# 4.6 GREENHOUSE GAS EMISSIONS

This section discusses the proposed project's potential impacts related to emissions of greenhouse gases (GHG) and global climate change. Traffic projections used in emissions estimates are based on a traffic study prepared by Associated Transportation Engineers (ATE) dated November 15, 2012. The traffic study is included as Appendix I to this EIR. All other GHG emissions model results and calculations are included in Appendix B.

## 4.6.1 Setting

**a. Climate Change and Greenhouse Gases.** Climate change is the observed increase in the average temperature of the Earth's atmosphere and oceans along with other substantial changes in climate (such as wind patterns, precipitation, and storms) over an extended period of time. The term "climate change" is often used interchangeably with the term "global warming," but "climate change" is preferred to "global warming" because it helps convey that there are other changes in addition to rising temperatures. The baseline against which these changes are measured originates in historical records identifying temperature changes that have occurred in the past, including previous ice ages. The global climate is continuously changing, as evidenced by repeated episodes of substantial warming and cooling documented in the geologic record. The rate of change has typically been incremental, with warming or cooling trends occurring over the course of thousands of years. The past 10,000 years have been marked by a period of incremental warming, as glaciers have steadily retreated across the globe. However, scientists have observed acceleration in the rate of warming during the past 150 years. Per the United Nations Intergovernmental Panel on Climate Change (IPCC, 2007), the understanding of anthropogenic warming and cooling influences on climate has led to a high confidence (90% or greater chance) that the global average net effect of human activities since 1750 has been one of warming. The prevailing scientific opinion on climate change is that most of the observed increase in global average temperatures, since the mid-20th century, is likely due to the observed increase in anthropogenic GHG concentrations (IPCC, 2007).

Gases that absorb and re-emit infrared radiation in the atmosphere are called greenhouse gases (GHGs). GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced climate change include carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxides ($N_2O$), fluorinated gases such as hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), and sulfur hexafluoride ($SF_6$). Water vapor is excluded from the list of GHGs because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

GHGs are emitted by both natural processes and human activities. Of these gases, $CO_2$ and $CH_4$ are emitted in the greatest quantities from human activities. Emissions of $CO_2$ are largely by-products of fossil fuel combustion, whereas $CH_4$ results from off-gassing associated with agricultural practices and landfills. Man-made GHGs, many of which have greater heat-absorption potential than $CO_2$, include fluorinated gases and sulfur hexafluoride ($SF_6$) (California Environmental Protection Agency [CalEPA], 2006). Different types of GHGs have varying global warming potentials (GWPs). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years). Because GHGs absorb different amounts of heat, a common reference gas ($CO_2$) is used to relate the amount of heat absorbed to the amount of the gas emissions, referred to as "carbon dioxide equivalent" ($CO_2E$), and is the amount of a GHG emitted multiplied by its GWP. Carbon dioxide has a GWP of one. By contrast, methane has a GWP of

21, meaning its global warming effect is 21 times greater than carbon dioxide on a molecule per molecule basis (IPCC, 1997).

The accumulation of GHGs in the atmosphere regulates the Earth's temperature. Without the natural heat trapping effect of GHG, Earth's surface would be about 34° C cooler (CalEPA, 2006). However, it is believed that emissions from human activities, particularly the consumption of fossil fuels for electricity production and transportation, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations. The following discusses the primary GHGs of concern.

Carbon Dioxide. The global carbon cycle is made up of large carbon flows and reservoirs. Billions of tons of carbon in the form of $CO_2$ are absorbed by oceans and living biomass (i.e., sinks) and are emitted to the atmosphere annually through natural processes (i.e., sources). When in equilibrium, carbon fluxes among these various reservoirs are roughly balanced (United States Environmental Protection Agency [U.S. EPA], April 2012). $CO_2$ was the first GHG demonstrated to be increasing in atmospheric concentration, with the first conclusive measurements being made in the last half of the 20$^{th}$ century. Concentrations of $CO_2$ in the atmosphere have risen approximately 40% since the start of the industrial revolution. The global atmospheric concentration of $CO_2$ has increased from a pre-industrial value of about 280 parts per million (ppm) to 391 ppm in 2011 (IPCC, 2007; Oceanic and Atmospheric Association [NOAA], 2010). The average annual $CO_2$ concentration growth rate was larger between 1995 and 2005 (average: 1.9 ppm per year) than it has been since the beginning of continuous direct atmospheric measurements (1960–2005 average: 1.4 ppm per year), although there is year-to-year variability in growth rates (NOAA, 2010). Currently, $CO_2$ represents an estimated 82.8% of total GHG emissions (Department of Energy [DOE] Energy Information Administration [EIA], August 2010). The largest source of $CO_2$, and of overall GHG emissions, is fossil fuel combustion.

Methane. Methane ($CH_4$) is an effective absorber of radiation, though its atmospheric concentration is less than that of $CO_2$ and its lifetime in the atmosphere is limited to 10 to 12 years. It has a global warming potential (GWP) approximately 21 times that of $CO_2$. Over the last 250 years, the concentration of $CH_4$ in the atmosphere has increased by 148 percent (IPCC, 2007), although emissions have declined from 1990 levels. Anthropogenic sources of $CH_4$ include enteric fermentation associated with domestic livestock, landfills, natural gas and petroleum systems, agricultural activities, coal mining, wastewater treatment, stationary and mobile combustion, and certain industrial processes (U.S. EPA, April 2012).

Nitrous Oxide. Concentrations of nitrous oxide ($N_2O$) began to rise at the beginning of the industrial revolution and continue to increase at a relatively uniform growth rate (NOAA, 2010). $N_2O$ is produced by microbial processes in soil and water, including those reactions that occur in fertilizers that contain nitrogen, fossil fuel combustion, and other chemical processes. Use of these fertilizers has increased over the last century. Agricultural soil management and mobile source fossil fuel combustion are the major sources of $N_2O$ emissions. The GWP of nitrous oxide is approximately 310 times that of $CO_2$.

Fluorinated Gases (HFCS, PFCS and $SF_6$). Fluorinated gases, such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfurhexafluoride ($SF_6$), are powerful GHGs that are emitted from a variety of industrial processes. Fluorinated gases are used as substitutes for ozone-depleting substances such as chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), and halons, which have been regulated since the mid-1980s because of their ozone-destroying potential and are phased out under the Montreal Protocol (1987) and Clean Air Act Amendments of 1990. Electrical transmission and distribution systems account for most $SF_6$ emissions, while PFC emissions result from semiconductor manufacturing and as a by-

product of primary aluminum production. Fluorinated gases are typically emitted in smaller quantities than $CO_2$, $CH_4$, and $N_2O$, but these compounds have much higher GWPs. $SF_6$ is the most potent GHG the IPCC has evaluated.

Greenhouse Gas Emissions Inventory. Worldwide anthropogenic emissions of GHGs were approximately 40,000 million metric tons (MMT) $CO_2E$ in 2004, including ongoing emissions from industrial and agricultural sources, but excluding emissions from land use changes (i.e., deforestation, biomass decay) (IPCC, 2007). $CO_2$ emissions from fossil fuel use account for 56.6 percent of the total emissions of 49,000 MMT $CO_2E$ (includes land use changes) and $CO_2$ emissions from all sources account for 76.7 percent of the total. Methane emissions account for 14.3 percent of GHGs and $N_2O$ emissions account for 7.9 percent (IPCC, 2007).

Total U.S. GHG emissions were 6,821.8 MMT $CO_2E$ in 2009 (U.S. EPA, April 2012). Total U.S. emissions have increased by 10.5 percent since 1990; emissions rose by 3.2 percent from 2009 to 2010 (U.S. EPA, April 2012). This increase was primarily due to (1) an increase in economic output resulting in an increase in energy consumption across all sectors; and (2) warmer summer conditions resulting in an increase in electricity demand for air conditioning. Since 1990, U.S. emissions have increased at an average annual rate of 0.5 percent. In 2010, the transportation and industrial end-use sectors accounted for 32 percent and 26 percent of $CO_2$ emissions from fossil fuel combustion, respectively. Meanwhile, the residential and commercial end-use sectors accounted for 22 percent and 19 percent of $CO_2$ emissions from fossil fuel combustion, respectively (U.S. EPA, April 2012).

Based upon the California Air Resources Board (ARB) California Greenhouse Gas Inventory for 2000-2009 (ARB, October 2011), California produced 453 MMT $CO_2E$ in 2009. Transportation generates 38 percent of the state's total GHG emissions. Electricity consumption is the second largest source, generating 23 percent of the state's GHG emissions (ARB, October 2012). California emissions are due in part to its large size and large population compared to other states. However, per capita GHG emissions are actually lower than in many other states. One factor that reduces California's per capita fuel use and GHG emissions, as compared to other states, is its relatively mild climate. The ARB has projected that statewide unregulated GHG emissions for the year 2020 will be 507 MMT $CO_2E$ (ARB, April 2012). This projection represents the emissions that would be expected to occur in the absence of any GHG reduction actions.

Potential Effects of Climate Change. Globally, climate change has the potential to affect numerous environmental resources through potential impacts related to future air temperatures and precipitation patterns. Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20$^{th}$ century. Scientists have projected that the average global surface temperature could rise by 1.0-4.5°F (0.6-2.5°C) in the next 50 years, and the increase may be as high as 2.2-10°F (1.4-5.8°C) in the next century. In addition to these projections, there are identifiable signs that global warming is currently taking place, including substantial ice loss in the Arctic (IPCC, 2007).

According to the CalEPA's *2010 Climate Action Team Biennial Report*, potential impacts of climate change in California may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years (CalEPA, April 2010). Below is a summary of some of the potential effects that could be experienced in California as a result of climate change.

*Sea Level Rise*. According to *The Impacts of Sea-Level Rise on the California Coast*, prepared by the California Climate Change Center (CCCC) (May 2009), climate change has the potential to induce substantial sea level rise in the coming century. The rising sea level increases the likelihood and risk of flooding. The study identifies a sea level rise on the California coast over the past century of approximately eight inches. Based on the results of various global climate change models, sea level rise is expected to continue. The California Climate Adaptation Strategy (December 2009) estimates a sea level rise of up to 55 inches by the end of this century.

*Air Quality*. Higher temperatures, which are conducive to air pollution formation, could worsen air quality in California. Climate change may increase the concentration of ground-level ozone, but the magnitude of the effect, and therefore its indirect effects, are uncertain. If higher temperatures are accompanied by drier conditions, the potential for large wildfires could increase, which, in turn, would further worsen air quality. However, if higher temperatures are accompanied by wetter, rather than drier conditions, the rains would tend to temporarily clear the air of particulate pollution and reduce the incidence of large wildfires, thereby ameliorating the pollution associated with wildfires. Additionally, severe heat accompanied by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the state (CEC March, 2009).

*Water Supply*. Analysis of paleoclimatic data (such as tree-ring reconstructions of stream flow and precipitation) indicates a history of naturally and widely varying hydrologic conditions in California and the west, including a pattern of recurring and extended droughts. Uncertainty remains with respect to the overall impact of climate change on future water supplies in California. However, the average early spring snowpack in the Sierra Nevada decreased by about 10 percent during the last century, a loss of 1.5 million acre-feet of snowpack storage. During the same period, sea level rose eight inches along California's coast. California's temperature has risen 1°F, mostly at night and during the winter, with higher elevations experiencing the highest increase.

This uncertainty complicates the analysis of future water demand, especially where the relationship between climate change and its potential effect on water demand is not well understood. The Sierra snowpack provides the majority of California's water supply by accumulating snow during wet winters and releasing it slowly when it is needed during dry springs and summers. Based upon historical data and modeling DWR projects that the Sierra snowpack will experience a 25 to 40 percent reduction from its historic average by 2050. Climate change is also anticipated to bring warmer storms that result in less snowfall at lower elevations, reducing the total snowpack (DWR, 2008).

*Hydrology*. As discussed above, climate change could potentially affect: the amount of snowfall, rainfall, and snow pack; the intensity and frequency of storms; flood hydrographs (flash floods, rain or snow events, coincidental high tide and high runoff events); sea level rise and coastal flooding; coastal erosion; and the potential for salt water intrusion. Sea level rise may be a product of climate change through two main processes: expansion of sea water as the oceans warm and melting of ice over land. A rise in sea levels could result in coastal flooding and erosion and could jeopardize California's water supply due to salt water intrusion. Increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.

*Agriculture*. California has a $30 billion agricultural industry that produces half of the country's fruits and vegetables. Higher $CO_2$ levels can stimulate plant production and increase plant water-use efficiency. However, if temperatures rise and drier conditions prevail, water demand could increase; crop-yield could be threatened by a less reliable water supply; and greater air pollution could render

plants more susceptible to pest and disease outbreaks. In addition, temperature increases could change the time of year certain crops, such as wine grapes, bloom or ripen, and thereby affect their quality (CCCC, 2006).

*Ecosystems and Biodiversity*. Climate change and the potential resulting changes in weather patterns could have ecological effects on a global and local scale. Increasing concentrations of GHGs are likely to accelerate the rate of climate change. Scientists project that the average global surface temperature could rise by 1.0-4.5°F (0.6-2.5°C) in the next 50 years, and 2.2-10°F (1.4-5.8°C) in the next century, with substantial regional variation. Soil moisture is likely to decline in many regions, and intense rainstorms are likely to become more frequent. Rising temperatures could have four major impacts on plants and animals: (1) timing of ecological events; (2) geographic range; (3) species' composition within communities; and (4) ecosystem processes, such as carbon cycling and storage (Parmesan, 2004; Parmesan, C. and H. Galbraith, 2004).

Local Effects of Climate Change. While the above discussion identifies the possible effects of climate change at a global and potentially statewide level, current scientific modeling tools are unable to predict with a similar degree of accuracy what local impacts may occur. In general, regional and local predictions are made based on downscaling statewide models (CalEPA, April 2010).

**b. Regulatory Setting**. The following regulations address both climate change and GHG emissions.

International Regulations. The United States is, and has been, a participant in the United Nations Framework Convention on Climate Change (UNFCCC) since it was established by the United Nations in 1992. The UNFCCC is an international environmental treaty with the objective of "stabilization of GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system" (UNFCCC, Article 2). This is generally understood to be achieved by stabilizing global GHG concentrations between 350 and 400 ppm, in order to limit the global average temperature increases between 2 and 2.4°C above pre-industrial levels (IPCC, 2007). The UNFCC itself does not set limits on GHG emissions for individual countries or enforcement mechanisms. Instead, the treaty provides for updates, called "protocols," that would identify mandatory emissions limits.

Five years later, the UNFCC brought nations together again to draft the *Kyoto Protocol* (1997). The Kyoto Protocol established commitments for industrialized nations to reduce their collective emissions of six GHGs ($CO_2$, $CH_4$, $N_2O$, $SF_6$, HFCs, and PFCs) to 5.2 percent below 1990 levels by 2012. The United States is a signatory of the Kyoto Protocol, but Congress has not ratified it. Therefore, the United States is not bound to the Protocol (UNFCCC, 2007). The first commitment period of the Kyoto Protocol ended in 2012. Governments, including 38 industrialized countries, agreed to a second commitment period of the Kyoto Protocol beginning January 1, 2013 and ending either on December 31, 2017 or December 31, 2020, to be decided by the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol at its seventeenth session (UNFCCC, November 2011).

In Durban (17$^{th}$ session of the Conference of the Parties in Durban, South Africa, December 2011), participating governments decided to adopt a universal legal agreement on climate change as soon as possible, but not later than 2015. Work will begin on this immediately under a new group called the Ad Hoc Working Group on the Durban Platform for Enhanced Action. Progress was also made regarding the creation of a Green Climate Fund (GCF) for which a management framework was adopted (UNFCCC, December 2011; United Nations, September 2012). The purpose of the GCF is to contribute to the

objective of the UNFCCC by "providing support to developing countries to limit or reduce greenhouse gas emissions and to adapt to the impacts of climate change" (GCF, 2014).

Federal Regulations. The United States is currently using a voluntary and incentive-based approach toward emissions reductions in lieu of the Kyoto Protocol's mandatory framework. The Climate Change Technology Program (CCTP) is a multi-agency research and development coordination effort led by the Secretaries of Energy and Commerce that is charged with carrying out the President's National Climate Change Technology Initiative (U.S. EPA, December 2007). However, the voluntary approach to address climate change and GHG emissions is changing. The United States Supreme Court in *Massachusetts v. Environmental Protection Agency* (2007) 549 U.S. 497, held that the U.S. EPA has the authority to regulate motor-vehicle GHG emissions under the federal Clean Air Act (42 U.S.C. § 7401).

The U.S. EPA issued a Final Rule for mandatory reporting of GHG emissions in October 2009. This Final Rule applies to fossil fuel suppliers, industrial gas suppliers, direct GHG emitters, and manufacturers of heavy-duty and off-road vehicles and vehicle engines, and requires annual reporting of emissions. The first annual reports for these sources were due in March 2011.

On May 13, 2010, the U.S. EPA issued a Final Rule that took effect on January 2, 2011, setting a threshold of 75,000 million tons (MT) $CO_2E$ per year for GHG emissions. New and existing industrial facilities that meet or exceed that threshold would require a permit. On November 10, 2010, the U.S. EPA published the "PSD and Title V Permitting Guidance for Greenhouse Gases." PSD stands for Prevention of Significant Deterioration. The U.S. EPA's guidance document is directed at state agencies responsible for air pollution permits under the federal Clean Air Act to help them understand how to implement GHG reduction requirements while mitigating costs for industry (PSD and Title V Permitting Guidance for Greenhouse Gases, Section I). It is expected that most states will use the U.S. EPA's new guidelines when processing new air pollution permits for power plants, oil refineries, cement manufacturing, and other large pollution point sources.

On January 2, 2011, the U.S. EPA implemented the first phase of the Tailoring Rule for GHG emissions under Title V (permitting) of the Clean Air Act. Under the first phase of the Tailoring Rule, all new sources of emissions are subject to GHG Title V permitting if they are otherwise subject to Title V for another air pollutant and emit at least 75,000 MT $CO_2E$ per year (40 CFR Parts 51, 52, 70, and 71). Under Phase 1, no sources are required to obtain a Title V permit solely due to GHG emissions. Phase 2 of the Tailoring Rule went into effect July 1, 2011. With Phase 2, new sources were subject to GHG Title V permitting if the source emits 100,000 MT $CO_2E$ per year, or they are otherwise subject to Title V permitting for another pollutant and emit at least 75,000 MT $CO_2E$ per year.

California Regulations. Assembly Bill (AB) 1493 (2002) (codified in 13 C.C.R. § 1962), referred to as "Pavley," requires ARB to develop and adopt regulations to achieve "the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles" (Section 43018.5(a) of AB 1493 (2002)). On June 30, 2009, EPA granted the waiver of Clean Air Act preemption to California for its GHG emission standards for motor vehicles beginning with the 2009 model year. Pavley I took effect for motor vehicles with model years starting in 2009 to 2016 and Pavley II which is now referred to as "LEV (Low Emission Vehicle) III GHG" will cover 2017 to 2025. Fleet average emission standards would reach 22 percent reduction by 2012 and 30 percent reduction by 2016.

In 2005, former Governor Schwarzenegger issued Executive Order (EO) S-3-05, establishing statewide GHG emissions reduction targets. EO S-3-05 provides that by 2010, emissions shall be reduced to 2000 levels; by

2020, emissions shall be reduced to 1990 levels; and by 2050, emissions shall be reduced to 80 percent below 1990 levels (CalEPA, 2006). In response to EO S-3-05, CalEPA created the Climate Action Team (CAT), which in March 2006 published the Climate Action Team Report (the "2006 CAT Report") (CalEPA, 2006). The 2006 CAT Report identified a recommended list of strategies that the state could pursue to reduce GHG emissions. These are strategies that could be implemented by various state agencies to ensure that the emission reduction targets in EO S-3-05 are met and can be met with existing authority of the state agencies. The strategies include the reduction of passenger and light duty truck emissions, the reduction of idling times for diesel trucks, an overhaul of shipping technology/infrastructure, increased use of alternative fuels, increased recycling, and landfill methane capture.

California's major initiative for reducing GHG emissions is outlined in Assembly Bill (AB) 32, the "California Global Warming Solutions Act of 2006," signed into law in 2006. AB 32 codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020 (essentially a 15% reduction below 2005 emission levels; the same requirement as under EO S-3-05), and requires ARB to prepare a plan, referred to as the "Scoping Plan" that outlines the main state strategies for reducing GHGs to meet the 2020 deadline. In addition, AB 32 requires ARB to adopt regulations to require reporting and verification of statewide GHG emissions.

After completing a comprehensive review and update process, the ARB approved a 1990 statewide GHG level and 2020 limit of 427 MMT $CO_2E$. The Scoping Plan was approved by ARB on December 11, 2008, and includes measures to address GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among other measures. The Scoping Plan includes a range of GHG reduction actions that may include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms.

Executive Order S-01-07 was enacted on January 18, 2007. The order mandates establishment of a Low Carbon Fuel Standard ("LCFS") for transportation fuels to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020.

Senate Bill (SB) 97, signed in August 2007, acknowledges that climate change is an environmental issue that requires analysis in CEQA documents. In March 2010, the California Resources Agency (Resources Agency) adopted amendments to the *CEQA Guidelines* for the feasible mitigation of GHG emissions or the effects of GHG emissions (§ 15064.4(b)(1)). The guidelines give lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts (§ 15064.7(c))

ARB Resolution 07-54 establishes 25,000 metric tons of GHG emissions as the threshold for identifying the largest stationary emission sources in California for purposes of requiring the annual reporting of emissions. This threshold is just over 0.005 percent of California's total inventory of GHG emissions for 2004.

SB 375, signed in August 2008, enhances the State's ability to reach AB 32 goals by directing ARB to develop regional GHG gas emission reduction targets to be achieved from vehicles for 2020 and 2035. In addition, SB 375 directs each of the state's 18 major Metropolitan Planning Organizations (MPO) to prepare a "sustainable communities strategy" (SCS) that contains a growth strategy to meet these emission targets for inclusion in the Regional Transportation Plan (RTP). On September 23, 2010, ARB adopted final regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035. The Santa Barbara County Association of Governments (SBCAG), the MPO for Santa Barbara County, must maintain or

reduce 2005 GHG emission levels in order to meet the SB 375 target. SBCAG is currently in the process of drafting a Regional Transportation Plan and Sustainable Communities Strategy (RTP-SCS) in accordance with SB 375. A draft of the RTP-SCS was released in April 2013 and the SBCAG Board adopted the RTP-SCS in August 2013.

In April 2011, Governor Brown signed SB 2X requiring California to generate 33% of its electricity from renewable energy by 2020.

For more information on the Senate and Assembly bills, Executive Orders, and reports discussed above, and to view reports and research referenced above, please refer to the following websites: www.climatechange.ca.gov and http://www.arb.ca.gov/cc/cc.htm.

*California Environmental Quality Act.* Pursuant to the requirements of SB 97, the Resources Agency has adopted amendments to the *CEQA Guidelines* for the feasible mitigation of GHG emissions or the effects of GHG emissions (§ 15064.4(b)(1))). As noted previously, the adopted *CEQA Guidelines* provide general regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents, while giving lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts (§ 15064.7(c)). To date, the Bay Area Air Quality Management District (BAAQMD), the South Coast Air Quality Management District (SCAQMD), the San Luis Obispo Air Pollution Control District (SLOAPCD), and the San Joaquin Air Pollution Control District (SJVAPCD) have adopted quantitative significance thresholds for GHGs. In March 2013 the BAAQMD's thresholds were overruled by the Alameda County Superior Court (*California Building Industry Association v. Bay Area Air Quality Management District*), on the basis that adoption of the thresholds constitutes a "project" under CEQA, but did not receive the appropriate environmental review. However, in August 2013, the First District Court of Appeal overturned this decision and upheld the BAAQMD's thresholds (*California Building Industry Association v. Bay Area Air Quality Management District* (CBIA), Case No. A135335 (Cal. Ct. App. 1st, August 13, 2013); Casper, 2013).

## 4.6.2 Impact Analysis

**a. Methodology and Significance Thresholds.** Pursuant to the requirements of SB 97, the Resources Agency adopted amendments to the *CEQA Guidelines* for the feasible mitigation of GHG emissions or the effects of GHG emissions in March 2010. These guidelines are used in evaluating the cumulative significance of GHG emissions from the proposed project. According to the adopted *CEQA Guidelines*, impacts related to GHG emissions from the proposed project would be significant if the project would:

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

The majority of individual projects do not generate sufficient GHG emissions to create a project-specific impact through a direct influence to climate change; therefore, the issue of climate change typically involves an analysis of whether a project's contribution towards an impact is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (CEQA Guidelines § 15355).

For future projects, the significance of GHG emissions may be evaluated based on locally adopted quantitative thresholds, or consistency with a regional GHG reduction plan (such as a Climate Action Plan). As neither the City nor the SBCAPCD has developed or adopted GHG significance thresholds, this analysis is based on the Bay Area Air Quality Management District's approach to evaluating GHG emissions. Currently, the City of Goleta uses the BAAQMD thresholds of significance for GHG emissions, as adopted in June 2010. It should be noted that the use of the BAAQMD threshold does not imply that it is a threshold that the City has formally adopted or should adopt as a GHG emissions significance threshold.

On June 10, 2010, the Santa Barbara County Planning & Development Department produced a memorandum called "*Support for Use of Bay Area Air Quality Management District Greenhouse Gas Emissions Standards,"* which states, "While Santa Barbara County land use patterns differ from those in the Bay Area as a whole, Santa Barbara County is similar to certain Bay Area counties (in particular, Sonoma, Solano, and Marin) in terms of population growth, land use patterns, General Plan/Coastal Land Use Plan policies, and average commute patterns and times. Because of these similarities, the methodology used by BAAQMD to develop its GHG emission significance thresholds, as well as the thresholds themselves, have applicability to Santa Barbara County and represent the best available interim standards for Santa Barbara County" (Santa Barbara County, 2010). In accordance with CEQA Guidelines §§15064.4(b)(2), and 15064.7(c), the City has consistently relied upon Santa Barbara County's "*Support for Use of Bay Area Air Quality Management District Greenhouse Gas Emissions Standards,"* as the expert recommended threshold for establishing greenhouse gas impacts of a project. The City of Goleta is located in Santa Barbara County and shares meteorological attributes, as well as similar land use patterns and policies, and thresholds deemed applicable in Santa Barbara County would also reasonably apply to projects within the City Goleta. In addition, the City of Goleta would rely upon the Santa Barbara County Air Pollution Control District (APCD), as a commenting agency, to review the GHG analysis, and these thresholds would represent a consistent approach and facilitate uniformity for impact determinations for City and County projects under the District's review.

Although the BAAQMD's thresholds of significance for GHG emissions have been challenged in court, they were upheld on appeal in August 2013. Furthermore, thresholds of significance that are adopted or recommended by other public agencies or by experts may be considered as appropriate thresholds of significance. As previously explained, a significant amount of public and expert opinion and input went into the development of the BAAQMD thresholds of significance. Moreover, since development of these thresholds, there have been numerous expert opinions and evaluations of these thresholds.

BAAQMD GHG thresholds are summarized in Table 4.6-1. This analysis uses the BAAQMD/Santa Barbara County Interim Thresholds of Significance to determine the significance of operational GHG emissions related to this project, based on the 1,100 MT $CO_2$e/year or 4.6 MT $CO_2$e per service population per year threshold for commercial and residential land uses. There is no BAAQMD threshold of significance for construction emissions.

**Table 4.6-1**
**BAAQMD/Santa Barbara County Interim Thresholds of Significance**

| GHG Emission Source Category | Operational Emissions |
|---|---|
| Commercial and Residential (land use projects) | 1,100 MT of $CO_2e$/yr or 4.6 MT $CO_2e$/SP/yr[a] |
| Stationary Sources[b] | 10,000 MT of $CO_2e$/yr |

*Source: Santa Barbara County Planning & Development Department, Support for Use of Bay Area Air Quality Management District Greenhouse Gas Emissions Standards. Interim GHG Emissions – Evidentiary Support, June 10, 2010.*
*[a] SP = Service Population (residents + employees).*
*[b] Stationary Sources include stationary combustion sources (industrial-type uses) regulated by the APCD.*

A per-service population threshold is intended to avoid penalizing large projects that incorporate GHG-reduction measures such that they may have high total annual GHG emissions, but would be relatively efficient, as compared to projects of similar scale. This guideline is most appropriately used for residential or commercial projects that would generate a large service population (defined as the sum of new residents and new employees that would result from a project). The proposed project is a 160-unit residential project. As such, the per-service population threshold is most applicable to the proposed project. Therefore, the proposed project would have a potentially significant contribution to GHG emissions if it would result in greater than 4.6 metric tons of $CO_2E$/year per service population.

Study Methodology. Calculations of $CO_2$, $CH_4$, and $N_2O$ emissions are provided to identify the magnitude of potential project effects. The analysis focuses on $CO_2$, $CH_4$, and $N_2O$ because these make up 98.9% of all GHG emissions by volume (IPCC, 2007) and are the GHG emissions that the project would emit in the largest quantities. Fluorinated gases, such as HFCs, PFCs, and $SF_6$, were also considered for the analysis. However, because the project is a residential development, the quantity of fluorinated gases would not be significant since fluorinated gases are primarily associated with industrial processes. Emissions of all GHGs are converted into their equivalent weight in $CO_2$ ($CO_2E$). Minimal amounts of other main GHGs (such as chlorofluorocarbons [CFCs]) would be emitted, but these other GHG emissions would not substantially add to the calculated $CO_2E$ amounts. Calculations are based on the methodologies discussed in the California Air Pollution Control Officers Association (CAPCOA) *CEQA and Climate Change* white paper (January 2008) and included the use of the California Climate Action Registry (CCAR) General Reporting Protocol (January 2009).

On-Site Operational Emissions. Operational emissions from energy use (electricity and natural gas use) for the Specific Plan area were estimated using the California Emissions Estimator Model (CalEEMod) computer program (see Appendix B for calculations.). The default values on which the CalEEMod computer program are based include the California Energy Commission (CEC) sponsored California Commercial End Use Survey (CEUS) and Residential Appliance Saturation Survey (RASS) studies. CalEEMod provides operational emissions of $CO_2$, $N_2O$ and $CH_4$. This methodology is considered reasonable and reliable for use, as it has been subjected to peer review by numerous public and private stakeholders, and in particular by the CEC. It is also recommended by CAPCOA (January 2008).

Emissions associated with area sources, including consumer products, landscape maintenance, and architectural coating were calculated in CalEEMod based on standard emission rates from CARB, USEPA, and district supplied emission factor values (CalEEMod User Guide, 2011).

Emissions from waste generation were also calculated in CalEEMod and are based on the IPCC's methods for quantifying GHG emissions from solid waste using the degradable organic content of waste (CalEEMod User Guide, 2011). Waste disposal rates by land use and overall composition of municipal solid waste in California was primarily based on data provided by the California Department of Resources Recycling and Recovery (CalRecycle).

Emissions from water and wastewater usage calculated in CalEEMod were based on the default electricity intensity from the CEC's 2006 Refining Estimates of Water-Related Energy Use in California using the average values for Northern and Southern California.

Direct Emissions from Mobile Combustion. Emissions of $CO_2$ and $CH_4$ from transportation sources were quantified using the CalEEMod computer model. Because CalEEMod does not calculate $N_2O$ emissions from mobile sources, $N_2O$ emissions were quantified using the California Climate Action Registry General Reporting Protocol (January 2009) direct emissions factors for mobile combustion (see Appendix B for calculations). The estimate of total daily trips associated with the project area was based on the standard Institute of Transportation Engineers (ITE) vehicle trip rates and was calculated and extrapolated to derive total annual mileage in CalEEMod. Emission rates for $N_2O$ emissions were based on the vehicle mix output generated by CalEEMod and the emission factors found in the California Climate Action Registry General Reporting Protocol.

Construction Emissions. Although construction activity is addressed in this analysis, CAPCOA does not discuss whether any of the suggested threshold approaches (as discussed below in *GHG Cumulative Significance*) adequately address impacts from temporary construction activity. As stated in the *CEQA and Climate Change* white paper, "more study is needed to make this assessment or to develop separate thresholds for construction activity" (CAPCOA, 2008). Nevertheless, air districts such as the SCAQMD (2011) have recommended amortizing construction-related emissions over a 30-year period in conjunction with the proposed project's operational emissions.

Construction of the proposed project would generate temporary GHG emissions primarily due to the operation of construction equipment and truck trips. Site preparation and grading typically generate the greatest amount of emissions due to the use of grading equipment and soil hauling. Emissions associated with the construction period were estimated using CalEEMod, based on the projected maximum amount of equipment that would be used onsite at one time. Complete results from CalEEMod and assumptions can be viewed in Appendix B.

**b. Project Impacts and Mitigation Measures.**

**Impact GHG-1 The proposed project would generate temporary as well as long-term GHG emissions which would incrementally contribute to climate change. Total construction-related emissions are estimated to be approximately 835 MT $CO_2E$, while operational indirect and stationary direct emissions are estimated to be 1,686 MT $CO_2E$/year. However, total combined project emissions of about 3.5 MT $CO_2E$ /SP/year would not exceed the 4.6 MT $CO_2E$/SP/year threshold. Impacts would be Class III, *less than significant*.**

Construction Emissions. For the purpose of this analysis, construction activity is assumed to occur over a period of approximately 14 months. As shown in Table 4.6-2, construction activity for the

proposed project would generate an estimated 835 metric tons of $CO_2E$. Following the SCAQMD's recommended methodology to amortize emissions over a 30-year period (the assumed life of the project), construction of the proposed project would generate an estimated 28 metric tons of $CO_2E$ per year.

**Table 4.6-2**
**Estimated Construction Emissions of Greenhouse Gases**

| Construction Phase | Emissions (MT $CO_2E$) |
|---|---|
| Site Preparation | 37.1 |
| Grading | 83.25 |
| Building Construction | 670.04 |
| Architectural Coating | 16.95 |
| Paving | 27.78 |
| **Total** | **835.12** |
| ***Amortized over 30 years*** | ***27.8*** |

*See Appendix B for CalEEMod Results.*

Operational Indirect and Stationary Direct Emissions. Long-term emissions relate to area sources, energy use, solid waste, water use, and transportation. Each of these sources is discussed below.

*Area Source Emissions.* Direct sources of air emissions located at the project site include consumer product use and landscape maintenance equipment. Area emissions would be approximately 2 metric tons of $CO_2E$ per year.

*Energy Use.* Operation of on-site development would consume both electricity and natural gas. The generation of electricity through combustion of fossil fuels typically yields $CO_2$, and to a smaller extent, $N_2O$ and $CH_4$. As discussed above, annual electricity and natural gas emissions can be calculated using default values from the CEC sponsored CEUS and RASS studies which are built into CalEEMod. Electricity consumption associated with the project would generate approximately 201.9 metric tons of $CO_2E$ per year. Natural gas use would generate approximately 115.5 metric tons of $CO_2E$ per year (see Appendix B for full results and calculations). Thus, overall energy use at the project site would generate approximately 317 metric tons of $CO_2E$ per year.

*Solid Waste Emissions.* In accordance with AB 939, it was assumed that the project would achieve at least a 50 percent diversion rate. Based on this estimate, solid waste associated with the project would generate approximately 19 metric tons of $CO_2E$ per year.

*Water Use Emissions.* Based on the amount of electricity used to supply and convey water for the proposed project, the project would generate approximately 35 metric tons of $CO_2E$ per year.

*Transportation Emissions.* Mobile source GHG emissions were estimated using the average daily trips for proposed project according to the project traffic study (see Appendix I) and the total vehicle miles traveled (VMT) estimated in CalEEMod. The proposed project would generate approximately

3,224,431 annual VMT. As noted above, CalEEMod does not calculate $N_2O$ emissions related to mobile sources. As such, $N_2O$ emissions were calculated based on the project's VMT using calculation methods provided by the California Climate Action Registry General Reporting Protocol (January 2009). The project would generate approximately 1,313 metric tons of $CO_2E$ associated with mobile emissions.

*Combined Construction, Stationary, and Mobile Source Emissions.* Table 4.6-3 combines the construction, operational, and mobile GHG emissions associated with development of the proposed project, and subtracts operational and mobile emissions associated with existing development on the project site.

**Table 4.6-3**
**Combined Annual Emissions of Greenhouse Gases**

| Emission Source | Annual Emissions (Metric Tons $CO_2e$) |
|---|---|
| Project Construction | 28 |
| Project Operational | |
| *Area* | 2 |
| *Energy* | 317 |
| *Solid Waste* | 19 |
| *Water* | 35 |
| Project Mobile | |
| *$CO_2$ and $CH_4$* | 1,243 |
| *$N_2O$* | 70 |
| *Total Emissions from Proposed Project* | *1,714 metric tons $CO_2e$* |
| **Per Service Population Emissions** | **3.5 metric tons CO2e/SP*** |

*Sources: See Appendix B for calculations and for GHG emission factor assumptions.*
**SP = Service Population, defined as residents + employees. The proposed project would have approximately 481 residents (see Section 4.2, Air Quality) and 2 employees for a total SP of 483.*

Operational indirect and stationary direction emissions would be approximately 1,686 metric tons of $CO_2E$ per year. The combined annual construction and operational emissions would total approximately 1,714 metric tons of $CO_2E$. Based on a service population of 482, this equates to about 3.5 metric tons of /SP/year. GHG emissions associated with the proposed project would not exceed the 4.6 MT $CO_2E$/SP/year threshold of significance. Therefore, impacts would be less than significant.

All new residential and commercial buildings must comply with Goleta Municipal Code Chapter 15.13 entitled "Energy Efficiency Standards", which require energy savings measures that exceed 2008 State of California Title 24 Energy Requirements by 15 percent, and with the 2010 California Green Building Code, as adopted by Goleta Municipal Code Chapter 15.12.

**Mitigation Measures.** Mitigation is not required as emissions would not exceed significance thresholds.

**Residual Impacts.** Impacts would be less than significant without mitigation. The following are recommended as conditions approval in order to minimize project-related GHG emissions:

- *Use of photovoltaic systems*
- *Passive cooling strategies such as passive or fan aided cooling plan designed into the structure and/or a roof opening for hot air venting or installation of underground cooling tubes*
- *High efficiency outdoor lighting and/or solar powered lighting*
- *Installation of Energy Star roofs, furnaces, and appliances*
- *Use of water-based paint on exterior surfaces*
- *Use of solar-assisted water heating for swimming pools and tankless hot water on demand systems if their energy efficiency is demonstrated to exceed that of a central storage tank water heating system*
- *Use of passive solar cooling/heating*
- *Use of natural lighting in lieu of artificial lighting*
- *Installation of energy efficient lighting*
- *Use of water-efficient landscapes; water-efficient irrigation systems and devices; and use of reclaimed water (if available)*
- *Installation of cool pavements*
- *Provision of segregated waste bins for recyclable materials*
- *Zero waste/high recycling standards*
- *An Alternative Transportation/Transportation Demand Management Program to help reduce emissions associated with project-generated vehicular trips*

**Impact GHG-2 The proposed project is consistent with applicable plans and policies adopted for the purpose of reducing GHG emissions, including AB 32, EO S-3-05, SB 375, and SB 97. Impacts would be Class III, *less than significant*.**

Senate Bill 375, requires the inclusion of sustainable communities' strategies (SCS) in regional transportation plans (RTPs) for the purpose of reducing GHG emissions. In August 2013, the Santa Barbara County Association of Governments adopted the *2040 Regional Transportation Plan & Sustainable Communities Strategy* (RTP-SCS). SBCAG's draft RTP-SCS meets the SB 375 target of zero growth in per capita GHG emissions from passenger vehicles through the years 2020 and 2035 through a land use scenario which emphasizes transit-oriented and infill development. The proposed project would be infill development and would be located within walking distance to public transportation, commercial, and retail uses in the City of Goleta, thereby reducing vehicle trips. Therefore, the proposed project would be consistent with the land use scenario envisioned in the RTP-SCS and with SB 375.

EO S-3-05 sets a GHG emission reduction target of 1990 levels by 2020. Assembly Bill 32, the "California Global Warming Solutions Act of 2006," was signed into law in the fall of 2006. This bill also requires achievement of a statewide GHG emissions limit equivalent to 1990 emissions by 2020 (essentially a 25% reduction below 2005 emission levels) and the adoption of rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions.

In response to EO S-3-05, CalEPA created the Climate Action Team (CAT), which in March 2006, published the Climate Action Team Report (CAT Report) (CalEPA, 2006). The 2006 CAT Report identified a recommended list of strategies that the state could pursue to reduce GHG emissions. These are

strategies that could be implemented by various state agencies to ensure that the emission reduction targets in EO S-3-05 are met and can be met with existing authority of the state agencies. The strategies include the reduction of passenger and light duty truck emissions, the reduction of idling times for diesel trucks, an overhaul of shipping technology/ infrastructure, increased use of alternative fuels, increased recycling, and landfill methane capture, etc. In addition, in 2008 the California Attorney General published "The California Environmental Quality Act: Addressing Global Warming Impacts at the Local Agency Level" (Office of the California Attorney General, Global Warming Measures Updated May 21, 2008). 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.

Tables 4.6-4 and 4.6-5 illustrate that the proposed project would be consistent with the applicable GHG reduction strategies set forth by the 2006 CAT Report as well as the 2008 Attorney General's Greenhouse Gas Reduction Measures.

**Table 4.6-4**
**Project Consistency with Applicable Climate Action Team**
**Greenhouse Gas Emission Reduction Strategies**

| ***Strategy*** | ***Project Consistency*** |
|---|---|
| **California Air Resources Board** | |
| ***Vehicle Climate Change Standards***<br>AB 1493 (Pavley) required the state to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of climate change emissions emitted by passenger vehicles and light duty trucks. Regulations were adopted by the ARB in September 2004. | **Consistent**<br>The vehicles that travel to and from the project site on public roadways would be in compliance with ARB vehicle standards that are in effect at the time of vehicle purchase. |
| ***Diesel Anti-Idling***<br>The ARB adopted a measure to limit diesel-fueled commercial motor vehicle idling in July 2004. | **Consistent**<br>Current California law restricts diesel truck idling to five minutes or less. Diesel trucks operating from and making deliveries to the project site are subject to this state-wide law. In addition, vehicles hauling exported material off-site would not idle at the site, those vehicles would pick-up the materials to be exported and leave the site. |
| ***Hydrofluorocarbon Reduction***<br>1) Ban retail sale of HFC in small cans.<br>2) Require that only low GWP refrigerants be used in new vehicular systems.<br>3) Adopt specifications for new commercial refrigeration.<br>4) Add refrigerant leak-tightness to the pass criteria for vehicular inspection and maintenance programs.<br>5) Enforce federal ban on releasing HFCs. | **Consistent**<br>This strategy applies to consumer products. All applicable products would be required to comply with the regulations that are in effect at the time of manufacture. |
| ***Alternative Fuels: Biodiesel Blends***<br>ARB would develop regulations to require the use of 1 to 4% biodiesel displacement of California diesel fuel. | **Consistent**<br>Diesel vehicles such as delivery trucks that travel to and from the project site on public roadways could utilize this fuel once it is commercially available. |

**Table 4.6-4**
**Project Consistency with Applicable Climate Action Team**
**Greenhouse Gas Emission Reduction Strategies**

| *Strategy* | *Project Consistency* |
|---|---|
| ***Alternative Fuels: Ethanol***<br>Increased use of E-85 fuel. | **Consistent**<br>Residents and visitors at the project site could choose to purchase flex-fuel vehicles and utilize this fuel once it is commercially available regionally and locally. |
| ***Heavy-Duty Vehicle Emission Reduction Measures***<br>Increased efficiency in the design of heavy duty vehicles and an education program for the heavy duty vehicle sector. | **Consistent**<br>Heavy-duty vehicles for the exported material hauling activities that travel to and from the project site on public roadways would be subject to all applicable ARB efficiency standards that are in effect at the time of vehicle manufacture. |
| ***Achieve 50% Statewide Recycling Goal***<br>Achieving the State's 50% waste diversion mandate as established by the Integrated Waste Management Act of 1989, (AB 939, Sher, Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. A diversion rate of 52% has been achieved on a statewide basis. | **Consistent**<br>The City of Goleta and the Resource Recovery and Waste Management Department of Santa Barbara County are responsible for complying with AB 939. The City has consistently met its goals for solid waste diversion, and achieved a diversion rate of 73% in 2009 (County of Santa Barbara, Public Works Website, 2013).<br><br>It is anticipated that the proposed project would participate in the City's waste diversion programs and would similarly divert at least 50% of its solid waste. The project would also be subject to all applicable State and County requirements for solid waste reduction as they change in the future. |
| **Department of Water Resources** | |
| ***Water Use Efficiency***<br>Approximately 19% of all electricity, 30% 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. | **Consistent**<br>The proposed project would be required to comply with water conservation requirements outlined by the Santa Barbara County Water Agency and the recommendations contained in the Goleta Water District Urban Water Management Plan.<br><br>The Goleta Water District offers a number of water conservation programs, including rebates and water check-ups. |
| **Energy Commission (CEC)** | |
| ***Building Energy Efficiency Standards in Place and in Progress***<br>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). | **Consistent**<br>The proposed project would involve physical development that would need to comply with the standards of the California Building Code that are in effect at the time of development (C.C.R. Title 24). |
| ***Appliance Energy Efficiency Standards in Place and in Progress***<br>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). | **Consistent**<br>Under State law, appliances that are purchased for the project - both pre- and post-development – would be consistent with energy efficiency standards that are in effect at the time of manufacture. |

**Table 4.6-4**
**Project Consistency with Applicable Climate Action Team**
**Greenhouse Gas Emission Reduction Strategies**

| *Strategy* | *Project Consistency* |
|---|---|
| ***Fuel-Efficient Replacement Tires & Inflation Programs***<br>State legislation established a statewide program to encourage the production and use of more efficient tires. | **Consistent**<br>Residents at and visitors to the project site could purchase tires for their vehicles that comply with state programs for increased fuel efficiency. |
| ***Alternative Fuels: Non-Petroleum Fuels***<br>Increasing the use of non-petroleum fuels in California's transportation sector, as recommended as recommended in the CEC's 2003 and 2005 Integrated Energy Policy Reports. | **Consistent**<br>Residents and visitors of the project site could purchase alternative fuel vehicles and utilize these fuels once they are commercially available regionally and locally. |
| ***Green Buildings Initiative***<br>Green Building Executive Order, S-20-04 (CA 2004), sets a goal of reducing energy use in public and private buildings by 20% by the year 2015, as compared with 2003 levels. The Executive Order and related action plan spell out specific actions state agencies are to take with state-owned and -leased buildings. The order and plan also discuss various strategies and incentives to encourage private building owners and operators to achieve the 20% target. | **Consistent**<br>The proposed project would involve physical development that would need to comply with the standards of the California Building Code that are in effect at the time of development (C.C.R. Title 24). |
| **Business, Transportation and Housing** | |
| ***Smart Land Use and Intelligent Transportation Systems (ITS)***<br>Smart land use strategies encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density residential/commercial development along transit corridors. | **Consistent**<br>The proposed project is located along the Santa Barbara MTD bus routes 6 and 11. MTD provides public transit service within Santa Barbara, Goleta, and Carpinteria. The proposed project would include the development of a bus stop with a shelter and bench at the Hollister Avenue/Cortona Drive intersection, which would link to MTD bus routes 6 and 11. |

As indicated in Tables 4.6-4 and 4.6-5, the proposed project would be consistent with CAT strategies and the 2008 Attorney General Greenhouse Gas Reduction Measures.

According to *The Impacts of Sea-Level Rise on the California Coast*, prepared by the California Climate Change Center (CCCC) (May 2009), climate change has the potential to induce substantial sea level rise in the coming century. The rising sea level increases the likelihood and risk of flooding. However, the project is approximately 1.5 miles from the coastline and is not at risk for inundation from sea level rise (California Energy Commission, Cal-Adapt website, 2013).

The proposed project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs and would be consistent with the objectives of AB 32, EO S-3-05, SB 375, and SB 97. Impacts would be less than significant.

**Mitigation Measures.** Mitigation is not required since the project impact related to GHGs is less than significant.

**Residual Impacts.** Impacts would be less than significant without mitigation.

**Table 4.6-5**
**Project Consistency with Applicable Attorney General**
**Greenhouse Gas Emission Reduction Measures**

| *Strategy* | *Project Consistency* |
|---|---|
| **Transportation-Related Emissions** | |
| ***Diesel Anti-Idling***<br>Set specific limits on idling time for commercial vehicles, including delivery vehicles. | **Consistent**<br>Currently, the California Air Resources Board's (CARB) Airborne Toxic Control Measure (ATCM) to Limit Diesel-Fueled Commercial Motor Vehicle Idling restricts diesel truck idling to five minutes or less. Diesel trucks making deliveries to the project site are subject to this state-wide law. In addition, vehicles hauling exported material off-site would not idle at the site; instead, those vehicles would pick-up the materials and leave the site. |
| ***Transportation Emissions Reduction***<br>Provide shuttle service to public transportation. | **Consistent**<br>The proposed project is located along the Santa Barbara MTD bus routes 6 and 11. MTD provides public transit service within Santa Barbara, Goleta, and Carpinteria. The proposed project would include the development of a bus stop with a shelter and bench at the Hollister Avenue/Cortona Drive intersection, which would link to MTD bus routes 6 and 11. |
| **Solid Waste and Energy Emissions** | |
| ***Solid Waste Reduction Strategy***<br>Project construction shall require reuse and recycling of construction and demolition waste. | **Consistent**<br>The proposed project would be required to comply with the 50% waste diversion mandate, as required by the Integrated Waste Management Act of 1989. |
| ***Water Use Efficiency***<br>Require measures that reduce the amount of water sent to the sewer system – see examples in CAT standard 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. | **Consistent**<br>The proposed project would also be required to comply with water conservation requirements outlined by the Santa Barbara County Water Agency and the recommendations contained in the Goleta Water District Urban Water Management Plan.<br><br>The Goleta Water District offers a number of water conservation programs, including rebates and water check-ups. |
| **Land Use Measures, Smart Growth Strategies and Carbon Offsets** | |
| ***Smart Land Use and Intelligent Transportation Systems***<br>Require pedestrian-only streets and plazas within the project site and destinations that may be reached conveniently by public transportation, walking or bicycling. | **Consistent**<br>The proposed project is located along the Santa Barbara MTD bus routes 6 and 11. MTD provides public transit service within Santa Barbara, Goleta, and Carpinteria. The proposed project would include the development of a bus stop with shelter and bench at the Hollister Avenue/Cortona Drive intersection, which would link to MTD bus routes 6 and 11. |

**c. Cumulative Impacts**. As shown in Tables 3-1 and 3-2 in Section 3.0, *Related Projects*, 2,746 residential units (in addition to the proposed project) and more than 1.5 million square feet of non-residential development are approved or pending in and around Goleta. Such development would increase overall GHG emissions generated within Goleta. As indicated in Impact GHG-1, GHG emissions associated with the proposed project were found to be less than significant. Analysis of GHG-related impacts is cumulative in nature as climate change is related to the accumulation of GHGs in the global atmosphere. Although cumulative increases in atmospheric GHGs may be significant, the proposed project's contribution to cumulative levels of GHGs is not considered considerable since emissions associated with the project would not exceed quantitative thresholds and the project is consistent applicable plans and policies pertaining to GHG reduction.