

4.15 CLIMATE CHANGE

It is widely recognized that anthropogenic emissions of greenhouse gases⁶² (GHGs) and aerosols are contributing to changes in the global climate, and that such changes are having and will have adverse effects on the environment, the economy, and public health. These are cumulative effects of past, present, and future actions worldwide. While worldwide contributions of GHG emissions are expected to have widespread consequences, it is not possible to link particular changes to the environment of California to GHGs emitted from a particular source or location. However, when considering a project's contribution to impacts from climate change, it is possible to examine the quantity of GHG emissions that would be emitted either directly from project sources or indirectly from other sources, such as production of electricity. However, that quantity cannot be tied to a particular adverse effect on the environment of California associated with climate change.

During buildout and operation of the Beach and Edinger Corridors Specific Plan (referred to as the proposed Specific Plan), GHGs would be emitted as the result of construction activities and deliveries; new direct operational sources, such as operation of emergency generators, natural gas usage, and operation of fleet vehicles; and indirect operational sources, such as production of electricity, steam and chilled water, transport of water, and decomposition of project-related wastes. GHGs would also be emitted by visitors and employees travelling to and from the Specific Plan area (referred to as the project site). This EIR section discusses how buildout of the proposed Specific Plan would contribute to emissions of GHGs.

The State of California, through Assembly Bill (AB) 32 and Executive Order S-3-05, has set statewide targets for the reduction of GHG emissions (refer to Section 4.15.2 [Regulatory Setting]). The California Air Pollution Control Officers Association's (CAPCOA) technical report, *CEQA and Climate Change*, states: "The goal of AB 32 and S-3-05 is the significant reduction of future GHG emissions in a state that is expected to rapidly grow in both population and economic output" (CAPCOA 2008, 32). Accordingly, to achieve the state's goals, there will have to be a significant reduction in per capita GHG emissions. While CEQA focuses on emissions associated with new development, other regulatory means will need to be implemented to address reductions in existing emissions.

For this EIR, emissions from sources such as construction, vehicles, energy consumption, solid waste generation, and water distribution are inventoried and discussed quantitatively and qualitatively. All emissions inventories are presented in metric tons unless otherwise indicated. Appendix I contains the greenhouse gas worksheet that was used to calculate data for this section.

Data used to prepare this section were taken from various sources, including advice for preparing CEQA climate change analyses that was recently released by the California Office of Planning and Research (OPR) (OPR 2008) as well as approaches prepared by a number of professional associations and agencies that have published suggested approaches and strategies for complying with CEQA's environmental

⁶² For the purposes of this analysis, the term "greenhouse gases" refers to carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, those gases regulated under California Assembly Bill 32 and the Kyoto Protocol of the United Nations Framework Convention on Climate Change.

disclosure requirements. Such organizations include the California Attorney General's Office (AGO), the California Air Pollution Control Officers Association (CAPCOA), the United Nations and World Meteorological Organization's Intergovernmental Panel on Climate Change (IPCC), and the Association of Environmental Professionals (AEP). Full bibliographic entries for all reference materials are provided in Section 4.15.5 (References) at the end of this section.

All comments received in response to the IS/NOP circulated for the proposed project were taken into consideration during preparation of this EIR, and if relevant, have been addressed in the appropriate section within this document.

4.15.1 Environmental Setting

■ Overview

Global climate change refers to changes in the normal⁶³ weather of the earth measured by alterations in wind patterns, storms, precipitation, and temperature relative to historical averages. Such changes vary considerably by geographic location. Over time, the earth's climate has undergone periodic ice ages and warming periods, as observed in fossil isotopes, ice core samples, and through other measurement techniques. Recent climate change studies use the historical record to predict future climate variations and the level of fluctuation that might be considered statistically normal given historical trends.

Temperature records from the Industrial Age (ranging from the late 18th century to the present) deviate from normal predictions in both rate and magnitude. Most modern climatologists predict an unprecedented warming period during the next century and beyond, a trend that is increasingly attributed to human-generated GHG emissions resulting from the industrial processes, transportation, solid waste generation, and land use patterns of the twentieth and twenty-first centuries. According to the IPCC, GHG emissions associated with human activities have grown since pre-industrial times, increasing by 70 percent between 1970 and 2004 (IPCC 2007). Increased GHG emissions are largely the result of increasing fuel consumption, particularly the incineration of fossil fuels.

The IPCC modeled several possible emissions trajectories to determine what level of reductions would be needed worldwide to stabilize global temperatures and minimize climate change impacts. Regardless of the analytic methodology used, global average temperature and sea level were predicted to rise under all scenarios (IPCC 2007). In other words, there is evidence that emissions reductions can minimize climate change effects but cannot reverse them entirely. On the other hand, emissions reductions can reduce the severity of impacts, resulting in lesser environmental impacts. For example, the IPCC predicted that the range of global mean temperature change from year 1990 to 2100, given different emissions reductions scenarios, could range from 1.1°C to 6.4°C.

The GHG emissions from an individual project, even a very large development project, would not individually generate sufficient GHG emissions to measurably influence global climate change (AEP 2007). However, climate change is an irreversible, significant cumulative impact on a global scale.

⁶³ "Normal" weather patterns include statistically normal variations within a specified range.

Consideration of a project's impact to climate change, therefore, is essentially an analysis of a project's contribution to a cumulatively significant global impact through its emission of GHGs.

■ Greenhouse Gases

Gases that trap heat in the atmosphere are called GHGs because they transform the light of the sun into heat, similar to the glass walls of a greenhouse. Common GHGs include water vapor, carbon dioxide, methane, nitrous oxides, chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, ozone, and aerosols. Without the natural heat trapping effect of GHG, the earth's surface would be about 34°C cooler (California ARB 2006). However, it is believed that emissions from human activities, such as electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations. Global atmospheric concentrations of carbon dioxide, methane, and nitrous oxide have increased markedly since the late eighteenth century as a result of human activities and now far exceed pre-industrial values.

Climate change results from radiative forcings and feedbacks. Radiative forcing is defined as the difference between the radiation energy entering the earth's atmosphere and the radiation energy leaving the atmosphere. GHGs allow solar radiation to penetrate the earth's atmosphere but slow the release of atmospheric heat. A feedback is an internal process that amplifies or dampens the climate's response to a specific forcing. For example, the heat trapped by the atmosphere may cause temperatures to rise or may alter wind and weather patterns. A gas or aerosol's global warming potential is defined as its ability to trap heat in the atmosphere; it is the "cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference gas" (U.S. EPA 2006a).

Individual GHGs have varying global warming potentials and atmospheric lifetimes (see Table 4.15-1 [Global Warming Potentials and Atmospheric Lifetimes of Select Greenhouse Gases]). The carbon dioxide equivalent is a consistent methodology for comparing GHG emissions since it normalizes various GHG emissions to a consistent metric. The reference gas for global warming potential is carbon dioxide; carbon dioxide has a global warming potential of one. By comparison, methane's global warming potential is 21, as methane has a greater global warming effect than carbon dioxide on a molecule-to-molecule basis (U.S. EPA 2006b). One teragram (Tg, equal to one million metric tons) of carbon dioxide equivalent (CO₂e) is the mass of a project's emissions of an individual GHG multiplied by the gas's global warming potential.

Of all GHGs in the atmosphere, water vapor is the most abundant, important, and variable. It is not considered a pollutant; in the atmosphere, it maintains a climate necessary for life. The main source of water vapor is evaporation from the oceans (approximately 85 percent). Other sources include evaporation from other water bodies, sublimation (change from solid to gas) from ice and snow, and transpiration from plant leaves.

Table 4.15-1 Global Warming Potentials and Atmospheric Lifetimes of Select Greenhouse Gases

Gas	Atmospheric Lifetime (years)	Global Warming Potential (100-year time horizon)*
Carbon Dioxide	50–200	1
Methane	12 ±3	21
Nitrous Oxide	120	310
HFC-23	264	11,700
HFC-134a	14.6	1,300
HFC-152a	1.5	140
PFC: Tetrafluoromethane (CF ₄)	50,000	6,500
PFC: Hexafluoroethane (C ₂ F ₆)	10,000	9,200
Sulfur Hexafluoride (SF ₆)	3,200	23,900

SOURCE: U.S. EPA 2006b

* The GWP values shown correspond to the IPCC second assessment report (1996). Although a third assessment report was prepared in 2001 with different numbers, per the California Climate Action Registry, 1996 values are to be used to maintain consistency with international practice (GRP v.3.1, January 2009).

Carbon dioxide (CO₂) is an odorless, colorless gas, which has both natural and anthropogenic sources. Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources of carbon dioxide are from burning coal, oil, natural gas, and wood. Concentrations of carbon dioxide were 379 parts per million (ppm) in 2005, which equates to an increase of 1.4 ppm per year since 1960 (IPCC 2007). CO₂ is the most common GHG generated by California activities, constituting approximately 84 percent of all GHG emissions (CEC 2007). CO₂ emissions attributed to California activities are mainly associated with in-state fossil fuel combustion and fossil fuel combustion in out-of-state power plants supplying electricity to California. Other activities that produce CO₂ emissions include mineral production, waste combustion, and land use changes that reduce vegetation.

Methane (CH₄) is 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. A natural source of methane is from the anaerobic decay of organic matter. Geological deposits, known as natural gas fields, also contain methane, which is extracted for fuel. Other sources are landfills, fermentation of manure, and cattle.

Nitrous oxide (N₂O), also known as laughing gas, is produced naturally by microbial processes in soil and water. Anthropogenic sources of nitrous oxide include agricultural sources, industrial processing, fossil fuel-fired power plants, and vehicle emissions. Nitrous oxide also is used as an aerosol spray propellant and in medical applications.

Other gases that contribute to the greenhouse effect include ozone,⁶⁴ chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), and aerosols. Generally, this analysis focuses on the major sources of GHGs, including carbon dioxide, nitrous oxide, and methane because these are the gases currently regulated in the State of California.

■ Greenhouse Gas Emissions Inventories

Worldwide, United States, and California Inventories. A GHG inventory is an accounting of the amount of GHGs emitted to or removed from the atmosphere over a specified period of time attributed to activities by a particular entity (e.g., annual emissions and reductions attributed to the State of California). A GHG inventory also provides information on the activities that cause emissions and removals, as well as the methods used to make the calculations. In 2004, total worldwide GHG emissions were estimated to be 49,000 Tg CO₂e (IPCC 2007). In 2006, GHG emissions in the U.S. were 7,054 Tg CO₂e, a 14.7 percent increase over 1990 emissions (U.S. EPA 2008d).

California is the second largest contributor of GHG emissions in the U.S. and the sixteenth largest in the world (CEC 2007). In 2004, California produced 427 Tg CO₂e (CEC 2007), which is approximately six percent of 2004 U.S. emissions and 0.9 percent of global emissions. In California, the most common GHG is CO₂ from fossil fuel combustion, which constitutes approximately 81 percent of all GHG emissions (CEC 2007). The remainder of GHGs only makes up a small percentage of the total: nitrous oxide constitutes 6.8 percent, methane 6.4 percent, high global warming potential (GWP) gases 3.5 percent, and non-fossil fuel CO₂ emissions constitute 2.3 percent (CEC 2007). CO₂ emissions in California are mainly associated with fossil fuel consumption in the transportation sector (41.2 percent) with the industrial sector as the second-largest source (22.8 percent) (CEC 2007). Electricity production, from both in-state and out-of-state sources, agriculture, forestry, commercial, and residential activities comprise the balance of California's GHG emissions.

As part of the California Global Warming Solutions Act of 2006 (AB 32), discussed below, the California Air Resources Board (California ARB) is required to establish a statewide GHG emissions limit for 2020 equivalent to 1990 emissions. In addition, Executive Order S-3-05 sets the following statewide emissions targets: a reduction of GHG emissions to 2000 levels by 2010, a reduction of GHG emissions to 1990 levels by 2020, and a reduction of GHG emissions to 80 percent below 1990 levels by 2050. California ARB estimates that California's annual emissions were equivalent to 427 Tg CO₂e in 1990 and 452 Tg CO₂e in 2000 (California ARB 2007b).

Table 4.15-2 (California Greenhouse Gas Reductions Targets) shows quantified California statewide emissions targets (AB 32 and Executive Order S-3-05 targets) based on the California Energy Commission's (CEC) 2007 Inventory of Greenhouse Gases and Sinks. Table 4.15-2 also indicates how these thresholds compare to future population projections by showing how the reduction thresholds would translate on a per capita basis as California's population increases. This is provided for informational purposes only; there is no adopted per capita goal for GHG reductions.

⁶⁴ Ozone is a greenhouse gas; however, unlike other greenhouse gases, ozone in the troposphere is relatively short-lived. It is difficult to make an accurate determination of the contribution of ozone precursors (nitrogen oxides and volatile

City of Huntington Beach. Currently, the City of Huntington Beach does not have a completed inventory of GHG emissions in terms of CO₂e.

Table 4.15-2 California Greenhouse Gas Reductions Targets

Year ^a	Estimated California Population	Reduction Goal	Greenhouse Gas Target (Tg CO ₂ e)	Per Capita Target (metric tons CO ₂ e per person) ^b
1990	29,828,000	N/A	427.0	14.3
2000	34,105,437	N/A	452.3	13.3
2010	39,135,676	GHG emissions at or below 2000 levels ^c	452.3	11.6
2020	44,135,923	GHG emissions at or below 1990 levels	427.0	9.7
2050	59,507,876	GHG emissions 80% below 1990 levels ^d	341.6	5.7

SOURCE: Population data are from California Department of Finance, 2007; greenhouse gas targets are derived from California ARB, 2007. Greenhouse Gas Emissions Inventory Summary [1990 - 2004].

- a. Target years specified in Executive Order S-3-05 and/or AB 32. 1990 and 2000 data are provided as a baseline.
- b. Calculated by dividing the statewide GHG target by the projected population for each target year. 1 teragram (Tg) = 1 million metric tons = 1.1023 million short tons CO₂e.
- c. Based on 2004 estimate.
- d. Calculated by taking 80 percent of 427.0.

■ Predicted Effects of Climate Change

Climate change could have a number of adverse effects. Although these effects would have global consequences, in most cases they would not disproportionately affect any one site or activity. In other words, many of the effects of climate change are not site-specific. Emission of GHGs would contribute to the changes in the global climate, which would in turn, have a number of physical and environmental effects. A number of general effects, some of which may not occur in the project site, are discussed below.

Sea Level Rise and Flooding. The California Climate Action Team predicts that sea level in California will rise between 60 to 140 centimeters (cm) (1.9 to 4.6 feet) above existing mean sea level (msl) by 2100 as a result of climate change (CCAT 2009). When combined with astronomical tides, even a one-foot increase in msl would result in the 100-year event high tide peak occurring at the 10-year event frequency (Floyd et al. 2006). In other words, the frequency of a current 100-year high tide (about 9.5 feet above current msl) would occur 10 times more often when sea levels increase to one foot above current msl.

In the future, precipitation events are predicted to vary in terms of timing, intensity, and volume according to many climate change models (U.S. EPA 2008c). Extreme storm events may occur with greater frequency (U.S. EPA 2008c). The effect on peak runoff is not known because most climate change models have not used a temporal (or spatial) scale necessary to identify effects on peak flows, and existing precipitation/runoff models for assessing the effects of climate change do not yet adequately predict rainfall/runoff scenarios (Anderson 2006). Changes in rainfall and runoff could affect flows in surface water bodies, causing increased flooding and runoff to the storm drain system. However, the

organic compounds) to global climate change (California EPA 2004).

effect that future changes to the hydrologic cycle may have on the project site is speculative and is not addressed further in this document.

Water Supply. California Health and Safety Code Section 38501(a) recognizes that “[climate change] poses a serious threat to the economic well-being, public health, natural resources, and the environment of California,” and notes, “the potential adverse impacts of [climate change] include...reduction in the quality and supply of water to the state from the Sierra snowpack.” As most of the State depends on surface water supplies originating in the Sierra Nevada, this water supply reduction is a concern. Most of the scientific models addressing climate change show that the primary effect on California’s climate would be a reduced snow pack and a shift in stream-flow seasonality. A higher percentage of the winter precipitation in the mountains would likely fall as rain rather than as snow in some locations, reducing the overall snowpack. Further, as temperatures rise, snowmelt is expected to occur earlier in the year; as a result, peak runoff would likely come a month or so earlier. The end result of this would be that the state may not have sufficient surface storage to capture the resulting early runoff, and so, absent construction of additional water storage projects, a portion of the current supplies would be lost to the oceans, rather than be available for use in the State’s water delivery systems.

Changing climatic conditions could also shift the timing of snowmelt, so that peak runoff would occur earlier in the spring. This shift could affect the availability of the seasonal water supply, particularly during the hot summer months. Variation in the annual water supply is discussed in further detail in the Water Supply Assessment (WSA) prepared for the proposed project (refer to Appendix G).

Water Quality (IPCC 2007). Climate change could have adverse effects on water quality, which would in turn affect the beneficial uses (habitat, water supply, etc.) of surface water bodies and groundwater. The changes in precipitation discussed above could result in increased sedimentation, higher concentration of pollutants, higher dissolved oxygen levels, increased temperatures, and an increase in the amount of runoff constituents reaching surface water bodies. Sea level rise, discussed above, could result in the encroachment of saline water into freshwater bodies.

Ecosystems and Biodiversity (U.S. EPA 2008a). Climate change is expected to have effects on diverse types of ecosystems, from alpine to deep-sea habitat. As temperatures and precipitation change, seasonal shifts in vegetation will occur; this could affect the distribution of associated flora and fauna species. As the range of species shifts, habitat fragmentation could occur, with acute impacts on the distribution of certain sensitive species. The IPCC states that “20 percent to 30 percent of species assessed may be at risk of extinction from climate change impacts within this century if global mean temperatures exceed 2 to 3°C (3.6 to 5.4°F) relative to pre-industrial levels” (IPCC 2007). Shifts in existing biomes could also make ecosystems vulnerable to invasive species encroachment. Wildfires, which are an important control mechanism in many ecosystems, may become more severe and more frequent, making it difficult for native plant species to repeatedly re-germinate. In general terms, climate change is expected to put a number of stressors on ecosystems, with potentially catastrophic effects on biodiversity.

Human Health Impacts (U.S. EPA 2008c). Climate change may increase the risk of vector-borne infectious diseases, particularly those found in tropical areas and spread by insects—malaria, dengue fever, yellow fever, and encephalitis. Cholera, which is associated with algal blooms, could also increase.

While these health impacts would largely affect tropical areas in other parts of the world, effects would also be felt in California. Warming of the atmosphere would be expected to increase smog and particulate pollution, which could adversely affect individuals with heart and respiratory problems, such as asthma. Extreme heat events would also be expected to occur with more frequency, and could adversely affect the elderly, children, and the homeless. Finally, the water supply impacts and seasonal temperature variations expected as a result of climate change could affect the viability of existing agricultural operations, making the food supply more vulnerable.

4.15.2 Regulatory Setting

■ Federal/International

The following summarizes the international and federal regulations that have been put forth to assess and reduce the potential impacts of human induced climate change, as well as reducing human-produced GHGs. However, at this point, none of these international treaties or federal plans has been shown to reduce GHG production or limit the process of global climate change. Further, none of the treaties or plans pertains directly to the proposed project. They are listed to give the reader context regarding the current national regulatory and judiciary response to the climate change issue.

Montreal Protocol

The Montreal Protocol was signed in 1987 and amended in 1990 and 1992. The Montreal Protocol governs compounds that deplete ozone in the stratosphere—chlorofluorocarbons (CFCs), halons, carbon tetrachloride, and methyl chloroform. The Protocol provided that these compounds were to be phased out by 2000 (2005 for methyl chloroform). In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change (IPCC) to assess “the scientific, technical and socioeconomic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation” (Ontario 2007).

Kyoto Protocol

On March 21, 1994, the United States joined a number of countries around the world in signing the United Nations Framework Convention on Climate Change (UNFCCC). Under the Convention, governments: “gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change” (IPCC 2004).

A particularly notable result of UNFCCC efforts was a treaty known as the Kyoto Protocol. Countries sign the treaty to demonstrate their commitment to reducing GHG emissions or to engaging in emissions trading. More than 160 countries representing 55 percent of global emissions (not including the United States) are currently participating in the protocol. In 1998, U. S. Vice President, Al Gore, symbolically

signed the Protocol; however, in order for the Protocol to be formally ratified the U.S. Congress must adopt it, which has not yet occurred.

Climate Change Action Plan

In October 1993, President Clinton announced his *Climate Change Action Plan*, with the goal of returning GHG emissions to 1990 levels by the year 2000. This was to be accomplished through fifty initiatives, relying on innovative voluntary partnerships between the private sector and government aimed at producing cost-effective reductions in GHG emissions. As of September 2007, twenty states have completed comprehensive climate action plans that detail the steps each state can take to reduce their contribution to climate change. However, without specific targets for emissions reductions, incentives for cleaner technologies, or other clear policies, climate action plans cannot achieve real reductions in GHG emissions (IPCC 2004).

Supreme Court Case 05-1120

The United States Environmental Protection Agency (EPA) currently does not regulate GHG emissions from motor vehicles. *Massachusetts v. EPA* (Supreme Court Case 05-1120) was argued before the U.S. Supreme Court on November 29, 2006, in which it was petitioned that EPA regulate four GHG, including carbon dioxide, under Section 202(a)(1) of the *Clean Air Act*. A decision was rendered on April 2, 2007, in which the Court held that petitioners have standing to challenge the EPA and that the EPA has statutory authority to regulate emission of GHG from motor vehicles.

Policy Consistency

None of these policies pertain directly to the proposed project. They are listed to give the reader context regarding the current national regulatory and judiciary response to the climate change issue.

■ State

Executive Order S-3-05

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05, setting statewide targets for the reduction of California's GHG emissions. The Executive Order S-3-05 targets require that GHGs be reduced to:

- 2000 levels by the year 2010,
- 1990 levels by the year 2020, and
- 80 percent below 1990 levels by the year 2050

The text of Executive Order S-3-05 does not explain how the targets should be applied to individual development projects.

Executive Order S-3-05 also established the Climate Action Team (CAT) for State agencies.

Assembly Bill 32

In 2006, the California State Legislature adopted AB 32, the *California Global Warming Solutions Act of 2006*, which focuses on reducing GHG emissions in California. GHGs, as defined under AB 32, include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. AB 32 requires the California Air Resources Board (California ARB), the State agency charged with regulating statewide air quality, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020. On or before June 30, 2007, California ARB is required to publish a list of discrete early action GHG emission reduction measures that can be implemented by 2010. The law further requires that such measures achieve the maximum technologically feasible and cost effective reductions in GHGs from sources or categories of sources to achieve the statewide GHG emissions limit for 2020.

A multi-agency group called the Climate Action Team (CAT) published a public review draft of *Proposed Early Actions to Mitigate Climate Change in California* in 2006. The *Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California* report prepared by California ARB (2007) describes additional recommendations for discrete early action measures to reduce GHG emissions. Most of the 2007 California ARB strategies are similar to those in the 2006 CAT Report.

Three new regulations are proposed to meet the definition of “discrete early action GHG reduction measures.” These include the following: a low carbon fuel standard; reduction of HFC-134a emissions from nonprofessional servicing of motor vehicle air conditioning systems; and improved landfill methane capture (California ARB 2007a). California ARB estimates that by 2020, the reductions from those three measures would be approximately 13 to 26 million metric tons of CO₂e. In addition, California ARB staff is working on several non-regulatory measures including guidance documents and protocols to encourage the public, local government, and businesses to take positive steps to reduce GHG emissions.

AB 32 also requires that by January 1, 2008, California ARB shall determine what the statewide GHG emissions level was in 1990, and approve a statewide GHG emissions limit that is equivalent to that level, to be achieved by 2020. As of December 2007, California ARB has approved a 2020 emissions limit of 427 million metric tons of CO₂e.

Title 24

Although it was not originally intended to reduce GHGs, by reducing California’s energy consumption, Title 24 has become a de facto means of reducing California’s GHG emissions. Energy efficient buildings require less electricity, and electricity production by fossil fuels results in GHG emissions. Therefore, increased energy efficiency results in decreased GHG emissions. The energy efficiency standards in Title 24 are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The latest amendments, made in October 2005, currently require new homes to use half the energy they used only a decade ago.

Senate Bill 1368

Senate Bill (SB) 1368 is the companion bill of AB 32 and was signed by Governor Schwarzenegger in September 2006. SB 1368 required the California Public Utilities Commission (PUC) to establish a GHG emission performance standard for baseload generation from investor-owned utilities by February 1, 2007. Similarly, the CEC was tasked with establishing a similar standard for local publicly owned utilities by June 30, 2007. These standards cannot exceed the GHG emission rate from a baseload combined-cycle natural gas fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the PUC and the CEC. In January 2007, the PUC adopted an interim GHG Emissions Performance Standard, which requires that all new long-term commitments for baseload generation entered into by investor-owned utilities have emissions no greater than a combined cycle gas turbine plant (i.e., 1,100 pounds of CO₂ per megawatt-hour [MWh]). A “new long-term commitment” refers to new plant investments (new construction), new or renewal contracts with a term of five years or more, or major investments by the utility in its existing baseload power plants. In May 2007, the CEC approved regulations that prohibit the state’s publicly owned utilities from entering into long-term financial commitments with plants that exceed the standard adopted by the PUC of 1,100 pounds of CO per MWh.

Senate Bill 1078

SB 1078 establishes a renewable portfolio standard (RPS) for electricity supply. The RPS requires that retail sellers of electricity, including investor-owned utilities and community choice aggregators, provide 20 percent of their supply from renewable sources by 2017. This target date was moved forward by SB 107 to require compliance by 2010. In addition, electricity providers subject to the RPS must increase their renewable share by at least one percent each year. The outcomes of this legislation would impact regional transportation powered by electricity.

Senate Bill 97

The provisions of Senate Bill 97, enacted in August 2007 as part of the State Budget negotiations, direct the Office of Planning and Research (OPR) to propose CEQA Guidelines advising lead agencies how to mitigate the impacts of GHG emissions. OPR has been directed to promulgate such guidelines by July 2009, and the Resources Agency has been directed to adopt such guidelines by January 2010. On April 13, 2009, OPR submitted to the California Secretary for Natural Resources its proposed amendments to the state CEQA Guidelines for GHG emissions, as required by Senate Bill 97. A summary of the proposed amendments are identified below.

Draft CEQA Guideline Amendments for Greenhouse Gas Emissions

The Draft CEQA Guideline Amendments, if adopted, would amend or add new text pertaining to GHG emissions to 14 sections of the CEQA Guidelines (Title 14, Chapter 3, of the *California Code of Regulations*). A brief summary of the proposed text revisions is provided below.

Section 15064.4. Determining the Significance of Impacts from Greenhouse Gas Emissions. This section would be added to clarify a lead agency’s responsibility in assessing GHG impacts. The text proposes general considerations that should be weighed when determining the significance of an effect:

- The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;
- The extent to which the project emissions exceed any threshold of significance that applies to the project; and
- The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such regulations must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project’s incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

Although the Draft CEQA Guideline Amendments have not yet been adopted, these considerations are weighed in the discussion of the proposed projects’ impacts, below. The Draft CEQA Guideline Amendments require that lead agencies “describe, calculate or estimate the amount of greenhouse emissions associated with a project” but leave the choice of a preferred methodology to the lead agency’s discretion. Qualitative or other performance-based standards may also be weighed.

Section 15126.4 Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects. The proposed text in this section states that lead agencies shall consider feasible means of mitigating GHG emissions that may include, but not be limited to:

- Measures in an existing plan or mitigation program for the reduction of emissions that are required as part of the lead agency’s decision
- Reductions in emissions resulting from a project through implementation of project features, project design, or other measures, such as those described in [CEQA Guidelines] Appendix F
- Off-site measures, including offsets, to mitigation a project’s emissions
- Measures that sequester greenhouse gases
- In the case of adoption of a plan, such as a general plan, long-range development plan, or greenhouse gas reduction plan, mitigation may include the identification of specific measures that may be implemented on a project-by-project basis. Mitigation may also include the incorporation of specific measures or policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions.

Section 15130. Discussion of Cumulative Impacts. The proposed text in this section simply states that the project should be considered in the context of past, current and foreseeable development to determine if a cumulatively considerable impact would result.

Section 15183.5. Tiering and Streamlining the Analysis of Greenhouse Gas Emissions. As a proposed addition to the CEQA Guidelines, this section identifies the method by which a programmatic

GHG analysis (i.e., General Plan, Long Range Development Plan, or other plan) may be used for tiering purposes for project-level analyses. This section also identifies the manner in which GHG reduction plans or climate action plans may be applied to project-level analyses.

Proposed CEQA Checklist Questions. Appendix G of the CEQA Guidelines contains a sample checklist that may be used by lead agencies when considering environmental impacts. Two new checklist questions have been proposed for GHG emissions:

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

However, the Draft CEQA Guidelines Amendment also proposes new cautionary text to clarify that the checklist must be used with discretion and may not cover all environmental impacts. The checklist questions are not necessarily intended to serve as significance criteria. Development of significance criteria is left to the discretion of local lead agencies.

OPR Technical Advisory, CEQA, and Climate Change

On June 19, 2008, OPR published a technical advisory on CEQA and Climate Change. The technical advisory is one in a series of advisories published by OPR as a service to professional planners, land use officials, and CEQA practitioners. The advisory provides OPR's perspective on the emerging role of CEQA in addressing climate change and GHG emissions, while recognizing that approaches and methodologies for calculating GHG emissions and addressing environmental impacts through CEQA review are rapidly evolving. The advisory recognizes that OPR will develop, and the Resources Agency will adopt, amendments to the CEQA Guidelines pursuant to SB 97. In the interim, the technical advisory "offers informal guidance regarding the steps lead agencies should take to address climate change in their CEQA documents" (OPR 2008, 2)

The technical advisory points out that neither CEQA nor the CEQA Guidelines prescribe thresholds of significance or particular methodologies for performing an impact analysis. As stated, "[t]his is left to lead agency judgment and discretion, based upon factual data and guidance from regulatory agencies and other sources where available and applicable" (OPR 2008, 4). OPR recommends that "the global nature of climate change warrants investigation of a statewide threshold of significance for GHG emissions" (OPR 2008, 4). Until such a standard is established, OPR advises that each lead agency should develop its own approach to performing an analysis for projects that generate GHG emissions (OPR 2008, 5).

OPR sets out the following process for evaluating GHG emissions. First, agencies should determine whether GHG emissions may be generated by a proposed project, and if so, they should quantify or estimate the emission by type or source. Calculation, modeling, or estimation of GHG emissions should include the emissions associated with vehicular traffic, energy consumption, water usage, and construction activities (OPR 2008, 5).

Agencies should then assess whether the emissions are “cumulatively considerable” even though a project’s GHG emissions may be individually limited. OPR states: “Although climate change is ultimately a cumulative impact, not every individual project that emits greenhouse gases must necessarily be found to contribute to a significant cumulative impact on the environment” (OPR 2008, 6). Individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice (OPR 2008, 6).

Finally, if the lead agency determines emissions are a cumulatively considerable contribution to a significant cumulative impact, the lead agency must investigate and implement ways to mitigate the emissions (OPR 2008, 6). OPR states:

Mitigation measures will vary with the type of project being contemplated, but include alternative project designs or locations that conserve energy and water, measures that reduce vehicle miles travelled (VMT) by fossil-fueled vehicles, measures that contribute to established regional or programmatic mitigation strategies, and measures that sequester carbon to offset the emissions from the project (OPR 2008, 6).

OPR concludes that “[a] lead agency is not responsible for wholly eliminating all greenhouse gas emissions from a project; the CEQA standard is to mitigate to a level that is ‘less than significant’” (OPR 2008, 7). The technical advisory includes a list of mitigation measures that can be applied on a project-by-project basis.

Senate Bill 375

Senate Bill (SB) 375, which establishes mechanisms for the development of regional targets for reducing passenger vehicle greenhouse gas emissions, was adopted by the State on September 30, 2008. SB 375 requires California ARB to develop vehicular greenhouse gas emissions reduction targets for 2020 and 2035 by September 30, 2010 in consultation with metropolitan planning organizations. SB 375 recognizes the importance of achieving significant greenhouse gas reductions by changing land use patterns and improving transportation alternatives. Through the SB 375 process, regions will develop sustainable communities plans designed to integrate development patterns and the transportation network in a way that reduces greenhouse gas emissions while meeting housing needs and other regional planning objectives. No sustainable communities plans have been adopted as of yet; therefore, no such plan would apply to the project.

Additional Climate Change Initiatives

Western Regional Climate Action Initiative. The Western Regional Climate Action Initiative was signed on February 26, 2007 by five states: Washington, Oregon, Arizona, New Mexico, and California. British Columbia, Canada joined on April 20, 2007. The Initiative calls for collaboration to identify, evaluate, and implement ways to reduce GHG emissions in the states collectively and to achieve related co-benefits. The Initiative calls for designing a regional market-based multi-sector mechanism, such as a load-based cap and trade program by August 2008. In addition, a multi-state registry would track, manage, and credit entities that reduce GHG emissions. California is also exploring the possibility of a cap and trade systems for GHGs. The Market Advisory Committee to California ARB published draft recommendations for designing a GHG cap and trade system for California (Ontario 2007).

Executive Order S-01-07. Governor Arnold Schwarzenegger enacted Executive Order S-01-07 on January 18, 2007. The order mandates that a statewide goal shall be established to reduce the carbon intensity of California’s transportation fuels by at least 10 percent by 2020. The process for meeting the 2020 target includes coordination between the California Environmental Protection Agency, the University of California, and the California Energy Commission to develop and propose a draft compliance schedule to meet the 2020 target by June 30, 2007. The order also requires that a Low Carbon Fuel Standard for transportation be established for California.

Executive Order S-13-08. On November 18, 2008, Governor Arnold Schwarzenegger issued Executive Order S-13-08, which mandates four particular items: 1) initiation of a statewide Climate Change Adaptation Strategy; 2) an evaluation of sea level rise impacts by the National Academy of Science; 3) issuance of interim guidance regarding sea level rise for coastal and floodplain areas; and 4) initiate studies of areas (specifically infrastructure projects and land use policies) vulnerable to sea level rise.

Assembly Bill 1493. Assembly Bill 1493, enacted on July 22, 2002, requires California ARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Regulations adopted by California ARB would apply to 2009 and later model year vehicles. California ARB estimates that the regulation would reduce climate change emissions from the light duty passenger vehicle fleet by an estimated 18 percent in 2020 and by 27 percent in 2030 (California ARB 2004).

Policy Consistency

The Western Regional Climate Action Initiative calls for the creation of a regional market-based emissions trading system. While opportunities for project mitigation may arise following development of this system, this policy is not presently relevant for local land use practices. Executive Order S-01-07 and AB 1493 establish statewide thresholds for vehicular fuel efficiency improvements. These policies are summarized for informational purposes only and do not apply to the proposed project. There would be no inconsistencies with these policies as a result of project implementation.

■ Regional

The People v. County of San Bernardino, Case No. CIVSS700329 (filed April 12, 2007; settlement announced August 21, 2007)

On April 12, 2007, the California Attorney General (AG) filed a writ of mandate against the County of San Bernardino for allegedly failing to adequately address climate change in the environmental impact report (EIR) evaluating San Bernardino County’s General Plan as required by CEQA. On August 21, 2007, the AG announced a “landmark settlement” of its lawsuit. This settlement “establishes one of the first greenhouse gas reduction plans in California,” a model the AG “encourage[s] other cities and counties to adopt.” Under the settlement, over the next thirty months San Bernardino will develop a Greenhouse Gas Emissions Reduction Plan requiring the development of: (1) an inventory of all known sources of GHGs in the County; (2) quantification of 1990, current, and 2020 GHG emissions from those sources; and (3) an emissions reduction target for the sources “attributable to the County’s discretionary land use decisions and the County’s internal government operations.” To meet its GHG

emission reductions target, San Bernardino County must formulate and implement mitigation measures to reduce GHG emissions.

It should be noted that in February 2008, the list of mitigation measures that could be implemented was further revised; and included the following guidelines as the applicability of the various mitigation measures:

This document provides information that may be helpful to local agencies in carrying out their duties under CEQA as they relate to global warming. Included in this document are various measures that may reduce the global warming related impacts of a project. As appropriate, the measures can be included as design features of a project, required as changes to the project, or imposed as mitigation (whether undertaken directly by the project proponent or funded by mitigation fees). The measures set forth in this package are examples; the list is not intended to be exhaustive. Moreover, the measures cited may not be appropriate for every project. The decision of whether to approve a project—as proposed or with required changes or mitigation—is for the local agency, exercising its informed judgment in compliance with the law and balancing a variety of public objectives.

■ Local

There are no local statutes related to global climate change that would apply to the proposed project.

4.15.3 Project Impacts and Mitigation

■ Analytic Method

The analysis in this section focuses on the nature and magnitude of the change in GHG emissions due to implementation of the proposed project. GHG emissions associated with the proposed project would result from operation of future project development and from future project-related traffic volumes. Construction activities would also generate emissions within the Specific Plan project site and on roadways resulting from construction-related traffic. Impacts associated with construction emissions are qualitatively analyzed. The net increase in GHG emissions generated by operation of future project development has been quantitatively estimated and compared to current known levels of GHG emissions within the State and country.

As stated in Section 4.2 (Air Quality) of this EIR, operational emissions associated with future development under the proposed project have been estimated using the URBEMIS 2007 computer model developed for the ARB, information provided in Chapter 3 (Project Description), and trip generation rates from the Traffic Study prepared for the proposed project, which is included in its entirety as Appendix F1 of this EIR. Operational emissions would be comprised of mobile source emissions and area source emissions. Mobile source emissions are generated by the increase in motor vehicle trips to and from the project site associated with operation of the proposed project. Area source emissions are generated by natural gas consumption for space and water heating, consumer products, and landscape maintenance equipment.

Background information for this EIR's analysis includes quantitative data from the San Joaquin Valley Air Pollution Control District (“SJVAPCD”); the San Joaquin Council of Governments (“SJCOG”); the California ARB website; *Alternative Approaches to Analyzing Greenhouse Gas Emissions and Global Climate Change in CEQA Documents* by the Association of Environmental Professionals (“AEP”); the Office of the California Attorney General Global Warming Mitigation Measures; and *More Than an Inconvenient Truth: Making Sense of the California Global Warming Solutions Act of 2006* by Morrison & Foerster LLP. Qualitative information was also included from the Intergovernmental Panel on Climate Change (IPCC) Climate Change 2007: Fourth Assessment Report.

Due to the nature of assessment of GHG emissions and the effects of global climate change, impacts can currently only be analyzed from a cumulative context. Therefore, the analysis provided below includes the examination of cumulative impacts as well as the project’s contribution to the cumulative impact.

■ Thresholds of Significance

The CEQA Guidelines do not provide numeric or qualitative thresholds of significance for GHG emissions. The Draft CEQA Guideline Amendments, released in April 2009, state that each local lead agency must develop its own significance criteria based on local conditions, data, and guidance from public agencies and other sources. The City has determined, based on full consideration of the available information, that, for the purposes of this analysis, the following thresholds will be considered to analyze the effects of a project on the production of GHGs and contribution to global climate change. Therefore, for the purposes of this analysis, a significant impact would occur if the project would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or,
- Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

According to OPR’s Draft CEQA Guideline Amendments (see Applicable Plans and Policies, above), project design features may be considered to “mitigate” GHGs. “Mitigation” may also include participation or compliance with a plan or mitigation program that would reduce GHG emissions. Although under CEQA mitigation is generally applied after presentation of a significance determination, the project’s mitigating characteristics are considered prior to presentation of a finding of significance. Additional mitigation, as necessary, is applied following the significance determination.

■ Effects Not Found to Be Significant

There are no Effects Not Found to be Significant with respect to global warming/GHG emissions.

■ Impacts and Mitigation Measures

Thresholds	<p>Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?</p> <p>and</p> <p>Would the project conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?</p>
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Impact 4.15-1 **Implementation of future development under the proposed project would contribute to greenhouse gas emissions in the state of California. However, with implementation of mitigation measures, this impact is considered *less than significant*.**

Construction

Future development under the proposed project would result in air emissions, including GHG emissions, as a result of the operation of heavy pieces of construction equipment, in addition to worker commute trips to and from various areas of the project site and building supply vendor vehicles. Because the specific size, location, and construction techniques and scheduling that will be utilized for future development occurring within the project site is not currently known, the provision of precise emission estimates for development is not currently feasible and would require the City to speculate regarding future projects' potential environmental impacts. As such, the City is not required to engage in such speculation (CEQA Guidelines, Section 15145). Nonetheless, construction of residential, office, and commercial mixed-uses under the proposed project would result in additional GHG emissions, which could represent a substantial contribution, and as such, this impact is considered potentially significant.

The California Climate Action Team (CCAT), established by Executive Order S-3-05 (discussed above) has recommended strategies, some of which apply to construction activities, to reduce GHG emissions at a statewide level to meet the goals of the executive order. In addition, the 2008 CAPCOA report, CEQA and Climate Change, includes numerous greenhouse-gas reducing measures. Further, the California Attorney General's Office has also published a list of recommendations of GHG reducing measures.

Section 15126.4(c) of the preliminary draft revisions to the CEQA Guidelines state that:

Consistent with section 15126.4(a), lead agencies shall consider feasible means of mitigating greenhouse gas emissions that may include, but not be limited to:

- (1) Measures in an existing plan or mitigation program for the reduction of emissions that are required, as part of the lead agency's decision;
- (2) Reductions in emissions resulting from a project through implementation of project features, project design, or other measures, such as those described in [CEQA] Appendix F;
- (3) Off-site measures, including off-sets, to mitigate a project's emissions;
- (4) Measures that sequester greenhouse gases; and
- (5) In the case of the adoption of a plan, such as a general plan, long-range development plan, or greenhouse gas reduction plan, mitigation may include the identification of specific measures that may be implemented on a project-by-project basis. Mitigation may also include the

incorporation of specific measures or policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions.

The CCAT has recommended strategies to reduce GHG emissions at a statewide level to meet the goals of Executive Order S-3-05. Therefore, project consistency with CCAT strategies is demonstrated below in Table 4.15-3 (Greenhouse Gas Emission Reduction Measures Incorporated during Project Construction). Although the Specific Plan does not include any specific development projects, future project-specific development would be required to adhere to the identified measures. In addition, the project's consistency with measures recommended by CAPCOA and the California Attorney General are also included.

CO₂e emissions associated with the duration of project construction over the buildout period of 2030 would contribute to the regional greenhouses gas inventory. Upon buildout of the Specific Plan, GHG emissions associated with project construction would cease. The mitigation measures listed above would reduce emissions of CO₂ from construction equipment. Incorporation of the construction-related mitigation measures listed in Table 4.15-3, in addition to those listed in Section 4.2 (Air Quality) of this EIR, would reduce emissions of GHGs during construction and would also reduce energy consumption.

Through the incorporation of specific measures that may be implemented on a project-by-project basis as identified in the table above, the proposed Specific Plan would be adhering to the guidance in the draft amendments to CEQA Guidelines Section 15064.4. In particular, because the identified measures are part of larger strategic programs designed to reduce GHG emissions at a statewide level, the proposed project would be consistent with the plans, programs, and regulations adopted to implement AB 32. Further, a lead agency may rely on qualitative or other performance-based standards for estimating the significance of GHG emissions. Therefore, since the project includes measures that are consistent with strategies recommended by the CCAT, CAPCOA, and the California Attorney General, the impact associated with GHG emissions during future project-related construction activities would be *less than significant*.

Operation

Implementation of the Specific Plan would generate GHGs through the operation of new residential, commercial, and office mixed-uses. As noted in Chapter 3 (Project Description), buildout of the Specific Plan would result in a net increase of 6,400 residential units and a hotel. Although the Specific Plan project site would be redeveloped with certain retail and office uses, there would be a net decrease in the overall square footage of these use types compared to existing conditions. Operational GHG emissions from the development under the proposed Specific Plan would include direct sources such as motor vehicles, natural gas consumption, solid waste handling/treatment, and indirect sources such as electricity generation. These net emissions are shown below for full build-out of the proposed project.

Table 4.15-3 Greenhouse Gas Emission Reduction Measures Incorporated during Project Construction

<i>Greenhouse Gas Emissions Reduction Strategies</i>	<i>Proposed Project Design/Mitigation Measure for Compliance</i>
CAPCOA MM C-1: ARB-Certified Diesel Construction Equipment	Mitigation Measure MM4.15-1 The City shall require by contract specifications that all diesel-powered equipment used would be retrofitted with after-treatment products (e.g., engine catalysts and other technologies available at the time construction commences) to the extent that they are readily available and cost effective when construction activities commence. Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Huntington Beach.
CAPCOA MM C-2: Alternative Fuel Construction Equipment	Mitigation Measure MM4.15-2 The City shall require by contract specifications that alternative fuel construction equipment (i.e., compressed natural gas, liquid petroleum gas, and unleaded gasoline) would be utilized to the extent feasible at the time construction activities commence. Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Huntington Beach.
CAPCOA MM C-3: Local Building Materials	Mitigation Measure MM4.15-3 The City shall require that developers within the project site use locally available building materials, such as concrete, stucco, and interior finishes, for construction of the project and associated infrastructure.
CAPCOA MM C-4: Recycle Demolished Construction Material	Mitigation Measure MM4.15-4 The City shall require developers within the project site to establish a construction management plan with Rainbow Disposal to divert a target of 50 percent of construction, demolition, and site clearing waste.
CCAT Standard Diesel Anti-idling: In July 2004, the California ARB adopted a measure to limit diesel-fueled commercial motor vehicle idling. Post signs that restrict idling; education for truck drivers regarding diesel health impacts.	Mitigation Measure MM4.15-5 The City shall require by contract specifications that construction equipment engines will be maintained in good condition and in proper tune per manufacturer's specification for the duration of construction. Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Huntington Beach. Mitigation Measure MM4.15-6 The City shall require by contract specifications that construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for more than five minutes. Diesel-fueled commercial motor vehicles with gross vehicular weight ratings of greater than 10,000 pounds shall be turned off when not in use for more than five minutes. Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Huntington Beach.
California Attorney General Strategy Diesel Anti-Idling: Set specific limits on idling time for commercial vehicles, including delivery vehicles.	Refer to Mitigation Measure MM4.15-6 above.
California Attorney General Strategy Solid Waste Reduction Strategy: Project construction shall require reuse and recycling of construction and demolition waste.	Refer to Mitigation Measure 4.15-4 above.

SOURCE: PBS&J 2009

Motor Vehicle GHG Emissions

The largest source of GHG emissions associated with the proposed project would be on- and off-site motor vehicle use. CO₂ emissions, the primary GHG from mobile sources, are directly related to the

quantity of fuel consumed. Two important determinants of transportation-related GHG emissions are VMT and vehicle fuel efficiency. VMT in the California region has steadily increased over the last quarter-century.

However, while gross incremental global warming impacts related to vehicle or energy usage associated with a project can be quantified, gross calculations result in the over-counting of emissions because they do not take into account the fact that these emissions are not “new” in a global sense, even if they are newly attributable to a particular project.⁶⁵ For example, to determine the increment of change in GHG emissions that is a result of a proposed project’s vehicle trips, it would not be sufficient or accurate simply to quantify GHG emissions based on vehicle miles traveled, unless those vehicle miles can be compared to the vehicle miles that are already being traveled by persons who may move to an area that is proposed to be developed. There is not yet any methodology for determining the increment of change that should be attributed to a project, which might result in some drivers relocating from other areas. Further, these calculations are “worst case” in that they do not take into account anticipated regulatory changes in vehicle efficiency standards that will reduce per vehicle GHG emissions over time.

The vehicular CO₂ emissions from operation of the proposed project at full build-out were estimated using URBEMIS 2007, an air quality modeling program recommended by the South Coast Air Quality Management District (SCAQMD). Vehicular source emissions are based on a net increase of approximately 25,503 daily trips generated by the proposed project over existing uses.⁶⁶ At build-out, the proposed project would generate 46,237 metric tons of CO₂e per year.⁶⁷ By comparison, buildout of the current General Plan for the Specific Plan area would be expected to generate up to 135,782 metric tons of CO₂e per year.⁶⁸

Electricity Use

Fuels that generate GHG emissions are combusted to produce electricity. Therefore, all projects that would result in an increase in electricity consumption also result in an indirect increase in electricity emissions. The generation of electricity through the combustion of fossil fuels typically yields CO₂ and, to a much smaller extent, CH₄ and N₂O. The project-related electricity emissions were estimated by applying emission factors to the estimated electricity use, which is expected to result in a net increase of approximately 35,574 megawatt-hours (MWh) per year, as shown in Table 4.15-4 (Estimated Electrical Demand and Associated Greenhouse Gas Emissions at Project Buildout). Annual GHG emissions from indirect electricity generation are estimated to be 11,735 metric tons CO₂e.

⁶⁵ This is distinguishable from standard air quality analysis, in which trips past a particular intersection are relevant to the emission levels at the intersection and to human health of inhabitants and passersby at that intersection.

⁶⁶ Consistent with the data presented in the June 2009 Traffic Study as prepared by Austin-Foust Associates, Inc.

⁶⁷ CO₂e have been calculated based on the net ADT resulting from the proposed specific plan, using URBEMIS 2007 defaults for average trip length.

⁶⁸ CO₂e have been calculated based on the net ADT resulting from the proposed specific plan, using URBEMIS 2007 defaults for average trip length. Trip rates may differ from those of the Specific Plan and are based on the net generation of the GP scenario shown in Table 3-1 of the *Traffic Study – Beach Boulevard and Edinger Avenue Corridor Specific Plan* prepared by Austin-Foust Associates (June 2009).

Table 4.15-4 Estimated Electrical Demand and Associated Greenhouse Gas Emissions at Project Buildout

Source of Emissions	Electricity Usage Rate (kWh/year/unit)	Electricity Use (kWh/year)	Annual CO ₂ e (metric tons)
Residential (6,400 units)	6,081 kWh/year/du	38,918,400	
Hotel (140,000 sf)	8.8 kWh/year/sf	1,088,000	
Retail (-178,000 sf)	11.8 kWh/year/sf	-2,100,400	
Office (-265,000 sf)	8.8 kWh/year/sf	-2,332,000	
Annual Total		35,574,000	11,735

SOURCE: SCAQMD, CEQA Air Quality Handbook, 1993; California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, Appendix C, January 2009.

Natural Gas Use

The project would generate direct emissions from on-site sources such as natural gas usage and, to a much smaller extent, landscaping equipment. Emissions from direct, on-site sources were calculated in URBEMIS 2007, which provides annual estimates of CO₂ (modeling outputs are available as Appendix I). GHG emissions associated with natural gas usage are estimated to be 16,550 metric tons CO₂e per year, as shown in Table 4.15-5 (Estimated Natural Gas Demand and Associated Greenhouse Gas Emissions at Project Buildout).

Table 4.15-5 Estimated Natural Gas Demand and Associated Greenhouse Gas Emissions at Project Buildout

Source of Emissions	Natural Gas Usage Rate (cf/year/unit)	Natural Gas Use (cf/year)	Annual CO ₂ e (metric tons)
Residential (6,400 units)	49,260	315,264,000	
Hotel (140,000 sf)	57.6	9,216,000	
Retail (-178,000 sf)	34.8	-6,194,400	
Office (-265,000 sf)	24	-6,360,000	
Annual Total		311,925,600	16,550

SOURCE: SCAQMD, CEQA Air Quality Handbook, 1993; California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, Appendix C, January 2009; U.S. Environmental Protection Agency, U.S. Greenhouse Gas Emissions and Sinks, 1990-2000 (April 2002).

Solid Waste

Solid waste generated by the project would also contribute to GHG emissions. Treatment and disposal of municipal, industrial, and other solid waste produces significant amounts of CH₄. In addition to CH₄, solid waste disposal sites also produce biogenic CO₂ and nonmethane volatile organic compounds (NMVOCs) as well as smaller amounts of N₂O, nitrogen oxides (NO_x) and carbon monoxide (CO). CH₄ produced at solid waste sites contributes approximately three to four percent to the annual global anthropogenic GHG emissions (IPCC 2006).

GHG emissions from solid waste generated by the project were estimated based on formulas provided in the State Workbook: Methodologies for Estimating Greenhouse Gas Emissions, which provides generation factors of GHGs from degradation and outgassing of landfill material. Landfill gas is approximately 50 percent CH₄ and 50 percent CO₂. According to the Workbook, N₂O emissions from landfills are considered negligible. At project buildout (2030), estimated annual emissions of GHGs from solid waste would be 3,675 metric tons CO₂e per year. It is important to note that this estimate is conservative and does not include any reductions from waste minimization practices and recycling/reuse policies that are commonly employed to reduce solid waste. Also, landfill gas recovery has become more common as a measure to reduce CH₄ emissions from solid waste disposal sites.

Water

While not as substantial as the contributions related to mobile sources, electricity, natural gas, and solid waste, the proposed project would contribute GHG emissions related to the distribution and treatment of domestic water supplies to the proposed uses. Based on the annual net increase in water demand of the proposed Specific Plan (384.4 million gallons per year or 1,180 AFY), estimated annual emissions of GHGs from water supplies would be 1,692 metric tons CO₂e per year at project buildout.

Other Greenhouse Gas Emissions

GHG emissions would also be generated during the treatment of wastewater generated by the project. However, it is not anticipated that such emissions would be substantial relative to other project emissions. According to the *Inventory of California Greenhouse Gas Emissions and Sinks*, wastewater treatment emissions represent only 0.6 percent of total statewide emissions (CEC 2006b).

Ozone is also a GHG; however, unlike the other GHGs, ozone in the troposphere is relatively short-lived and therefore is not global in nature. According to California ARB, it is difficult to make an accurate determination of the contribution of ozone precursors (NO_x and ROGs) to global warming (California ARB 2004). Therefore, it is assumed that project emissions of ozone precursors would not significantly contribute to global climate change. At present, there is a federal ban on CFCs; therefore, it is assumed the project would not generate emissions of these GHGs. The project may emit a small amount of HFC emissions from leakage and service of refrigeration and air conditioning equipment and from disposal at the end of the life of the equipment. However, the details regarding refrigerants to be used within the project site and the capacity of these are unknown at this time. PFCs and sulfur hexafluoride are typically used in industrial applications, none of which would be used by the project. Therefore, it is not anticipated the project would contribute significant emissions of these additional GHGs. Table 4.15-6 (Estimated Net Annual Operational Greenhouse Gas Emissions at Project Buildout) shows the net increase in emissions at buildout of the Specific Plan.

Table 4.15-6 Estimated Net Annual Operational Greenhouse Gas Emissions at Project Buildout

<i>Source of Emissions</i>	<i>CO₂e (metric tons)</i>	<i>Percent of Total</i>
Vehicular Use ^a	46,237	57.9
Electricity Use	11,735	14.7
Natural Gas Use	16,550	20.7
Solid Waste	3,675	4.6
Water	1,692	2.1
Annual Total	79,890	100

SOURCE: URBEMIS 2007 (Version 9.2.4), California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009.

a. Vehicular emissions are based on a net increase of 25,503 daily trips generated by the project compared to existing uses. Traffic data is based on the Traffic Study prepared by Austin-Foust Associates, Inc.

As shown in Table 4.15-6, at project buildout, emissions of GHGs from operational sources are estimated to be 79,890 metric tons of CO₂e per year. The largest contributor of GHGs is a result of vehicular use, which contributes over half (57.9 percent) of the overall total. The second largest contributor is natural gas use (20.7 percent), followed by electricity use (14.7 percent), solid waste generation (4.6 percent), and water treatment/distribution (2.1 percent). Estimates do not take into account any GHG reducing measures incorporated by the project.

Based on project operational GHG emissions estimates, it is not anticipated that the project emissions alone will substantially add to the global inventory of GHG emissions. The net increase in annual GHG emissions from the project (79,890 metric tons), in relation to California's current GHG emissions (484 million metric tons, according to the ARB's most recent 2004 inventory), would be 0.016 percent at build-out. It is clear that the proposed project's net contribution of CO₂e would be substantial. In addition, while ARB and OPR are continuing in their efforts to define the standards of analysis for GHGs, it is still uncertain as to how current regulations might affect CO₂e emissions attributable to the project and cumulative CO₂e from other sources in the cumulative global context. As such, impacts are considered *potentially significant*.

Section 15064.4(b)(3) states that a lead agency may consider 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. In addition, Section 15126.4(c) states that in the case of adoption of a plan (such as the proposed Specific Plan), mitigation may include the identification of specific measures that may be implemented on a project-by-project basis, or the incorporation of measures found in an adopted ordinance or regulation that reduces the cumulative effect of emissions. The reduction strategies contained within the CCAT Report to the Governor (CAT 2006) outline strategies for meeting the Governor's emission reduction targets contained in Executive Order S-3-05. The project design features and mitigation measures that are in compliance with CCAT strategies have been described in Table 4.15-7 (Greenhouse-Gas-Reducing Measures Incorporated During Project Operation). Many of the CCAT strategies are applicable only to agencies such as California ARB. Therefore, other sources including the California Attorney General have been used to identify additional measures that would be available to the project to reduce emissions of GHGs.

Table 4.15-7 Greenhouse-Gas-Reducing Measures Incorporated During Project Operation

<i>Greenhouse Gas Emissions Reduction Strategy</i>	<i>Proposed Project Design/Mitigation Measure for Compliance</i>
California Climate Action Team (CCAT) Recommendations	
<p>CCAT Standard</p> <p>Other Light Duty Vehicle Technology: New standards would be adopted to phase in beginning in the 2017 model.</p>	<p>These are California ARB enforced standards and vehicles that access the project are required to comply with the standards. Therefore, the project would be required to be consistent with these strategies, as appropriate.</p>
<p>CCAT Standard</p> <p>Heavy-Duty Vehicle Emission Reduction Measures:</p> <p>Increased efficiency in the design of heavy-duty vehicles and an education program for the heavy-duty vehicle sector.</p>	
<p>CCAT Standard</p> <p>Diesel Anti-Idling: In July 2004, the California ARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.</p> <p>Post signs that restrict idling; education for truck drivers regarding diesel health impacts.</p>	<p>Mitigation Measure MM4.15-7 The City shall require that any new development within the Specific Plan area provide signs within loading dock areas clearly visible to truck drivers. These signs shall state that trucks cannot idle in excess of five minutes per trip.</p>
<p>CCAT Standard</p> <p>Alternative Fuels—Ethanol: Increased use of ethanol fuel.</p>	<p>These are California ARB-enforced standards and vehicles that access the Specific Plan project site are required to comply with the standards. Therefore, the proposed project would be required to be consistent with these strategies, where applicable.</p>
<p>CCAT Standard</p> <p>Water Use Efficiency: Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce greenhouse gas emissions.</p> <p>Use both potable and non-potable water to the maximum extent practicable; low flow appliances (i.e., toilets, dishwashers, showerheads, washing machines, etc.); automatic shut off valves for sinks in restrooms; drought resistant landscaping; Place "Save Water" signs near water faucets.</p>	<p>New development within the project site would comply with Chapter 14.52 of the City's municipal code, which designates water efficiency policies for landscaping as well as the City's "HB Goes Green" policies and recommendations regarding water conservation practices, such as the use of native water efficient landscaping as well as reducing the amount of overspray from watering.</p>
<p>CCAT Standard</p> <p>Green Buildings Initiative: Green Building Executive Order, S-20-04 (CA 2004), sets a goal of reducing energy use in public and private buildings by 20 percent by the year 2015, as compared with 2003 levels.</p>	<p>Future development under proposed project would comply with the requirements of Title 24. Further, future Applicants within the project site will be required to use Energy Star appliances to the extent feasible in the residential and commercial components of the Specific Plan. Although specific materials to be used within the project site have not yet been determined, it is assumed that future development under the proposed project would utilize the most efficient and "green" products, where feasible. In addition, architectural regulations within the Specific Plan state that locally produced and recycled building materials should be used whenever possible.</p>
<p>CCAT Standard</p> <p>Building Energy Efficiency Standards in Place and in Progress: Public Resources Code 25402 authorizes the CEC to adopt and periodically update its building energy efficiency standards (that apply to newly constructed buildings and additions to and alterations to existing buildings).</p> <p>Projects required to achieve a greater reduction in combined space heating, cooling and water heating energy compared to the current Title 24 Standards.</p>	

Table 4.15-7 Greenhouse-Gas-Reducing Measures Incorporated During Project Operation

<i>Greenhouse Gas Emissions Reduction Strategy</i>	<i>Proposed Project Design/Mitigation Measure for Compliance</i>
<p>CCAT Standard</p> <p>Appliance Energy Efficiency Standards in Place and in Progress: Public Resources Code 25402 authorizes the Energy Commission to adopt and periodically update its appliance energy efficiency standards (that apply to devices and equipment using energy that are sold or offered for sale in California).</p>	
<p>CCAT Standard</p> <p>Transportation Refrigeration Units (TRU), Off-Road Electrification, Port Electrification: Strategies to reduce emissions from TRUs, increase off-road electrification, and increase use of shore-side/port electrification.</p> <p>If TRUs access the site, implement measures to reduce emissions; install electrification in applicable projects (i.e., truck stops, warehouses, etc.).</p>	<p>Mitigation Measure MM4.15-8 The City shall require by contract specifications that electrical outlets are included in the building design of future loading docks to allow use by refrigerated delivery trucks. Future project-specific Applicants shall require that all delivery trucks do not idle for more than five minutes. If loading and/or unloading of perishable goods would occur for more than five minutes, and continual refrigeration is required, all refrigerated delivery trucks shall use the electrical outlets to continue powering the truck refrigeration units when the delivery truck engine is turned off.</p>
<p>CCAT Standard</p> <p>Urban Forestry: A new statewide goal of planting 5 million trees in urban areas by 2020 would be achieved through the expansion of local urban forestry programs.</p> <p>Trees near structures shall be planted to act as insulators from weather, thereby decreasing energy requirements. Trees also store carbon.</p>	<p>Any development undertaken as part of the proposed project would be required to comply with the open space landscaping regulations in the Specific Plan.</p>
<p>CCAT Standard</p> <p>Smart Land Use and Intelligent Transportation Systems (ITS): Smart land use strategies encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density residential/commercial development along transit corridors. ITS is the application of advanced technology systems and management strategies to improve operational efficiency of transportation systems and movement of people, goods and services.</p>	<p>The proposed Specific Plan would facilitate medium to high-density mixed-use developments throughout areas of the project site that are currently dominated by commercial uses. Mixed-use projects encourage alternative modes of transportation by allowing more live-work opportunities to reduce automobile trips and subsequently help to improve regional air quality. The proposed project would provide for access to mass transit and encourage pedestrian access to retail and commercial establishments.</p>
<p>California Attorney General’s Office Recommended Strategies</p>	
<p>Diesel Anti-Idling:</p> <p>Set specific limits on idling time for commercial vehicles, including delivery vehicles.</p>	<p>See above discussion of Mitigation Measures MM4.15-6, MM4.15-7, and MM4.15-8.</p>
<p>Alternative Fuels—General:</p> <p>The project shall include the necessary infrastructure to encourage the use of alternative fuel vehicles (e.g., electric vehicle charging facilities and conveniently located alternative fueling stations).</p>	<p>Future developments within the project site will require the installation of facilities to support the use of alternative fuel vehicles, if feasible and available based on market conditions.</p>
<p>Transportation Emissions Reduction:</p> <p>Coordinate controlled intersections so that traffic passes more efficiently through congested areas. Where signals are installed, require the use of Light Emitting Diode (LED) traffic lights.</p>	<p>Where signals would be installed or modified as a result of identified mitigation, the City of Huntington Beach will install LED traffic lights where feasible.</p>

Table 4.15-7 Greenhouse-Gas-Reducing Measures Incorporated During Project Operation

<i>Greenhouse Gas Emissions Reduction Strategy</i>	<i>Proposed Project Design/Mitigation Measure for Compliance</i>
<p>Transportation Emissions Reduction:</p> <p>The project applicant shall promote ride sharing programs e.g., by designating a certain percentage of parking spaces for high-occupancy vehicles, providing larger parking spaces to accommodate vans used for ride-sharing, and designating adequate passenger loading and unloading and waiting areas.</p>	<p>Future development within the project site would be located along existing transit lines (OCTA Routes No. 29 and No. 70). In addition, future project Applicants would be encouraged to provide additional ride-sharing, transit programs, including informational kiosks (see MM4.15-9 below), on a project-by-project basis.</p>
<p>Transportation Emissions Reduction:</p> <p>Design a regional transportation center where public transportation of various modes intersects.</p>	<p>The proposed project would improve a central area of the City to better accommodate the needs of the City and focus development inward and near existing transit opportunities. The project site is located along major transportation corridors within the City. As existing public transit providers use these and other roadways in the project site vicinity, the proposed project would not conflict with this strategy.</p>
<p>Transportation Emissions Reduction:</p> <p>Provide shuttle service to public transit.</p>	<p>The proposed project would provide increased development proximate to existing transit opportunities. There is no need for shuttle services since public transit is within walking distance throughout project site.</p>
<p>Transportation Emissions Reduction:</p> <p>Incorporate bicycle lanes into the project circulation system.</p>	<p>Currently, bicycle facilities in the project site are nonexistent. Due to the high volumes of traffic on Beach Blvd. and Edinger Ave. these streets are not designated as bike routes. Bicycle traffic is, instead, directed to nearby parallel Class II routes along Newland Street, Gothard Ave., Heil Ave., and McFadden Ave. as well as the route connecting 5 points with Downtown along Main Street. One of the objectives of the Specific Plan is to enhance pedestrian, bicycle and vehicular connections between Golden West College, Bella Terra, Golden West Transportation Center, and development along Edinger Avenue.</p>
<p>Transportation Emissions Reduction:</p> <p>Provide on-site bicycle and pedestrian facilities (showers, bicycle parking, etc.) for commercial uses, to encourage employees to bicycle or walk to work.</p>	<p>Any new development, including within the project site, would be required to comply with Section 231.20 of the City Zoning Code, which sets requirements for the provision of bicycle parking depending on use type and scale.</p>
<p>Transportation Emissions Reduction:</p> <p>Provide public education and publicity about public transportation services.</p>	<p>Mitigation Measure MM4.15-9 The City shall require that any new development within the project site provide a bulletin board or kiosk in the lobby of each proposed structure that identifies the locations and schedules of nearby transit opportunities.</p>
<p>Water Use Efficiency:</p> <p>Require measures that reduce the amount of water sent to the sewer system-see examples in CCAT standard (Water Use Efficiency) above. (Reduction in water volume sent to the sewer system means less water has to be treated and pumped to the end user, thereby saving energy.)</p>	<p>Any future development under the Specific Plan would comply with the requirements of Title 24 with respect to water conservation. Further, the proposed project would comply with all policies established by the City's "HB Goes Green" campaign to reduce water waste, such as through the installation of low-flush toilets and faucet aerators to reduce overall water use where appropriate and feasible.</p>
<p>Energy Efficiency and Renewable Energy Standards:</p> <p>Project shall comply with LEED certified green building standards.</p>	<p>Future development would comply with the requirements of Title 24. Further, future project-specific Applicants will use Energy Star appliances to the extent feasible in the residential and commercial components of the Specific Plan.</p>
<p>Lighting Efficiency Standards:</p> <p>Require that the project include efficient lighting. (Fluorescent lighting uses approximately 75 percent less energy than incandescent lighting to deliver the same amount of light.)</p>	

Table 4.15-7 Greenhouse-Gas-Reducing Measures Incorporated During Project Operation

<i>Greenhouse Gas Emissions Reduction Strategy</i>	<i>Proposed Project Design/Mitigation Measure for Compliance</i>
<p>Smart Land Use and Intelligent Transportation Systems (ITS): Encourage mixed-use and high-density development to reduce vehicle trips, promote alternatives to vehicle travel, and promote efficient delivery of services and goods.</p>	<p>The proposed Specific Plan would facilitate medium to high-density mixed-use developments throughout areas of the project site that are currently dominated by commercial uses. Mixed-use projects encourage alternative modes of transportation by allowing more live-work opportunities to reduce automobile trips and subsequently help to improve regional air quality. In addition, the project site is located along existing transit opportunities and major thoroughfares.</p>
<p>Smart Land Use and Intelligent Transportation Systems (ITS): Impose measures to address the “urban heat island” effect by, e.g., requiring light-colored and reflective roofing materials and paint; light-colored roads and parking lots; shade trees in parking lots; and shade trees on the south and west sides of new or renovated buildings.</p>	<p>The proposed Specific Plan includes extensive street design features that would include landscaping to provide shading of structures and sidewalks to reduce the “urban heat island” effect.</p>
<p>Smart Land Use and Intelligent Transportation Systems (ITS): Incorporate public transit into project design.</p>	<p>As stated previously, the project area is located in close proximity to existing transit opportunities. By locating the additional development intensities of the proposed Specific Plan along existing transit routes, this measure is satisfied.</p>
<p>Smart Land Use and Intelligent Transportation Systems (ITS): Require pedestrian-only streets and plazas within the project site and destinations that may be reached conveniently by public transportation, walking, or bicycling.</p>	
<p>Smart Land Use and Intelligent Transportation Systems (ITS): Discourage “leapfrog” development. Enact ordinances and programs to limit sprawl.</p>	<p>The proposed project would involve redeveloping parcels in the central portion of the City, which would result in lower overall emissions in comparison with a similar level of development that would be undertaken at an undeveloped site. The Specific Plan would result in increased densities of mixed-uses within an area currently dominated by commercial uses, thus reducing the potential for urban sprawl.</p>

SOURCE: CCAT, 2006, California Attorney General, December 2008.

It should be noted that many of the emissions reduction strategies in this table relate to technologies that are evolving and will evolve, or become available, during build-out of the Specific Plan. Some of these measures also relate to emissions reduction strategies that must be implemented on an area-wide or regional basis. Thus, several of these measures will be implemented over time as implementation becomes practicable, and the wording of these additional measures reflects that condition.

As shown in Table 4.15-7, the project complies with all feasible and applicable measures recommended by the CCAT and the California Attorney General. Incorporation of the above measures would reduce overall GHG emissions from future development that would occur under the proposed project. It should be noted that reduction estimates vary widely and not all recommended measures have reduction estimates associated with them. Further reductions through incorporation of the measures recommended by the CCAT and California Attorney General are not readily quantifiable at this time.

According to the 2008 OPR technical advisory, although climate change is ultimately a cumulative impact, not every individual project that emits GHGs must necessarily be found to contribute to a significant cumulative impact on the environment. Reliance on previously approved plans and mitigation programs that have adequately analyzed and mitigated GHG emissions may be used as a means to avoid or substantially reduce the cumulative impact of a project. The proposed project would incorporate all feasible GHG reduction measures recommended by the CAT and the California Attorney General. In

addition, the Specific Plan would allow redevelopment of an existing area central to the City of Huntington Beach, which results in lower overall emissions in comparison with a similar level of development that would be undertaken at an undeveloped site. This type of growth is consistent with the Statewide strategy for achieving the goals set forth in AB 32. Further, buildout of the Specific Plan would ultimately result in fewer traffic trips compared to the development that is currently permitted in the General Plan because commercial and office uses would be redeveloped as residential mixed-uses. Consequently, the proposed project would result in a reduction of emissions over the long-term compared to the General Plan.

Incorporation of the mitigation measures listed above and repeated here would reduce emissions of GHGs during operation of future development under the proposed project.

- MM4.15-1 The City shall require by contract specifications that all diesel-powered equipment used would be retrofitted with after-treatment products (e.g., engine catalysts and other technologies available at the time construction commences) to the extent that they are readily available and cost effective when construction activities commence. Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Huntington Beach.*
- MM4.15-2 The City shall require by contract specifications that alternative fuel construction equipment (i.e., compressed natural gas, liquid petroleum gas, and unleaded gasoline) would be utilized to the extent feasible at the time construction activities commence. Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Huntington Beach.*
- MM4.15-3 The City shall require that developers within the project site use locally available building materials, such as concrete, stucco, and interior finishes, for construction of the project and associated infrastructure.*
- MM4.15-4 The City shall require developers within the project site to establish a construction management plan with Rainbow Disposal to divert a target of 50 percent of construction, demolition, and site clearing waste.*
- MM4.15-5 The City shall require by contract specifications that construction equipment engines will be maintained in good condition and in proper tune per manufacturer's specification for the duration of construction. Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Huntington Beach.*
- MM4.15-6 The City shall require by contract specifications that construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for more than five minutes. Diesel-fueled commercial motor vehicles with gross vehicular weight ratings of greater than 10,000 pounds shall be turned off when not in use for more than five minutes. Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Huntington Beach.*
- MM4.15-7 The City shall require that any new development within the Specific Plan area provide signs within loading dock areas clearly visible to truck drivers. These signs shall state that trucks cannot idle in excess of five minutes per trip.*

- MM4.15-8 *The City shall require by contract specifications that electrical outlets are included in the building design of future loading docks to allow use by refrigerated delivery trucks. Future project-specific Applicants shall require that all delivery trucks do not idle for more than five minutes. If loading and/or unloading of perishable goods would occur for more than five minutes, and continual refrigeration is required, all refrigerated delivery trucks shall use the electrical outlets to continue powering the truck refrigeration units when the delivery truck engine is turned off.*
- MM4.15-9 *The City shall require that any new development within the project site provide a bulletin board or kiosk in the lobby of each proposed structure that identifies the locations and schedules of nearby transit opportunities.*

According to the guidance in the draft CEQA Guideline Section 15064.4, a lead agency may consider 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 when determining the significance of impacts. The reduction strategies contained within the CCAT Report to the Governor (CAT 2006) outline strategies for meeting the Governor’s emission reduction targets contained in Executive Order S-3-05. The project design features and mitigation measures that are in compliance with CCAT strategies have been described in Table 4.15-7. Many of the CCAT strategies are applicable only to agencies such as California ARB. Therefore, other sources including the California Attorney General have been used to identify additional measures that would be available on a project-by-project basis to reduce emissions of GHGs. Further, draft CEQA Guideline Section 15064.4(a)(2) states that a lead agency may rely on qualitative or other performance-based standards for estimating the significance of GHG emissions. Therefore, since the project includes measures that are consistent with strategies recommended by the CCAT and the California Attorney General and due to the type of development allowed under the proposed Specific Plan, the impacts associated with GHG emissions during project operation are considered *less than significant*.

4.15.4 References

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