 2004. The annual emissions of carbon dioxide (CO_2) grew by about 80 percent between 1970 and 2004. Atmospheric concentrations of CO_2 and methane (CH_4) in 2005 exceed by far the natural range over the last 650,000 years. Global increases in CO_2 concentrations are due primarily to fossil fuel use, with land-use change providing another significant but smaller contribution. Studies have concluded that it is very likely that the observed increase in CH_4 concentration is predominantly due to agriculture and fossil fuel use.[2]

In August 2007, international climate talks held under the auspices of the United Nations Framework Convention on Climate Change (UNFCCC) led to the official recognition by the participating nations that global emissions of GHG must be reduced. According to the "Ad Hoc Working Group on Further Commitments of Annex I Parties under the Kyoto Protocol," avoiding the most catastrophic events forecast by the United Nations Intergovernmental Panel on Climate Change (IPCC) would entail emissions reductions by industrialized countries in the range of 25 to 40 percent below 1990 levels. Because of the Kyoto Protocol's Clean Development Mechanism, which gives industrialized countries credit for financing emission-reducing projects in developing countries, such an emissions goal in industrialized countries could ultimately spur efforts to cut emissions in developing countries, as well.[3]

As reported by SCAG: "Global warming poses a serious threat to the economic well-being, public health and natural environment in southern California and beyond. The potential adverse impacts of global warming include, among others, a reduction in the quantity and quality of water supply, a rise in sea level, damage to marine and other ecosystems, and an increase in the incidences of infectious diseases. Over the past few decades, energy intensity of the national and State economy has been declining due to the shift to a more service-oriented economy. California ranked fifth lowest among the states in CO_2 emissions from fossil fuel consumption per unit of Gross State Product. However, in terms of total CO_2 emissions, California is second only to Texas in the nation and is the

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1 *Climate Change 101: Understanding and Responding to Global Climate Change, published by the Pew Center on Global Climate Change and the Pew Center on the States.*

2 *Ibid.*

3 *United Nations Framework Convention on Climate Change, Press Release—Vienna UN Conference Shows Consensus on Key Building Blocks for Effective International Response to Climate Change, August 31, 2007.*

12th largest source of climate change emissions in the world, exceeding most nations. The SCAG region, with close to half of the State's population and economic activities, is also a major contributor to the global warming problem."[4]

a. GHG Background

By definition, GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).[5] Carbon dioxide is the most abundant GHG. Other GHGs are less abundant, but have higher global warming potential than CO_2. Thus, emissions of other GHGs are frequently expressed in the equivalent mass of CO_2, denoted as CO_2e. Forest fires, decomposition, industrial processes, landfills, and consumption of fossil fuels for power generation, transportation, heating, and cooking are the primary sources of GHG emissions. A general description of the GHGs discussed is provided in Table IV.C-1 on page IV.C-4.

Global Warming Potentials (GWPs) are one type of simplified index based upon radiative properties that can be used to estimate the potential future impacts of emissions of different gases upon the climate system in a relative sense. GWP is based on a number of factors, including the radiative efficiency (heat-absorbing ability) of each gas relative to that of CO_2, as well as the decay rate of each gas (the amount removed from the atmosphere over a given number of years) relative to that of CO_2. A summary of the atmospheric lifetime and GWP of selected gases is presented in Table IV.C-2 on page IV.C-5. As indicated below, GWP range from 1 to 22,800.

b. Projected Impacts of Global Warming in California

According to the 2006 California Climate Action Team (CAT) Report, temperature increases arising from increased GHG emissions potentially could result in a variety of impacts to the people, economy, and environment of California associated with a projected increase in extreme conditions, with the severity of the impacts depending upon actual future emissions of GHGs and associated warming. If emissions from GHGs are not reduced substantially, the warming increase could have the following consequences in California:[6]

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[4] *Southern California Association of Governments, The State of the Region—Measuring Regional Progress, December 2006, p. 121.*

[5] *As defined by California AB32 and SB104.*

[6] *California Environmental Protection Agency, Climate Action Team Report to Governor Schwarzenegger and the Legislature, March 2006, p. 11.*

Table IV.C-1
Description of Identified Greenhouse Gases

Greenhouse Gas	General Description
Carbon Dioxide (CO_2)	An odorless, colorless GHG, which has both natural and anthropocentric sources. Natural sources include the following: decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic (human caused) sources of carbon dioxide are burning coal, oil, natural gas, and wood.
Methane (CH_4)	A flammable gas and is the main component of natural gas. When one molecule of methane is burned in the presence of oxygen, one molecule of carbon dioxide and two molecules of water are released. There are no ill health effects from methane. A natural source of methane is the anaerobic decay of organic matter. Geological deposits, known as natural gas fields, also contain methane, which is extracted for fuel. Other sources are from landfills, fermentation of manure, and cattle.
Nitrous Oxide (N_2O)	A colorless GHG. High concentrations can cause dizziness, euphoria, and sometimes slight hallucinations. Nitrous oxide is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used in rocket engines, race cars, and as an aerosol spray propellant.
Hydrofluorocarbons (HFCs)	Chlorofluorocarbons (CFCs) are gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). CFCs were first synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. Because they destroy stratospheric ozone, the production of CFCs was stopped as required by the Montreal Protocol in 1987. HFCs are synthetic man-made chemicals that are used as a substitute for CFCs as refrigerants. HFCs deplete stratospheric ozone, but to a much lesser extent than CFCs.
Perfluorocarbons (PFCs)	PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above the earth's surface are able to destroy the compounds. PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane and hexafluoroethane. The two main sources of PFCs are primary aluminum production and semiconductor manufacture.
Sulfur Hexafluoride (SF_6)	An inorganic, odorless, colorless, non-toxic, and nonflammable gas. SF_6 is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Source: Association of Environmental Professionals, Alternative Approaches to Analyze Greenhouse Gas Emissions and Global Climate Change in CEQA Documents, Final, June 29, 2007.

Table IV.C-2
Atmospheric Lifetimes and Global Warming Potentials

Gas	Atmospheric Lifetime (years)	Global Warming Potential (100-year time horizon)
Carbon Dioxide	50–200	1
Methane	12 (+/-3)	25
Nitrous Oxide	114	298
HFC-23	270	14,800
HFC-134a	14	1,430
HFC-152a	1.4	124
PFC-14: Tetrafluoromethane (CF_4)	50,000	7,390
PFC-116: Hexafluoroethane (C_2F_6)	10,000	12,200
Sulfur Hexafluoride (SF_6)	3,200	22,800

Source: IPCC, 2007, www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html, accessed February 12, 2013.

- The Sierra snowpack would decline between 70 and 90 percent, threatening California's water supply;
- Attainment of air quality standards would be impeded by increasing emissions, accelerating chemical processes, and raising inversion temperatures during stagnation episodes;
- Erosion of California's coastlines would increase as well as sea water intrusion;
- Pest infestation and vulnerability to fires of the State's forests would increase; and
- Rising temperatures would increase power demand, especially in the summer season.

With regards to public health, as reported by the Center for Health and the Global Environment at the Harvard Medical School, the following are examples of how climate change can affect cardio-respiratory disease: (1) pollen is increased by higher levels of atmospheric CO_2; (2) ground-level ozone or photochemical smog, which is the reaction of oxides of nitrogen (NO_X) and VOC and which are "tailpipe emissions," is temperature dependent (i.e., heat increases smog); ground-level ozone, which is also increased by higher levels of ultraviolet B radiation from stratospheric ozone depletion, has been shown to cause asthma in children and to trigger attacks and causes increased morbidity and mortality in those with chronic obstructive pulmonary disease; (3) heat waves can result in temperature inversions, leading to trapped masses or unhealthy air contaminants by smog,

particulates, and other pollutants; and (4) the incidence of forest fires is increased by drought secondary to climate change and to the lack of spring runoff from reduced winter snows; these fires can create smoke and haze which can settle over urban populations causing acute and exacerbating chronic respiratory illness.[7]

c. Regulatory Framework

In response to growing scientific and political concern with global climate change, Federal and State entities have adopted a series of laws to reduce emissions of GHGs to the atmosphere.

(1) Federal

(a) Federal Clean Air Act

The U.S. Supreme Court ruled in *Massachusetts v. Environmental Protection Agency*, 127 S.Ct. 1438 (2007), that CO_2 and other GHGs are pollutants under the federal Clean Air Act, which the USEPA must regulate if it determines they pose an endangerment to public health or welfare. The U.S. Supreme Court did not mandate that the USEPA enact regulations to reduce GHG emissions. Instead, the court found that the USEPA could avoid taking action if it found that GHGs do not contribute to climate change or if it offered a "reasonable explanation" for not determining that GHGs contribute to climate change.

On April 17, 2009, the USEPA issued a proposed finding that GHGs contribute to air pollution that may endanger public health or welfare. On April 24, 2009, the proposed rule was published in the Federal Register under Docket ID No. EPA-HQ-OAR-2009-0171. The USEPA stated that high atmospheric levels of GHGs "are the unambiguous result of human emissions, and are very likely the cause of the observed increase in average temperatures and other climatic changes." The USEPA further found that "atmospheric concentrations of greenhouse gases endanger public health and welfare within the meaning of Section 202 of the Clean Air Act." The findings were signed by the Administrator on December 7, 2009. The final findings were published in the Federal Register on December 15, 2009. The final rule was effective on January 14, 2010.[8] While these findings alone do not impose any

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[7] *Epstein, Paul R. et al., Urban Indicators of Climate Change, Report from the Center for Health and the Global Environment, Harvard Medical School and the Boston Public Health Commission, August 2003, unpaginated.*

[8] *United States Environmental Protection Agency website, Climate Change (www.epa.gov/climate-change/endangerment.html).*

requirements on industry or other entities, this action is a prerequisite to regulatory actions by the EPA, including but not limited to GHG emissions standards for light-duty vehicles.

On July 20, 2011, the EPA published its final rule deferring GHG permitting requirements for carbon dioxide emission from biomass-fired and other biogenic sources until July 21, 2014. Environmental groups have challenged the deferral. In September 2011, EPA released an "Accounting Framework for Biogenic CO_2 Emissions from Stationary Sources," which analyzes accounting methodologies and suggests an implementation for biogenic carbon dioxide emitted from stationary sources.

On April 4, 2012, EPA published a proposed rule to establish, for the first time, a new source performance standard for GHG emissions. Under the proposed rule, new fossil fuel–fired electric generating units larger than 25 MW are required to limit emissions to 1,000 pounds CO_2/MWh on an average annual basis, subject to certain exceptions. In addition, on April 17, 2012, EPA issued emission rules for oil production and natural gas production and processing operations.

(b) Federal Corporate Average Fuel Economy Standards

In response to the *Massachusetts v. Environmental Protection Agency* ruling, President Bush issued an executive order on May 14, 2007, directing the USEPA , the United States Departments of Transportation (USDOT), and the USDOE to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. On December 19, 2007, the Energy Independence and Security Act of 2007 (H.R. 6; Pub. L. 110-140) was signed into law.

The Energy Independence and Security Act of 2007 created new federal requirements for increases in fleet-wide fuel economy for passenger vehicles and light trucks. The federal legislation requires a fleet-wide average of 35 miles per gallon to be achieved by 2020. The National Highway Traffic Safety Administration is directed to phase in requirements to achieve this goal. Analysis by the California Air Resources Board (CARB) suggests that attainment of this goal will require an annual improvement of approximately 3.4 percent between 2007 and 2020.[9] In addition to setting increased CAFE standards for motor vehicles, the Energy Independence and Security Act of 2007 included other provisions: (1) renewable fuel standard (Section 202); (2) appliance and lighting efficiency standards (Sections 301–325); and (3) building energy efficiency (Sections 411–441). Additional provisions addressed energy savings in government and

[9] *CARB comparison between Pavley Assembly Bill 1493 and the Federal 2007 CAFE standards (www.arb.ca.gov/cc/ccms/ab1493_v_cafe_study.pdf).*

public institutions, promoting research for alternative energy, additional research in carbon capture, international energy programs, and the creation of "green jobs."

On July 1, 2009, the EPA granted California a waiver which enables the state to enforce stricter tailpipe emissions on new motor vehicles. In addition, on May 19, 2009, President Obama announced a new National Fuel Efficiency Policy aimed at increasing fuel economy and reducing GHG pollution.[10] On September 15, 2009, the EPA and the Department of Transportation's National Highway Traffic Safety Administration issued a joint proposal to establish a national program consisting of new standards for model year 2012 through 2016 light-duty vehicles that will reduce GHG emissions and improve fuel economy. The proposed standards would be phased in and would require passenger cars and light-duty trucks to comply with a declining emissions standard. In 2012, passenger cars and light-duty trucks would have to meet an average emissions standard of 295 grams of CO_2 per mile and 30.1 miles per gallon. By 2016, the vehicles would have to meet an average standard of 250 grams of CO_2 per mile and 35.5 miles per gallon.

(2) State

(a) California Assembly Bill 1493

Assembly Bill 1493, passed in 2002, requires the development and adoption of regulations to achieve "the maximum feasible reduction of greenhouse gases" emitted by noncommercial passenger vehicles, light-duty trucks, and other vehicles used primarily for personal transportation in the State. CARB originally approved regulations to reduce GHGs from passenger vehicles in September 2004, with the regulations to take effect in 2009. On September 24, 2009, CARB adopted amendments to these "Pavley" regulations that reduce GHG emissions in new passenger vehicles from 2009 through 2016.[11] Although setting emission standards on automobiles is solely the responsibility of the EPA, the Federal Clean Air Act allows California to set state-specific emission standards on automobiles if the state first obtains a waiver from the EPA. As stated above, the EPA granted California that waiver on July 1, 2009. A comparison between the Assembly Bill 1493 standards and the Federal Corporate Average Fuel Economy was completed by CARB and is available at www.arb.ca.gov/cc/ccms/reports/ab1493_v_cafe_study.pdf. The emission standards become increasingly more stringent through the 2016 model year. California is also committed to further strengthening these standards beginning with 2020 model year vehicles to obtain a 45-percent GHG reduction in comparison to the 2009 model year.

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[10] *The White House, Office of the Press Secretary, May 19, 2009, (www.whitehouse.gov/the_press_office/President-Obama-Announces-National-Fuel-Efficiency-Policy/).*

[11] *Clean Car Standards—Pavley, Assembly Bill 1493, available at www.arb.ca.gov/cc/ccms/ccms.htm.*

(b) Executive Order S-1-07 (California Low Carbon Fuel Standard)

Executive Order S-1-07, the Low Carbon Fuel Standard (issued on January 18, 2007), requires a reduction of at least 10 percent in the carbon intensity of California's transportation fuels by 2020. Regulatory proceedings and implementation of the Low Carbon Fuel Standard have been directed to CARB. The Low Carbon Fuel Standard has been identified by CARB as a discrete early action item in the adopted *Climate Change Scoping Plan* (discussed in Section IV.C.2.2.c(2)(e) (below). CARB expects the Low Carbon Fuel Standard to achieve the minimum 10-percent reduction goal; however, many of the early action items outlined in the *Climate Change Scoping Plan* work in tandem with one another. To avoid the potential for double-counting emission reductions associated with AB 1493 (see previous discussion), the *Climate Change Scoping Plan* has modified the aggregate reduction expected from the Low Carbon Fuel Standard to 9.1 percent. In accordance with the *Climate Change Scoping Plan*, this analysis incorporates the modified reduction potential for the Low Carbon Fuel Standard. CARB released a draft version of the Low Carbon Fuel Standard in October 2008. The final regulation was approved by the Office of Administrative Law and filed with the Secretary of State on January 12, 2010; the Low Carbon Fuel Standard became effective on the same day.

(c) Executive Order S-3-05

Executive Order S-3-05, issued in June 2005, established GHG emissions targets for the State, as well as a process to ensure the targets are met. The order directed the Secretary for California EPA to report every two years on the State's progress toward meeting the Governor's GHG emission reduction targets. As a result of this executive order, the California Climate Action Team (CAT), led by the Secretary of the California EPA, was formed. The CAT is made up of representatives from a number of State agencies and was formed to implement global warming emission reduction programs and reporting on the progress made toward meeting statewide targets established under the Executive Order. The CAT reported several recommendations and strategies for reducing GHG emissions and reaching the targets established in the Executive Order.[12] The statewide GHG targets are as follows:

- By 2010, reduce to 2000 emission levels;
- By 2020, reduce to 1990 emission levels; and
- By 2050, reduce to 80 percent below 1990 levels.

[12] *California Climate Action Team, Climate Action Team Report to Governor Schwarzenegger and the Legislature, March 2006.*

The CAT stated that smart land use is an umbrella term for strategies that integrate transportation and land-use decisions. Such strategies generally encourage jobs/housing proximity, promote transit-oriented development (TOD), and encourage high-density residential/commercial development along transit corridors. These strategies develop more efficient land-use patterns within each jurisdiction or region to match population increases, workforce, and socioeconomic needs for the full spectrum of the population. "Intelligent transportation systems" is the application of advanced technology systems and management strategies to improve operational efficiency of transportation systems and the movement of people, goods, and service.[13]

(d) California Global Warming Solutions Act of 2006 (AB 32)

The California Global Warming Solutions Act of 2006 (also known as AB 32) commits the State to achieving the following:

- By 2010, reduce to 2000 GHG emission levels; and
- By 2020, reduce to 1990 levels.

To achieve these goals which are consistent with the CAT GHG targets for 2010 and 2020, AB 32 mandates that CARB establish a quantified emissions cap, institute a schedule to meet the cap, implement regulations to reduce statewide GHG emissions from stationary sources consistent with the CAT strategies, and develop tracking, reporting, and enforcement mechanisms to ensure that reductions are achieved. Many of the regulations required to meet the goals under AB 32 have been adopted and were to be implemented no later than January 1, 2012.[14]

(e) Climate Change Scoping Plan

In 2008, CARB approved a *Climate Change Scoping Plan* as required by AB 32.[15] The *Climate Change Scoping Plan* proposes a "comprehensive set of actions designed to reduce overall carbon GHG emissions in California, improve our environment, reduce our

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[13] *California Environmental Protection Agency, Climate Action Team Report to Governor Schwarzenegger and the Legislature, March 2006, p. 58.*

[14] *CARB's list of discrete early action measures that could be adopted and implemented before January 1, 2010, was approved on June 21, 2007. The three adopted discrete early action measures are: (1) a low-carbon fuel standard, which reduces carbon intensity in fuels state-wide; (2) reduction of refrigerant losses from motor vehicle air conditioning system maintenance; and (3) increased methane capture from landfills, which includes requiring the use of state-of-the-art capture technologies.*

[15] *Climate Change Proposed Scoping Plan was approved by CARB on December 11, 2008.*

dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health."[16] The *Climate Change Scoping Plan* has a range of GHG reduction actions which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 implementation fee to fund the program.

The *Climate Change Scoping Plan* calls for a "coordinated set of solutions" to address all major categories of GHG emissions. Transportation emissions will be addressed through a combination of higher standards for vehicle fuel economy, implementation of the Low Carbon Fuel Standard, and greater consideration to reducing trip length and generation through land use planning and transit-oriented development. Buildings, land use, and industrial operations will be encouraged and, sometimes, required to use energy more efficiently. Utility energy supplies will change to include more renewable energy sources through implementation of the Renewables Portfolio Standard.[17] Additionally, the *Climate Change Scoping Plan* emphasizes opportunities for households and businesses to save energy and money through increasing energy efficiency. It indicates that substantial savings of electricity and natural gas will be accomplished through "improving energy efficiency by 25 percent."

The *Climate Change Scoping Plan* identifies a number of specific issues relevant to the Project including:

- The potential of using the green building framework as a mechanism which could enable GHG emissions reductions in other sectors (i.e., electricity, natural gas), noting that:

  > "A Green Building strategy will produce greenhouse gas saving through buildings that exceed minimum energy efficiency standards, decrease consumption of potable water, reduce solid waste during construction and operation, and incorporate sustainable materials. Combined these measures can also contribute to healthy indoor air quality, protect human health and minimize impacts to the environment."

- The importance of supporting the Department of Water Resources' work to implement the Governor's objective to reduce per capita water use by 20 percent by 2020. Specific measures to achieve this goal include water use efficiency,

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[16] *Climate Change Scoping Plan, CARB, December 2008, www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm.*

[17] *For a discussion of Renewables Portfolio Standard, refer to subsection 2(d), California Renewables Portfolio Standard.*

water recycling, and reuse of urban runoff. The *Climate Change Scoping Plan* notes that water use requires significant amounts of energy, including approximately one-fifth of state-wide electricity.

- Encouraging local governments to set quantifiable emission reduction targets for their jurisdictions and use their influence and authority to encourage reductions in emissions caused by energy use, waste and recycling, water and wastewater systems, transportation, and community design.

Subsequent to adoption of the *Climate Change Scoping Plan*, a lawsuit was filed challenging CARB's approval of the *Climate Change Scoping Plan Functional Equivalent Document* (*FED to the Climate Change Scoping Plan*). On May 20, 2011 (Case No. CPF-09-509562), the court found that the environmental analysis of the alternatives in the *FED to the Climate Change Scoping Plan* was not sufficient under CEQA. CARB staff prepared a revised and expanded environmental analysis of the alternatives and the *Supplemental FED to the Climate Change Scoping Plan* was approved on August 24, 2011 (*Supplemental FED*). The *Supplemental FED* indicated that there is the potential for adverse environmental impacts associated with implementation of the various GHG emission reduction measures recommended in the *Climate Change Scoping Plan*.

Forecasting the amount of emissions that would occur in 2020 if no actions are taken was necessary to assess the scope of the reductions California has to make to return to the 1990 emissions level by 2020 as required by AB 32. The no-action scenario is known as "business-as-usual" or BAU. The California Air Resources Board originally defined the BAU scenario as emissions in the absence of any GHG emission reduction measures discussed in the Climate Change Scoping Plan.

As part of the *Supplemental FED*, CARB updated the projected 2020 BAU emissions inventory based on current economic forecasts (i.e., as influenced by the economic downturn) and emission reduction measures already in place, replacing its prior 2020 BAU emissions inventory. CARB staff derived the updated emissions estimates by projecting emissions growth, by sector, from the state's average emissions from 2006–2008. Specific emission reduction measures included are the million-solar-roofs program, the AB 1493 (Pavley I) motor vehicle GHG emission standards, and the Low Carbon Fuels Standard.[18] In addition, CARB has factored into the 2020 BAU inventory emissions reductions associated with 33-percent Renewable Energy Portfolio Standard (RPS) for

[18] *Pavley I are the first GHG standards in the nation for passenger vehicles and took effect for model years starting in 2009 to 2016. Pavley I could potentially result in 27.7 million metric tons CO_2e reduction in 2020. Pavley II will cover model years 2017 to 2025 and potentially result in an additional reduction of 4.1 million metric tons CO_2e.*

electricity generation. The updated BAU estimate of 507 million metric tons CO_2e by 2020 requires a reduction of 80 million metric tons CO_2e, or a 16-percent reduction below the estimated BAU levels to return to 1990 levels (i.e., 427 million metric tons CO_2e) by 2020.[19,20]

The CARB 2020 BAU projection for GHG emissions in California was originally estimated to be 596 million metric tons carbon dioxide equivalent ($MMTCO_2e$). The updated CARB 2020 BAU projection in the *Supplemental FED* is approximately 545 $MMTCO_2e$.[21, 22] Considering the updated BAU estimate of 545 $MMTCO_2e$ by 2020, CARB estimates a 21.7-percent reduction below the estimated statewide BAU levels is necessary to return to 1990 emission levels (i.e., 427 $MMTCO_2e$) by 2020, instead of the approximate 28.4-percent BAU reduction previously reported under the original Climate Change Scoping Plan (2008). CARB also provided a lower 2020 BAU inventory forecast of approximately 507 $MMTCO_2e$, which took credit for certain GHG emission reduction measures already in place. When this lower forecast is used, the necessary reduction from BAU is approximately 16 percent. Section IV.C.3.b.3 herein contains additional discussion of the *Supplemental FED*, the updated BAU estimate, and the required reduction from BAU to meet AB 32's mandate. CARB is required to update the AB 32 Scoping Plan every five years. On February 10, 2014, CARB released a Draft Update to the AB 32 Scoping Plan that highlights California's progress toward meeting the 2020 GHG emission reduction mandate and builds upon the original Climate Change Scoping Plan (2008) with new strategies and recommendations. The Draft Update also defines CARB's climate change priorities for the next five years and sets the groundwork to reach California's long-term climate goals.[23]

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[19] *CARB, Supplement to the AB 32 Scoping Plan FED, Table 1.2-2, Updated 2020 Business-as-Usual Emissions Forecast, www.arb.ca.gov/cc/scopingplan/document/final_supplement_to_sp_fed.pdf.*

[20] *The emissions and reductions estimates found in the Supplemental FED to the Climate Change Scoping Plan fully replace the estimates published in the 2008 Climate Change Scoping Plan. See CARB, Resolution 11-27 (Aug. 24, 2011) (setting aside approval of 2008 Climate Change Scoping Plan and associated emissions forecasts, and approving the Supplemental FED).*

[21] *CARB, Attachment D, Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document (Aug. 19, 2011), www.arb.ca.gov/cc/scopingplan/document/final_supplement_to_sp_fed.pdf.*

[22] *CARB, Status of Scoping Plan Measures (2011), www.arb.ca.gov/cc/scopingplan/sp_measures_implementation_timeline.pdf.*

[23] *CARB, Draft Proposed First update to the Climate Change Scoping Plan (February 10, 2014), www.arb.ca.gov/cc/scopingplan/2013_update/draft_proposed_first_update.pdf.*

(f) California Renewables Portfolio Standard

The California Renewables Portfolio Standard (RPS) program (2002, Senate Bill [SB] 1078) requires that 20 percent of the available energy supplies are from renewable energy sources by 2017. In 2006, SB 107 accelerated the 20 percent mandate to 2010. These mandates apply directly to investor-owned utilities. On April 12, 2011, California Governor Jerry Brown signed into law Senate Bill 2X, which modified California's RPS program to require that both public and investor-owned utilities in California receive at least 33 percent of their electricity from renewable sources by the year 2020. California Senate Bill 2X also requires regulated sellers of electricity to meet an interim milestone of procuring 25 percent of their energy supply from certified renewable resources by 2016. These levels of reduction are consistent with the Los Angeles Department of Water and Power's (LADWP) commitment to achieve 35 percent renewables by 2020.

In 2011, LADWP indicated that 20 percent of its electricity came from renewable resources in Year 2010. Therefore, under Senate Bill 2X, LADWP must increase its electricity from renewable resources by an additional 13 percent to comply with the RPS of 33 percent.[24]

(g) California Senate Bill 1368

California SB 1368, a companion bill to AB 32, requires the California Public Utilities Commission (CPUC) and the CEC to establish GHG emission performance standards for the generation of electricity. These standards will also generally apply to power that is generated outside of California and imported into the State. SB 1368 provides a mechanism for reducing the emissions of electricity providers, thereby assisting CARB to meet its mandate under AB 32. On January 25, 2007, the CPUC adopted an interim GHG Emissions Performance Standard, which is a facility-based emissions standard requiring that all new long-term commitments for baseload generation to serve California consumers be with power plants that have GHG emissions no greater than a combined cycle gas turbine plant. That level is established at 1,100 pounds of CO_2 per megawatt-hour. Further, on May 23, 2007, the CEC adopted regulations that establish and implement an identical Emissions Performance Standard of 1,100 pounds of CO_2 per megawatt-hour (see CEC Order No. 07-523-7).

(h) California Senate Bill 97

On June 19, 2008, the California Office of Planning and Research (OPR) released a technical advisory on addressing climate change. This guidance document outlines

[24] *Website www.ladwpnews.com/go/doc/1475/987799/.*

suggested components to CEQA disclosure: quantification of GHG emissions from a project's construction and operation; determination of significance of the project's impact to climate change; and if the project is found to be significant, the identification of suitable alternatives and mitigation measures.

California Senate Bill 97, passed in August 2007, is designed to work in conjunction with the California Environmental Quality Act (CEQA) and AB 32. Senate Bill 97 requires the OPR to prepare and develop guidelines for the mitigation of GHG emissions or the effects thereof, including but not limited to effects associated with transportation and energy consumption. These guidelines were required to be transmitted to the Resources Agency by July 1, 2009, to be certified and adopted by January 1, 2010. The OPR submitted the Proposed Draft Guideline Amendments for Greenhouse Gas Emissions to the Secretary for Natural Resources on April 13, 2009. The California Natural Resources Agency conducted formal rulemaking in 2009 and adopted the Guideline Amendments on December 30, 2009, which address the specific obligations of public agencies when analyzing GHG emissions under CEQA to determine a project's effects on the environment.

However, neither a threshold of significance nor any specific mitigation measures are included or provided in these CEQA Guideline Amendments.[25] The Guideline Amendments require a lead agency to make a good-faith effort, based on the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. The Guideline Amendments give discretion to the lead agency whether to: (1) use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use; and/or (2) rely on a qualitative analysis or performance-based standards. Further, the Guideline Amendments identify three factors that should be considered in the evaluation of the significance of GHG emissions:

1. The extent to which a project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;

2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and

[25] *See 14 Cal. Code Regs. §§ 15064.7 (generally giving discretion to lead agencies to develop and publish thresholds of significance for use in the determination of the significance of environmental effects), 15064.4 (giving discretion to lead agencies to determine the significance of impacts from GHGs).*

3. 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.[26]

The administrative record of the promulgation of the Guidelines Amendments also clarify "that the effects of greenhouse gas emissions are cumulative, and should be analyzed in the context of California Environmental Quality Act's requirements for cumulative impact analysis."[27]

The California Natural Resources Agency is required to periodically update the guidelines to incorporate new information or criteria established by CARB pursuant to AB 32. Senate Bill 97 applies retroactively to any environmental impact report, negative declaration, mitigated negative declaration, or other document required by CEQA, which has not been finalized.

(i) California Senate Bill 375

Acknowledging the relationship between land use planning and transportation sector GHG emissions, California SB 375 was passed by the State Assembly on August 25, 2008, and signed by the Governor on September 30, 2008. This legislation links regional planning for housing and transportation with the GHG reduction goals outlined in AB 32. Reductions in GHG emissions would be achieved by, for example, locating employment opportunities close to transit. Under the bill, each Metropolitan Planning Organization would be required to adopt a Sustainable Community Strategy to encourage compact development so that the region will meet a target, created by CARB, for reducing GHG emissions.

Metropolitan Planning Organizations are required to identify strategies to reduce passenger vehicle miles traveled and trips that achieve these targets in a Sustainable Community Strategy. If the Sustainable Community Strategy is unable to achieve the regional GHG emissions reduction targets, than the Metropolitan Planning Organization is required to prepare an alternative planning strategy that shows how the GHG emissions reduction target could be achieved through alternative development patterns, infrastructure, and/or transportation measures. Metropolitan Planning Organizations have no land use authority at the local level as the majority of land use decisions are vested with local

[26] *14 Cal. Code Regs. § 15064.4(b).*

[27] *Letter from Cynthia Bryant, Director of the Office of Planning and Research to Mike Chrisman, Secretary for Natural Resources (April 13, 2009).*

governments. Therefore, local-level participation in regional efforts will be critical to the success of any Sustainable Community Strategy or alternative planning strategy.

(j) Title 24 Energy Efficiency Standards

California's Energy Efficiency Standards for Residential and Nonresidential Buildings, located at Title 24, Part 6 of the California Code of Regulations and commonly referred to as "Title 24," were established in 1978 in response to a legislative mandate to reduce California's energy consumption. Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods.[28]

An update to Title 24 was adopted by the CEC on April 23, 2008. The 2008 standards apply to building permits for which an application was submitted on or after January 1, 2010. The CEC adopted the 2008 changes to the Building Energy Efficiency Standards to respond to the mandates of AB 32 and to pursue California energy policy that energy efficiency is the resource of first choice for meeting California's energy needs.

The most recent amendments to Title 24 became effective January 1, 2014; however, effective date for the energy provisions was revised to July 1, 2014.[29] As such, the 2010 California Energy Code will remain in effect until July 1, 2014. The most recent amendments to Title 24 continue to improve upon the current standards for new construction of, and additions and alternations to, residential and nonresidential buildings to meet the mandates of AB 32 and to pursue California's energy policy that energy efficiency is the resource of first choice for meeting California's energy needs.[30]

(k) California Green Building Standards

The California Green Building Standards Code, which is Part 11 of the California Code of Regulations, is commonly referred to as the CALGreen Code. The 2008 edition, the first edition of the CALGreen Code, contained only voluntary standards. The 2010 CALGreen Code is a code with mandatory requirements for State-regulated buildings, and structures throughout California beginning on January 1, 2011. The 2010 CALGreen Code

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[28] *See www.energy.ca.gov/title24/ for additional information.*

[29] *California Energy Commission, Revised Effective Date for the 2013 California Building Energy Efficiency Standards, www.energy.ca.gov/title24/2013standards/2013_standards_revised_effective_date.html, accessed March 7, 2014.*

[30] *See www.energy.ca.gov/title24/2013standards/index.html.*

contains requirements for construction site selection, storm water control during construction, construction waste reduction, indoor water use reduction, material selection, natural resource conservation, site irrigation conservation and more. The code provides for design options allowing the designer to determine how best to achieve compliance for a given site or building condition. The code also requires building commissioning which is a process for the verification that all building systems, like heating and cooling equipment and lighting systems are functioning at their maximum efficiency.

The 2013 CALGreen Code will go into effect on July 1, 2014. There are a number of important updates in the 2013 code, such as: (1) an extensive update of California`s Energy Code; (2) updated CALGreen-requirements for nonresidential building alterations and additions; and (3) new plumbing code provisions pertaining to greywater and rainwater catchments.

(3) Regional

(a) South Coast Air Quality Management District

The Southern California Air Quality Management District (SCAQMD) adopted a "Policy on Global Warming and Stratospheric Ozone Depletion" on April 6, 1990. The policy commits the SCAQMD to consider global impacts in rulemaking and in drafting revisions to the Air Quality Management Plan. In March 1992, the SCAQMD Governing Board reaffirmed this policy and adopted amendments to the policy to include the following directives:

- Phase out the use and corresponding emissions of chlorofluorocarbons, methyl chloroform (1,1,1-trichloroethane or TCA), carbon tetrachloride, and halons by December 1995;
- Phase out the large quantity use and corresponding emissions of hydrochlorofluorocarbons by the year 2000;
- Develop recycling regulations for hydrochlorofluorocarbons (e.g., SCAQMD Rules 1411 and 1415);
- Develop an emissions inventory and control strategy for methyl bromide; and
- Support the adoption of a California GHG emission reduction goal.

In 2008, SCAQMD released draft guidance regarding interim CEQA GHG significance thresholds.[31] Within its October 2008 document, the SCAQMD proposed the use of a percent emission reduction target to determine significance for commercial/ residential projects that emit greater than 3,000 metric tons per year. On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold for stationary source/industrial projects where the SCAQMD is lead agency. However, the SCAQMD has yet to adopt a GHG significance threshold for land use development projects (e.g., residential/commercial projects) and has formed a GHG Significance Threshold Working Group to further evaluate potential GHG significance thresholds.[32] SCAQMD's Working Group has not convened since the fall of 2010.

(b) Southern California Association of Governments

On April 4, 2012, the Regional Council of the Southern California Association of Governments (SCAG) adopted the 2012–2035 Regional Transportation Plan/Sustainable Communities Strategy: Towards a Sustainable Future (2012–2035 RTP/SCS). Within the RTP, the SCS demonstrates the region's ability to attain and exceed the GHG emission-reduction targets set forth by the ARB. The SCS outlines the region's plan for integrating the transportation network and related strategies with an overall land use pattern that responds to projected growth, housing needs, changing demographics, and transportation demands. The regional vision of the SCS maximizes current voluntary local efforts that support the goals of SB 375, as evidenced by several Compass Blueprint Demonstration Projects and various county transportation improvements. The SCS focuses the majority of new housing and job growth in high-quality transit areas and other opportunity areas in existing main streets, downtowns, and commercial corridors, resulting in an improved jobs-housing balance and more opportunity for transit-oriented development. This overall land use development pattern supports and complements the proposed transportation network that emphasizes system preservation, active transportation, and transportation demand management measures. Finally, the 2012–2035 RTP/SCS fully integrates the two subregional SCSs prepared by the Gateway Cities and Orange County Council of Governments. On June 4, 2012, CARB accepted SCAG's quantification of GHG emission reductions from the 2012–2035 RTP/SCS and the determination that the 2012–2035 RTP/SCS would, if implemented, achieve the 2020 and 2035 GHG emission reduction targets established by CARB.[33]

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[31] *Website www.aqmd.gov/hb/2008/December/081231a.htm (Attachment E).*

[32] *Website www.aqmd.gov/ceqa/handbook/GHG/GHG.html.*

[33] *CARB Executive Order G-12-039 (www.arb.ca.gov/cc/sb375/exec_order_scag_scs.pdf).*

(4) Local

(a) County of Los Angeles Community Climate Action Plan (CCAP)

Los Angeles County is in the process of developing a Community Climate Action Plan (CCAP) to mitigate and avoid GHG emissions associated with community (not municipal) activities in unincorporated Los Angeles County. The CCAP will address emissions from building energy land use and transportation, water consumption and waste generation, and lay out the County's path to a sustainable future that achieves identified GHG reductions. Ultimately, the CCAP and associated GHG reduction measures will be incorporated into the Los Angeles County General Plan 2035.

The draft CCAP was published for public review in January 2014. As it is a draft document, and has not yet been adopted by the County, this discussion is provided for informational purposes only.

(b) County of Los Angeles Green Building Ordinance

Three ordinances were adopted by the County in furtherance of its "Green Building Program" in October 2008, and became effective in January 2009. One of those ordinances, known as the green building standards ordinance, applied to four categories of development, with corresponding requirements for each: (1) small residential and nonresidential projects; (2) medium-sized residential projects; (3) medium-sized (i.e., 10,000 to 25,000 square feet) nonresidential, commercial, mixed-use, or first-time tenant improvement projects; and, (4) large nonresidential, commercial, mixed-use, or first-time tenant improvement projects greater than 25,000 square feet, and all new high-rise buildings greater than 75 feet in height.

In 2013, and in response to mandates set forth in CALGreen, the County adopted the Los Angeles County Green Building Standards Code (Title 31), which adopts and incorporates by reference specified provisions of the 2013 CALGreen Code.[34] The purpose of Title 31 is to facilitate sustainability via planning and design; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and, environmental air quality. Title 31 is currently being revised to provide clarity for the development community, ensure consistency with the State and other local agencies, and advance sustainable construction standards in the County.

[34] *The County's 2008 ordinances are being repealed, and the more recently adopted Title 31 requirements will apply to this Project.*

d. Existing Conditions

(1) Existing Statewide Greenhouse Gas Emissions

GHGs are the result of both natural and human-influenced activities. Regarding human-influenced activities, motor vehicle travel, consumption of fossil fuels for power generation, industrial processes, heating and cooling, landfills, agriculture, and wildfires are the primary sources of GHG emissions. Without human intervention, the Earth maintains an approximate balance between the emission of GHGs into the atmosphere and the storage of GHGs in oceans and terrestrial ecosystems. Events and activities, such as the industrial revolution and the increased combustion of fossil fuels (e.g., gasoline, diesel, coal, etc.), have contributed to the rapid increase in atmospheric levels of GHGs over the last 150 years. As reported by the California Energy Commission (CEC), California contributes 1.4 percent of global and 6.2 percent of national GHG emissions.[35] It should be noted that California represents approximately 12 percent of the national population. Approximately 80 percent of GHGs in California are carbon dioxide produced from fossil fuel combustion. The current California GHG inventory compiles statewide anthropogenic GHG emissions and sinks (carbon storage, such as from trees) from years 2004 to 2010. It includes estimates for CO_2, methane, nitrous oxide, sulfur hexafluoride, hydrofluorocarbons, and perfluorocarbons. The GHG inventory for California is presented in Table IV.C-3 on page IV.C-22.

(2) Existing Project Site Emissions

The approximately 32-acre Project Site currently includes the open-air 1,196-seat Amphitheatre with support spaces (i.e., dressing rooms, performer restrooms, green room) below; an 860-square-foot projection booth and control room located above the Amphitheatre seating; an indoor venue located below the Amphitheatre providing approximately 87 seats referred to as [Inside] the Ford; a two-story, approximately 320-square-foot concessions building; a 365-square-foot box office; a plaza referred to as Edison Plaza and a picnic area; surface parking areas; and a former 10,500-square-foot motel building currently used as staff offices for the Ford Theatre Foundation, Los Angeles Arts Commission, and the Los Angeles Philharmonic. Other facility support spaces such as storage and maintenance areas and restrooms are also located throughout the Project Site. The existing buildings on the Project Site comprise a total of approximately 35,811 square feet while the outdoor plaza areas comprise approximately 3,580 square feet.

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[35] *California Energy Commission, Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004, CEC-600-2006-013, October 2006.*

Table IV.C-3
California GHG Inventory
(million metric tons CO_2e)

	2004	2005	2006	2007	2008	2009	2010
Transportation	**183.46**	**186.34**	**186.95**	**187.38**	**178.18**	**173.34**	**173.18**
On Road	*169.85*	*171.35*	*171.63*	*172.66*	*164.39*	*160.25*	*159.70*
Passenger Vehicles	134.66	134.83	134.71	134.93	129.37	127.69	126.99
Heavy Duty Trucks	35.19	36.52	36.93	37.74	35.02	32.56	32.70
Ships & Commercial Boats	*3.42*	*3.69*	*3.74*	*3.71*	*3.62*	*3.42*	*3.39*
Aviation (Intrastate)	*4.37*	*4.84*	*5.04*	*5.26*	*5.22*	*5.33*	*4.76*
Rail	*2.91*	*3.34*	*3.53*	*3.17*	*2.58*	*1.95*	*2.35*
Unspecified	*2.91*	*3.12*	*3.01*	*2.57*	*2.36*	*2.38*	*2.99*
Percent of Total Emissions	*37%*	*38%*	*39%*	*38%*	*36%*	*38%*	*38%*
Electric Power	**116.25**	**108.89**	**105.55**	**114.97**	**121.16**	**103.58**	**93.30**
In-State Generation	*50.20*	*46.08*	*50.87*	*55.15*	*55.34*	*55.53*	*49.70*
Natural Gas	42.40	38.11	43.07	47.12	48.02	48.90	43.10
Other Fuels	5.59	5.77	5.64	5.85	5.15	5.28	5.49
Fugitive and Process Emissions	2.21	2.19	2.16	2.19	2.16	1.36	1.11
Imported Electricity	*66.05*	*53.81*	*54.69*	*59.81*	*65.83*	*48.05*	*43.59*
Unspecified Imports	*32.92*	*30.02*	*27.96*	*32.73*	*37.93*	*14.99*	*13.45*
Specified Imports	*33.13*	*32.80*	*26.73*	*27.08*	*27.90*	*33.05*	*30.14*
Percent of Total Emissions	*24%*	*22%*	*22%*	*23%*	*25%*	*23%*	*21%*
Commercial and Residential	**42.83**	**41.18**	**41.85**	**42.07**	**42.39**	**42.61**	**43.89**
Residential Fuel Use	*29.45*	*28.18*	*28.55*	*28.70*	*29.03*	*28.65*	*29.38*
Natural Gas	27.37	25.97	26.59	26.72	26.66	26.30	27.03
Other Fuels	2.07	2.21	1.95	1.98	2.37	2.35	2.36
Commercial Fuel Use	*12.76*	*12.60*	*12.88*	*12.87*	*12.99*	*13.04*	*13.47*
Natural Gas	11.16	10.93	11.61	11.48	11.16	11.02	11.19
Other Fuels	1.60	1.67	1.27	1.39	1.83	2.02	2.29
Commercial Cogeneration Heat Output	*0.62*	*0.40*	*0.42*	*0.49*	*0.37*	*0.92*	*1.03*
Percent of Total Emissions	*9%*	*8%*	*9%*	*9%*	*9%*	*9%*	*10%*
Industrial	**96.97**	**96.04**	**94.29**	**91.88**	**94.32**	**83.60**	**85.96**
Refineries	*32.71*	*33.95*	*35.04*	*34.74*	*34.08*	*28.13*	*30.80*
General Fuel Use	*19.05*	*18.15*	*18.05*	*17.01*	*18.15*	*17.60*	*20.26*
Natural Gas	12.80	12.72	12.38	11.56	12.37	11.46	13.46
Other Fuels	6.25	5.43	5.67	5.45	5.77	6.14	6.80
Oil & Gas Extraction[a]	*17.93*	*16.71*	*14.01*	*14.63*	*17.81*	*16.71*	*15.78*
Fuel Use	17.56	16.37	13.24	13.83	17.02	15.92	15.00
Fugitive Emissions	0.37	0.35	0.77	0.80	0.79	0.79	0.78

Table IV.C-3 (Continued)
California GHG Inventory
(million metric tons CO_2e)

	2004	2005	2006	2007	2008	2009	2010
Cement Plants	*9.80*	*9.90*	*9.73*	*9.13*	*8.62*	*5.72*	*5.55*
Clinker Production	5.77	5.85	5.80	5.55	5.28	3.60	3.46
Fuel Use	4.03	4.05	3.93	3.58	3.33	2.12	2.09
Cogeneration Heat Output	*12.91*	*12.40*	*12.15*	*11.14*	*10.39*	*10.26*	*7.72*
Other Process Emissions	*4.56*	*4.93*	*5.30*	*5.23*	*5.27*	*5.18*	*5.84*
Percent of Total Emissions	*20%*	*20%*	*19%*	*19%*	*19%*	*18%*	*19%*
Recycling and Waste	**6.34**	**6.65**	**6.75**	**6.71**	**6.90**	**6.94**	**6.98**
Landfills[b]	*6.17*	*6.47*	*6.54*	*6.49*	*6.66*	*6.70*	*6.72*
Percent of Total Emissions	*1%*	*1%*	*1%*	*1%*	*1%*	*2%*	*2%*
High Global Warming Potential	**13.32**	**13.90**	**14.26**	**14.27**	**14.44**	**14.76**	**15.66**
Ozone Depleting Substance Substitutes	*11.59*	*12.08*	*12.40*	*12.48*	*12.57*	*12.90*	*13.84*
Electricity Grid SF6 Losses[c]	*1.04*	*1.03*	*0.99*	*0.93*	*0.95*	*0.91*	*0.85*
Semiconductor Manufacturing[b]	*0.68*	*0.78*	*0.87*	*0.86*	*0.92*	*0.95*	*0.96*
Percent of Total Emissions	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*
Agriculture[d]	**33.24**	**33.48**	**34.59**	**33.44**	**34.34**	**32.81**	**32.45**
Livestock	*17.69*	*18.33*	*18.69*	*19.93*	*20.23*	*20.05*	*19.60*
Enteric Fermentation (Digestive Process)	8.76	9.05	9.14	9.70	9.67	9.51	9.35
Manure Management	8.94	9.28	9.55	10.23	10.56	10.53	10.25
Crop Growing & Harvesting	*11.02*	*10.52*	*10.57*	*9.70*	*10.19*	*10.11*	*10.04*
Fertilizers	9.48	9.08	8.96	8.27	8.81	8.72	8.66
Soil Preparation and Disturbances	1.47	1.37	1.55	1.36	1.31	1.32	1.30
Crop Residue Burning	0.06	0.07	0.06	0.07	0.07	0.07	0.07
General Fuel Use	*4.53*	*4.63*	*5.33*	*3.80*	*3.92*	*2.65*	*2.82*
Diesel	3.17	3.41	3.87	2.68	3.00	1.78	1.99
Natural Gas	0.82	0.70	0.88	0.79	0.75	0.69	0.65
Gasoline	0.52	0.52	0.57	0.33	0.17	0.17	0.18
Other Fuels	0.00	0.00	0.01	0.00	0.01	0.00	0.00
Percent of Total Emissions	*7%*	*7%*	*7%*	*7%*	*7%*	*7%*	*7%*
Forestry	**0.19**	**0.19**	**0.19**	**0.19**	**0.19**	**0.19**	**0.19**
Wildfire (methane & nitrous oxide)	*0.19*	*0.19*	*0.19*	*0.19*	*0.19*	*0.19*	*0.19*
Percent of Total Emissions	*<1%*	*<1%*	*<1%*	*<1%*	*<1%*	*<1%*	*<1%*
Total Gross Emissions	***492.60***	***486.68***	***484.43***	***490.89***	***491.92***	***457.83***	***451.60***
Forestry Net Emissions	*-4.17*	*-4.03*	*-3.88*	*-3.95*	*-3.85*	*-3.81*	*----*[e]

Table IV.C-3 (Continued)
California GHG Inventory
(million metric tons CO_2e)

	2004	2005	2006	2007	2008	2009	2010
Total Net Emissions	***469.72***	***468.82***	***479.59***	***472.54***	***471.29***	***476.79***	----[e]

[a] *Reflects emissions from combustion of fuels plus fugitive emissions.*

[b] *These categories are listed in the Industrial sector of ARB's GHG Emission Inventory sectors.*

[c] *This category is listed in the Electric Power sector of ARB's GHG Emission Inventory sectors.*

[d] *Reflects use of updated USEPA models for determining emissions from livestock and fertilizers.*

[e] *Revised methodology under development.*

Source: California GHG Inventory for 2000–2010—by Category as Defined in the Climate Change Scoping Plan million tonnes of CO_2e—(based upon IPCC Second Assessment Report's Global Warming Potentials), www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_scopingplan_00-10_2013-02-19.pdf.

Mobile source emissions are generated by motor vehicle trips to and from the Project Site. Existing on-site operations generate GHG emissions from a variety of sources. The consumption of fossil fuels to generate electricity and to provide heating and hot water for the Project Site creates GHG emissions. Other sources at the Project Site that would be associated with embodied energy and subsequent generation of GHG emissions include water usage, wastewater generation, and solid waste generation and disposal. Table IV.C-4 on page IV.C-24 presents the GHG emissions associated with the existing land uses.

3. Environmental Impacts

a. Thresholds of Significance

Until the passage of AB 32, CEQA documents generally did not evaluate GHG emissions or impacts on global climate change. Rather, the primary focus of air pollutant analysis in CEQA documents was the emission of criteria pollutants, or those identified in the California and federal Clean Air Acts as being of most concern to the public and government agencies (e.g., toxic air contaminants). With the passage of AB 32 and SB 97, CEQA documents now contain a more detailed analysis of GHG emissions. However, the analysis of GHGs is different from the analysis of criteria pollutants. Since the half-life of CO_2 is approximately 100 years, GHGs affect the global climate over a relatively long timeframe. Conversely, for criteria pollutants, significance thresholds/impacts are based on daily emissions; and the determination of attainment or non-attainment are based on the daily exceedance of applicable ambient air quality standards (e.g., 1-hour and 8-hour

Table IV.C-4
Existing Project Site Annual GHG Emissions Summary

Scope	Metric Tons of Carbon Dioxide Equivalent
Area	<1
Energy	326
Mobile	567
Solid Waste	8
Water/Wastewater Generation	17
Total Emissions	918

Source: Matrix Environmental, 2014.

exposures). Also, the scope of criteria pollutant impacts is local and regional, while the scope of GHG impacts is global.

In its January 2008 CEQA and Climate Change white paper, the California Air Pollution Control Officers Association (CAPCOA) identified a number of potential approaches for determining the significance of GHG emissions in CEQA documents. In its white paper, CAPCOA suggests making significance determinations on a case-by-case basis when no significance thresholds have been formally adopted by a lead agency. One of the potential approaches identified in the CAPCOA white paper, Threshold 1.1, would require a project to meet a percent reduction target. This target would be based on the average reduction from BAU emissions identified by CARB as necessary to satisfy AB 32's mandate of returning to 1990 levels of GHG emissions by 2020. CARB has calculated the necessary reduction to be approximately 16 percent from "business-as-usual." [36]

OPR's recommended amendments to the CEQA Guidelines for GHGs were adopted by the Resources Agency on December 30, 2009. Analysis of GHG emissions in a CEQA document presents unique challenges to lead agencies. However, such analysis must be consistent with existing CEQA principles and, therefore, the amendments comprise relatively modest changes to various portions of the existing CEQA Guidelines. The amendments add no additional substantive requirements; rather, the Guidelines merely assist lead agencies in complying with CEQA's existing requirements. Modifications address those issues where analysis of GHG emissions may differ in some respects from

[36] *CARB, Supplement to the AB 32 Scoping Plan FED, Table 1.2-2, Updated 2020 Business-as-Usual Emissions Forecast, www.arb.ca.gov/cc/scopingplan/document/final_supplement_to_sp_fed.pdf.*

more traditional CEQA analysis. Other modifications clarify existing law that may apply both to an analysis of GHG emissions as well as more traditional CEQA analyses.

The following two questions relating to the effects of GHGs were added to the CEQA Guidelines, Appendix G (Environmental Checklist).

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

Section 15064.4 of the CEQA Guidelines was adopted to assist lead agencies in determining the significance of the impacts of GHGs. Consistent with developing practice, this section urges lead agencies to quantify GHG emissions of projects where possible and includes language necessary to avoid an implication that a "life-cycle" analysis is required. In addition to quantification, this section recommends consideration of several other qualitative factors that may be used in the determination of significance (i.e., extent to which the project may increase or reduce GHG emissions; whether the project exceeds an applicable significance threshold; and extent to which the project complies with regulations or requirements adopted to implement a reduction or mitigation of GHGs). The amendments do not establish a threshold of significance. Lead agencies are called on to establish significance thresholds for their respective jurisdictions in which a lead agency may appropriately look to thresholds developed by other public agencies, or suggested by other experts, such as CAPCOA, so long as any threshold chosen is supported by substantial evidence (see CEQA Guidelines Section 15064.7(c)). The CEQA Guidelines amendments also clarify that the effects of GHG emissions are cumulative, and should be analyzed in the context of CEQA's requirements for cumulative impact analysis.[37] (see CEQA Guidelines Section 15130(f)).

Although GHG emissions can be quantified, CARB, SCAQMD and the County of Los Angeles, have yet to adopt project-level significance thresholds for GHG emissions that would be applicable to the Project. [38]

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[37] *See generally Section 15130(f); see also Letter from Cynthia Bryant, Director of the Office of Planning and Research to Mike Chrisman, Secretary for Natural Resources (April 13, 2009).*

[38] *The South Coast Air Quality Management District has formed a GHG Significance Threshold Working Group. More information on this Working Group is available at www.aqmd.gov/ceqa/handbook/GHG/GHG.html.*

Assessing the significance of a project's contribution to cumulative global climate change involves: (1) developing pertinent inventories of GHG emissions; and (2) considering project consistency with applicable emission reduction strategies and goals, such as those set forth by AB 32. Based on the foregoing, a project that generates GHG emissions, either directly or indirectly, would have a significant impact if the project:

- Emissions reduction does not constitute an equivalent or larger break from "business-as-usual" than has been determined by CARB to be necessary to meet the state AB 32 goals; or
- Conflicts with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

b. Methodology

The California Climate Action Registry (Climate Registry) General Reporting Protocol provides basic procedures and guidelines for calculating and reporting GHG emissions from a number of general and industry-specific activities.[39] The General Reporting Protocol is based on the "Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard" developed by the World Business Council for Sustainable Development and the World Resources Institute through "a multi-stakeholder effort to develop a standardized approach to the voluntary reporting of GHG emissions."[40] Although no numerical thresholds of significance have been developed, and no specific protocols are available for land use projects, the General Reporting Protocol provides a basic framework for calculating and reporting GHG emissions from the project. The information provided in this section is consistent with the General Reporting Protocol's reporting requirements.

The General Reporting Protocol recommends the separation of GHG emissions into three categories that reflect different aspects of ownership or control over emissions. They include the following:

- Scope 1: Direct, on-site combustion of fossil fuels (e.g., natural gas, propane, gasoline, and diesel).
- Scope 2: Indirect, off-site emissions associated with purchased electricity or purchased steam.

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[39] *California Climate Action Registry, General Reporting Protocol Version 3.1, January 2009, www.climateregistry.org/resources/docs/protocols/grp/GRP_3.1_January2009_FINAL.pdf.*

[40] *California Climate Action Registry General Reporting Protocol, Version 3.1, January 2009, www.climateregistry.org/resources/docs/protocols/grp/GRP_3.1_January2009.pdf.*

- Scope 3: Indirect emissions associated with other emissions sources, such as third-party vehicles and embodied energy.[41]

The General Reporting Protocol provides a range of basic calculations methods. However, the General Reporting Protocol calculations are typically designed for existing buildings or facilities. These retrospective calculation methods are not directly applicable to planning and development situations where buildings do not yet exist.

CARB recommends consideration of indirect emissions to provide a more complete picture of the GHG footprint of a facility. Annually reported indirect energy usage aids the conservation awareness of a facility and provides information to CARB to be considered for future strategies.[42] For example, CARB has proposed requiring the calculation of direct and indirect GHG emissions as part of the AB 32 reporting requirements. Additionally, the Office of Planning and Research has noted that lead agencies "should make a good-faith effort, based on available information, to calculate, model, or estimate… GHG emissions from a project, including the emissions associated with vehicular traffic, energy consumption, water usage and construction activities."[43] Therefore, direct and indirect emissions have been calculated for the Project.

A fundamental difficulty in the analysis of GHG emissions is the global nature of the existing and cumulative future conditions. Changes in GHG emissions can be difficult to attribute to a particular planning program or project because the planning effort or project may cause a shift in the locale for some type of GHG emissions, rather than causing "new" GHG emissions. As a result there is a lack of clarity as to whether a project's GHG emissions represent a net global increase, reduction, or no change in GHGs that would exist if the project were not implemented. The analysis of the Project's GHG emissions is particularly conservative in that it assumes all of the GHG emissions are new additions to the atmosphere.

The California Emissions Estimator Model (CalEEMod) is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operations from a

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[41] *Embodied energy is a scientific term that refers to the quantity of energy required to manufacture and supply to the point of use a product, material, or service.*

[42] *CARB, Initial Statement of Reasons for Rulemaking, Proposed Regulation for Mandatory Reporting of Greenhouse Gas Emissions Pursuant to the California Global Warming Solutions Act of 2006 (AB 32), Planning and Technical Support Division Emission Inventory Branch, October 19, 2007.*

[43] *OPR Technical Advisory, p. 5.*

variety of land use projects. CalEEMod was developed in collaboration with the air districts of California. Default data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) have been provided by the various California air districts to account for local requirements and conditions. The model is considered by the SCAQMD to be an accurate and comprehensive tool for quantifying air quality and GHG impacts from land use projects throughout California.[44]

(1) Construction

The Project's construction emissions were calculated using CalEEMod Version 2013.2.2. Details of the modeling assumptions and emission factors are provided in Appendix D of this Draft EIR. The calculations of the emissions generated during Project construction activities reflect the types and quantities of construction equipment that would be used to complete the proposed construction activities. The information needed to characterize GHG emissions from the manufacture, transport, and the end-of-life of construction materials would be speculative at the CEQA analysis level. Therefore, the construction analysis does not assess such GHG emissions.

In accordance with the SCAQMD's guidance, GHG emissions from construction were amortized over the lifetime of the Project. The SCAQMD defines the lifetime of a project as 30 years. Therefore, total construction GHG emissions were divided by 30 to determine an annual construction emissions estimate comparable to operational emissions.

(2) Operation

Similar to construction, the SCAQMD recommended CalEEMod is used to calculate potential GHG emissions generated new land uses on the Project Site including mobile sources, electricity, natural gas, water usage/wastewater generation, and solid waste generation and disposal.

Mobile source emission calculations associated with operation of the new land uses use a projection of annual vehicle miles traveled, which is derived from the Transportation Study prepared for the Project.[45] These values account for the daily and seasonal variations in trip frequency and length associated with new patrons, employee, and visitor trips to and from the Project Site and other activities that require a vehicle trip. CalEEMod

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[44] See www.caleemod.com.

[45] *Gibson Transportation Consulting, Inc., Transportation Study for the Ford Theatres Project, April 2014. See Appendix L of this Draft EIR.*

calculates GHG emissions from all other sources based on the increase in specific number of seats or square footages of the Project.

(3) Consistency with Assembly Bill 32

A particularly illustrative method to determine consistency with AB 32, and one that has the co-benefit of being based on a quantification of emissions, is to compare a project's emissions as proposed to that project's emissions if it were to be built using BAU design, methodology, and technology. If a project constitutes an equivalent or larger break from BAU than has been determined by CARB to be necessary to meet AB 32's goals for 2020, then that project can be considered consistent with AB 32 and, therefore, will not have a significant impact on the environment due to its GHG emissions. While not project-specific, this is the average level of emissions reduction performance that would need to be achieved across all sectors of the economy to meet AB 32 goals. This section uses a reduction from BAU methodology to determine consistency with AB 32. This approach mirrors the concepts used in the CARB's *Climate Change Scoping Plan* for the implementation of AB 32.

Evaluating the proposition that a project constitutes a break from BAU requires providing a quantitative estimate of BAU based on the specific circumstances of the project in the context of relevant State activities and mandates. This essentially requires three GHG emissions inventories (as follows):

- Baseline, existing environmental setting, GHG emissions;
- BAU project GHG emissions; and
- "As proposed" project GHG emissions with project design features.

The analysis in this section includes potential emissions under BAU scenarios and from the Project at build-out based on actions and mandates expected to be in force in 2020. Early-action measures identified in the *Climate Change Scoping Plan* that have not been approved were not credited in this analysis. By not speculating on potential regulatory conditions, the analysis takes a conservative approach that likely overestimates the Project's GHG emissions at build-out.

Local governments as well as others use 2020 as a target date for GHG reductions. It is also an important target date for supporting legislation and regulation, including mandates for implementation of the Low Carbon Fuel Standard and the Federal Corporate

Average Fuel Economy standards. This 2020 target date reflects California's AB 32 mandate for GHG emissions reductions based on the following CARB timeline:[46]

- January 1, 2009: CARB adopts a "scoping plan" indicating how emissions reductions will be achieved.
- January 1, 2010: Early-action measures take effect.
- January 1, 2012: GHG rules and market mechanisms adopted by CARB are legally enforceable.
- December 31, 2020: Deadline for achieving the 2020 GHG emission cap.

A BAU scenario is used to establish a comparison with project-generated GHG emissions. The BAU scenario does not consider site-specific conditions, project design features, or prescribed mitigation measures. As an example, a BAU scenario would apply a base ITE trip-generation rate for the project and would not consider site-specific benefits resulting from the proposed mix of uses (e.g., internal trip reductions) or transit use. The analysis below establishes BAU as complying with the minimum performance level required under Title 24. But consistent with the *Supplemental FED's* calculation of the 16-percent reduction below BAU required to meet AB 32's mandate, the BAU scenario here does consider state mandates that were already in place when CARB prepared the *Supplemental FED* (e.g., Pavley I Standards, full implementation of California's Statewide Renewables Portfolio Standard beyond current levels of renewable energy, and the California Low Carbon Fuel Standard).

Emissions calculations for the Project include credits or reductions for the project features set forth in this Draft EIR, such as reductions in energy or water demand. In addition, as mobile source GHG emissions are directly dependent on the number of vehicle trips, a decrease in the number of Project generated trips as a result of project features will provide a proportional reduction in mobile source GHG emissions. This scenario conservatively did not include actions and mandates that are not already in place but are expected to be in force in 2020 (e.g., Pavley II), which could further reduce GHG emissions from use of light-duty vehicles by 2.5 percent.

c. Project Design Features

A complete description of the Project and associated development characteristics, including compliance with the County's green building requirements and designing Project

[46] *California Air Resources Board, www.arb.ca.gov/cc/cc.htm*

buildings to achieve certification under the U.S. Green Building Council's Leadership in Energy Efficiency and Design (LEED®), is provided in Section II, Project Description, of this Draft EIR. No specific project design features beyond the project improvements discussed in Section II, Project Description, of this Draft EIR are proposed with regard to greenhouse gas emissions.

d. Analysis of Project Impacts

The Project would have the potential to result in direct and indirect GHG emissions generated by different types of buildings, land uses, and emissions sources, potentially including:

- Construction: Emissions associated with demolition, site preparation, excavation, limited grading, and construction-related equipment and vehicular activity;
- Area Source: Emissions associated with consumer products and landscape equipment;
- Transportation: Emissions associated with Project-generated vehicular operations;
- Building Operations: Emissions associated with space heating and cooling, water heating, and lighting;
- Water: Emissions associated with energy used to pump, convey, deliver, and treat water; and
- Solid Waste: Emissions associated with waste streams (embodied energy of materials).

(1) Construction Impacts

GHG emissions during construction were forecasted by assuming a conservative start date (i.e., assuming all construction occurs at the earliest feasible date) and calculated using CalEEMod. Details of the modeling assumptions and emission factors are provided in Appendix D of this Draft EIR. The calculations of the emissions generated during Project construction activities reflect the number of haul/delivery truck trips, employee trips, and types and quantities of construction equipment that would be used to remove existing structures and construct the proposed buildings, and plant new landscaping, within the Project Site.

As presented in Table IV.C-5 on page IV.C-33, construction of the Project is estimated to generate a total of 1,442 metric tons of CO_2e. As recommended by the SCAQMD, the total GHG construction emissions were amortized over the 30-year lifetime

Table IV.C-5
Combined Construction-Related Emissions
(metric tons of CO_2e)

Construction Total	Metric Tons CO_2e
Total	1,442
Amortized Over 30 Years	48
Source: Matrix Environmental, 2014.	

of the Project (i.e., total construction GHG emissions were divided by 30 to determine an annual construction emissions estimate that can be added to the Project's operational emissions) in order to determine the project's annual GHG emissions inventory.[47] A complete listing of the construction equipment by on-site and off-site activities, duration, and emissions estimation model input assumptions used in this analysis is included within the emissions calculation worksheets that are provided in Appendix D of this Draft EIR.

(2) Operational Impacts

(a) Area Source Emissions

Area source emissions were calculated using the CalEEMod emissions inventory model, which includes landscape equipment and use of consumer products. CalEEMod default values for types of sources and emission factors were used for both the BAU and Project scenarios. As shown in Table IV.C-6 on page IV.C-34, the Project is expected to result in less than one metric ton of CO_2e per year from area sources.

(b) Electricity and Natural Gas

GHGs are emitted as a result of activities in buildings when electricity and natural gas are used as energy sources. Combustion of any type of fuel emits CO_2 and other GHGs directly into the atmosphere; when this occurs in a building, it is a direct emission source associated with that building. GHGs are also emitted during the generation of electricity from fossil fuels. When electricity is used in a building, the electricity generation typically takes place off-site at the power plant; electricity use in a building generally causes emissions in an indirect manner.

[47] *SCAQMD Governing Board Agenda Item 31, December 5, 2008*

Table IV.C-6
Annual GHG Emissions Summary
(Metric Tons of Carbon Dioxide Equivalent)

Scope	No Project (Comparison Purposes)	"Business-as-Usual" Project	Project	Difference	Project's Break from "Business-as-Usual"
Area	<1	<1	<1	156	<0%
Energy	270	1,348	1,193	347	-12%
Mobile	480	1,623	1,277	0	-21%
Solid Waste	8	49	49	0	0%
Water/Wastewater	14	44	35	9	-20%
Construction	0	48	48	0	0%
Total Emission	**772**	**3,112**	**2,587**	**525**	**-16.4%**

Source: Matrix Environmental, 2014.

Electricity and natural gas emissions were calculated using the CalEEMod emissions inventory model, which multiplies an estimate of the energy usage by applicable emissions factors chosen by the utility company. GHG emissions from electricity use are directly dependent on the electricity utility provider. In this case, GHG intensity factors for LADWP were selected in CalEEMod. Energy use in buildings is divided into energy consumed by the built environment and energy consumed by uses that are independent of the construction of the building, such as plug-in appliances. CalEEMod calculates energy use from systems covered by Title 24 (e.g., heating, ventilation, and air conditioning [HVAC] system, water heating system, and lighting system); energy use from lighting; and energy use from office equipment, appliances, plug-ins, and other sources not covered by Title 24 or lighting. CalEEMod default electricity and natural gas usage rates for each applicable land use were selected for the BAU scenario in this analysis. Compliance with specific mandatory requirements of the CALGreen Code, a 15 percent minimum reduction in energy use from systems covered by Title 24 and lighting was applied to the Project.

As shown in Table IV.C-6, the Project is expected to result in a total of 1,192 metric tons of CO_2e per year from energy sources, which would be a reduction of approximately 12 percent in comparison to the BAU scenario.

(c) Mobile Source Emissions

Mobile source operational emissions were calculated based on the project trip generation estimates provided for the Project by Gibson Transportation Consulting, Inc.[48] As discussed in Section IV.K, Traffic, Access, and Parking, of this Draft EIR, to calculate daily trips, the number of seats for the theater use and the amount of building area for the commercial use were multiplied by the applicable trip generation rates based on the Institute of Transportation Engineers (ITE)'s, *Trip Generation, 9th Edition*. Annual trips were then calculated based on the projected annual attendance. The Project trip generation estimate accounts for internal trip reduction and transit use. Please refer to Section IV.K, Traffic, Access, and Parking, of the Draft EIR for more details regarding trip reduction measures.

As shown in Table IV.C-6 on page IV.C-34, the Project is expected to result in a total of 1,227 metric tons of CO_2e per year from mobile sources, which would be a reduction of approximately 21 percent in comparison to the BAU scenario.

(d) Water Usage and Wastewater Generation Emissions

GHG emissions are related to the energy used to convey, treat and distribute water and wastewater. Thus, these emissions are generally indirect emissions from the production of electricity to power these systems. Three processes are necessary to supply potable water: (1) supply and conveyance of the water from the source; (2) treatment of the water to potable standards; and (3) distribution of the water to individual users. After use, the wastewater is treated and reused as reclaimed water.

Emissions related to water usage and wastewater generation were calculated using the CalEEMod emissions inventory model, which multiplies an estimate of the water usage by the applicable energy intensity factor to determine the embodied energy necessary to supply potable water. GHG emissions are then calculated based on the amount of electricity consumed multiplied by the GHG intensity factors for the utility provider. In this case, embodied energy for Southern California supplied water and GHG intensity factors for LADWP were selected in CalEEMod. Please refer to Section IV.L.1, Utilities and Service Systems—Water Supply, of this Draft EIR, for additional details on the Project's potential impacts to water supply. Compliance with specific mandatory requirements of the CALGreen Code, a 20 percent minimum reduction in water usage and wastewater generation was applied to the Project.

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[48] *Gibson Transportation Consulting, Inc., Transportation Study for the 11750 Wilshire Boulevard Project, Los Angeles, California, January 2014. See Appendix L of this Draft EIR.*

As shown in Table IV.C-6 on page IV.C-34, the Project is expected to result in 35 $MTCO_2e$ per year from water usage and wastewater generation, which would be a reduction of approximately 20 percent in comparison to the BAU scenario.

(e) Solid Waste

Emissions related to solid waste were calculated using the CalEEMod emissions inventory model, which multiplies an estimate of the waste generated by applicable emissions factors provided in Section 2.4 of AP-42. CalEEMod default solid waste generation rates for each applicable land use were selected for this analysis. As shown in Table IV.C-6, the Project is expected to result in 49 metric tons of CO_2e from solid waste generation.

(3) Combined Construction and Operational Impacts

As shown in Table IV.C-6, the GHG emissions for the Project taking into consideration implementation of project design features included throughout this Draft EIR, the requirements set forth in the County of Los Angeles Green Building Standards Code, and full implementation of current State mandates illustrates that the Project has incorporated sustainability design features to reduce VMTs and the Project's potential impact with respect to GHG emissions. The Project's GHG emissions reduction of 16.4 percent compared to the BAU scenario constitutes an equivalent or larger break from BAU than has been determined by CARB to be necessary to meet AB 32's goals (i.e., 16 percent reduction).[49] Therefore, the Project would not have a significant impact on the environment due to its GHG emissions. As discussed under Cumulative Impacts, the Project would be consistent with CARB's *Climate Change Scoping Plan* for the implementation of AB 32 and would comply with the County of Los Angeles Green Building Standards. Therefore, the Project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

4. Cumulative Impacts

Although the Project is expected to emit GHGs, the emission of GHGs by a single project into the atmosphere is not itself necessarily an adverse environmental effect. Rather, it is the increased accumulation of GHG from more than one project and many sources in the atmosphere that may result in global climate change. The resultant consequences of that climate change can cause adverse environmental effects. A

[49] *As discussed above, the Project scenario conservatively did not include actions and mandates that are not already in place but are expected to be in force in 2020 (e.g., Pavley II), which could further reduce GHG emissions from use of light-duty vehicles by 2.5 percent.*

project's GHG emissions typically would be very small in comparison to state or global GHG emissions and, consequently, they would, in isolation, have no significant direct impact on climate change. The State has mandated a goal of reducing statewide emissions to 1990 levels by 2020, even though statewide population and commerce is predicted to continue to expand. In order to achieve this goal, the CARB is in the process of establishing and implementing regulations to reduce statewide GHG emissions. However, currently there are no applicable CARB, SCAQMD, or County of Los Angeles significance thresholds or specific reduction targets, and no approved policy or guidance to assist in determining impact significance at the project or cumulative levels. Additionally, there is currently no generally accepted methodology to determine whether GHG emissions associated with a specific project represents new emissions or existing, displaced emissions.

Table IV.C-6 on page IV.C-34 illustrates that implementation of project design features included throughout this Draft EIR, the requirements set forth in the County of Los Angeles Green Building Standards Code, and full implementation of current State mandates would contribute to GHG reductions. These reductions represent a reduction from BAU and support State goals for GHG emissions reduction. The methods used to establish this relative reduction are consistent with the approach used in the CARB's *Climate Change Scoping Plan* for the implementation of AB 32.

The Project is consistent with the approach outlined in CARB's *Climate Change Scoping Plan*, particularly its emphasis on the identification of emission reduction opportunities that promote economic growth while achieving greater energy efficiency and accelerating the transition to a low-carbon economy. In addition, as recommended by CARB's *Climate Change Scoping Plan*, the Project would use "green building" features as a framework for achieving cross-cutting emissions reductions.

The Project also would comply with the County of Los Angeles Green Building Standards Code, which emphasizes improving energy conservation and energy efficiency, increasing renewable energy generation, and changing transportation and land use patterns to reduce auto dependence. Implementation of project design features included throughout this Draft EIR would advance these objectives. Further, the related projects would also be anticipated to comply with many of these same emissions reduction goals and objectives (e.g., the County of Los Angeles Green Building Standards Code).

As part of SCAG's 2012-2035 SCS/RTP, a reduction in VMT within the region is a key component to achieve the 2020 and 2035 GHG emission reduction targets established by CARB. The Project results in a VMT reduction of 21 percent in comparison to BAU, and as such, would be consistent with the SCS/RTP.

With implementation of the project design features included throughout this Draft EIR, the Project results in a 16.4 percent reduction in GHG emissions from BAU. As such, the Project would be consistent with AB 32.

Given the Project's consistency with State, SCAG, and County of Los Angeles GHG emission reduction goals and objectives, the Project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. In the absence of adopted standards and established significance thresholds, and given this consistency, the Project's impacts are concluded to be less than significant and not cumulatively considerable.

5. Mitigation Measures

The Project would comply with applicable regulatory requirements, including the provisions set forth in the 2013 CALGreen Code that have been incorporated into the County of Los Angeles Green Building Standards Code. Impacts related to climate change would be less than significant, and no mitigation measures are required.

6. Conclusion

Impacts with regards to climate change would be less than significant.