4.5 GREENHOUSE GAS EMISSIONS

This section discusses global climate change, its causes and the contribution of human activities, as well as a summary of existing greenhouse gas emissions. The section describes the criteria for determining the significance of climate change impacts, and analyzes the proposed Amendments' impacts related to global climate change and greenhouse gas emissions.

4.5.1 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, such as during 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 (CH_4) 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 [USEPA], April 2011). 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 20th Century. Concentrations of CO_2 in the atmosphere have risen approximately 40% since 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 during the last 10 years (1995–2005 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 82.7% of total GHG emissions (Department of Energy [DOE] Energy Information Administration [EIA], December 2008). 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% (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 (USEPA, April 2011).

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. Nitrous oxide's GWP 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.

State Greenhouse Gas Inventory. Worldwide anthropogenic emissions of GHG 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 accounts for 56.6% of the total emissions of 49,000 million metric tons CO_2E (includes land use changes) and all CO_2 emissions are 76.7% of the total. Methane emissions account for 14.3% of GHG and N_2O emissions account for 7.9% (IPCC, 2007).

Total U.S. GHG emissions were 6,633.2 million metric tons CO_2E in 2009 (USEPA, April 2011). While total U.S. emissions have increased by 7.3% from 1990 to 2009, emissions decreased from 2008 to 2009 by 427.9 million metric tons CO_2E, or 6.1% (DOE EIA, Table 12.1, August 2010). This decrease was primarily due to (1) a decrease in economic output resulting in a decrease in energy consumption across all sectors; and (2) a decrease in the carbon intensity of fuels used to generate electricity due to fuel switching as the price of coal increased, and the price of natural gas decreased substantially. Since 1990, U.S. emissions have increased at an average annual rate of 0.4%. The transportation and industrial end-use sectors accounted for 33% and 26%, respectively, of CO_2 emissions from fossil fuel combustion in 2009. Meanwhile, the residential and commercial end-use sectors accounted for 22% and 19%, respectively, of CO_2 emissions from fossil fuel combustion in 2009 (USEPA, 2011).

Based upon the California Air Resources Board (ARB) *California Greenhouse Gas Inventory for 2000-2008* (http://www.arb.ca.gov/cc/inventory/data/data.htm), California produced 478 MMT CO_2E in 2008. The major source of GHG in California is transportation, contributing 36% of the state's total GHG emissions. Electricity generation is the second largest source, contributing 24% of the state's GHG emissions (ARB, June 2010). California emissions are due in part to its large size and large population compared to other states. Another factor that reduces California's per capita fuel use and GHG emissions, as compared to other states, is its relatively mild climate. ARB has projected statewide unregulated GHG emissions for the year 2020, which represent the emissions that would be expected to occur in the absence of any GHG reduction actions, will be 596 MMT CO_2E (ARB, 2007).

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 20th century. Scientists have projected that the average global surface temperature could rise by1.0-4.4°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, May 2009). 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. Many Southern California cities have experienced their lowest recorded annual precipitation twice within the past decade. In a span of only two years, Los Angeles experienced both its driest and wettest years on record (California Department of Water Resources [DWR], 2008; CCCC, May 2009).

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 our wet winters and releasing it slowly when we need it during our 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 Wildlife. 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 1.0-4.4°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. Sea level could rise as much as two feet along most of the U.S. coast. 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).

While the above-mentioned potential impacts identify the possible effects of climate change at a global and potentially statewide level, in general scientific modeling tools are currently unable to predict what impacts would occur locally with a similar degree of accuracy. In general, regional and local predictions are made based on downscaling statewide models (CEC, March 2009).

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

International and Federal Regulations. The United States is, and has been, a participant in the United Nations Framework Convention on Climate Change (UNFCCC) since it was produced by the United Nations in 1992. The objective of the treaty is "stabilization of

greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system." This is generally understood to be achieved by stabilizing global greenhouse gas 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 greenhouse gas 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 Protocol established commitments for industrialized nations to reduce their collective emissions of six greenhouse gases (carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, hydrofluorocarbons, and perfluorocarbons) to 5.2% below 1990 levels by 2012. The United States is a signatory of the Protocol, but Congress has not ratified it and the United States has not bound itself to the Protocol's commitments (UNFCCC, 2007).

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 (USEPA, December 2007).

However, the voluntary approach to address climate change and greenhouse gas emissions may be changing. The United States Supreme Court in *Massachusetts et al. v. Environmental Protection Agency et al.* ([2007] 549 U.S. 05-1120) held that the United States Environmental Protection Agency (EPA) has the authority to regulate motor-vehicle GHG emissions under the federal Clean Air Act. EPA and the National Highway Traffic Safety Administration (NHTSA) are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. This will be done through coordination of the GHG emission limits and the NHTSA Corporate Average Fuel Economy (CAFE) standards. On May 7, 2010, the final combined EPA and NHTSA standards that comprise the first phase of this national program were promulgated regarding passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The CAFE standards require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile, equivalent to 35.5 miles per gallon (mpg) if the automobile industry were to meet this carbon dioxide level solely through fuel economy improvements. New emission limits and CAFE standards for light-duty vehicles for the 2017-2025 model years are currently under development. In October 2010, the agencies each proposed complementary GHG and CAFE standards under their respective authorities covering medium and heavy-duty trucks for the model years 2014-2018.

The EPA in May 2010 finalized the GHG Tailoring Rule that specifies that beginning in 2011, projects that will increase GHG emissions substantially will require an air permit. Typical facilities that would be covered under this rule include power plants, industrial boilers, and oil refineries, which as a group are responsible for 70 percent of the GHGs from stationary sources. The applicability criteria to determine which sources are subject to permitting are being "tailored" to apply to GHGs. New sources as well as existing sources not already subject to Title

V that emit, or have the potential to emit, at least 100,000 tons per year (tpy) CO_2E will become subject to the Prevention of Significant Deterioration (PSD) and Title V requirements. In addition, sources that emit or have the potential to emit at least 100,000 tpy CO_2E and that undertake a modification that increases net emissions of GHGs by at least 75,000 tpy CO_2E will also be subject to PSD requirements.

California Regulations. Assembly Bill (AB) 1493 (2002), 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." On June 30, 2009, EPA granted the waiver of Clean Air Act preemption to California for its greenhouse gas emission standards for motor vehicles beginning with the 2009 model year. Pavley I took effect for 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 per cent reduction by 2012 and 30 per cent by 2016.

In 2005, Governor Schwarzenegger issued Executive Order S-3-05, establishing statewide GHG emissions reduction targets. Executive Order (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% of 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, etc.

California's major initiative for reducing GHG emissions is outlined in Assembly Bill 32 (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 S-3-05), and requires ARB to prepare a 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 that a Low Carbon Fuel Standard ("LCFS") for transportation fuels be established for California to reduce the carbon intensity of California's transportation fuels by at least 10% by 2020.

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

Senate Bill (SB) 375, signed in August 2008, enhances the State's ability to reach AB 32 goals by directing ARB to develop regional greenhouse gas emission reduction targets to be achieved from vehicles for 2020 and 2035. 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 greenhouse gas emissions from 2005 levels by 2020 and 2035.

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% of California's total inventory of GHG emissions for 2004.

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.

Local Regulations and CEQA Requirements. Pursuant to the requirements of SB 97, the Resources Agency adopted amendments to the State CEQA Guidelines for the feasible mitigation of GHG emissions and analysis of the effects of GHG emissions. The adopted CEQA Guidelines provide 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. To date, the Bay Area Air Quality Management District (BAAQMD), the South Coast Air Quality Management District (SCAQMD), and the San Joaquin Air Pollution Control District (SJVAPCD) have adopted significance thresholds for GHGs. The SCAQMD threshold, which was adopted in December 2008, considers emissions of over 10,000 metric tons CO_2e /year to be significant. However, the SCAQMD's threshold applies only to stationary sources and is expressly intended to apply only when the SCAQMD is the CEQA lead agency. Although not yet adopted, the SCAQMD has a recommended quantitative threshold for all land use types of 3,000 metric tons CO_2e /year (SCAQMD, "Proposed Tier 3 Quantitative Thresholds – Option 1", September 2010). Note that no air district has the power to establish definitive thresholds that will completely relieve a lead agency of the obligation to determine significance on a case-by-case basis for a specific project.

4.5.2 Impact Analysis

a. Methodology and Significance Thresholds. Pursuant to the requirements of SB 97, the Resources Agency adopted amendments to the State 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 vast 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, Section 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). However, because the SCAQMD has not yet adopted GHG emissions thresholds that apply to land use projects where the SCAQMD is not the lead agency and no GHG emissions reduction plan or GHG emissions thresholds have been adopted in Rancho Palos Verdes, the proposed project is evaluated based on the SCAQMD's recommended/ preferred option threshold for all land use types including residential of 3,000 metric tons CO_2e per year (SCAQMD, "Proposed Tier 3 Quantitative Thresholds – Option 1", September 2010). It is important to note that the City has not recommended that threshold for any other purpose at this time, but that numeric threshold is recommended for this analysis.

In addition, in order to determine whether or not the proposed project's GHG emissions are "cumulatively considerable," this analysis determines the project's consistency with applicable greenhouse gas emissions reductions strategies.

Study Methodology. This analysis is based on the methodologies recommended by the California Air Pollution Control Officers Association [CAPCOA] (January 2008) *CEQA and Climate Change* white paper. The analysis focuses on CO_2, N_2O, and CH_4 as these are the GHG emissions that onsite development would generate in the largest quantities. Fluorinated gases, such as HFCs, PFCs, and SF_6, were also considered for the analysis. However, because the project would only involve residential development, the quantity of fluorinated gases would not be significant since fluorinated gases are primarily associated with industrial processes. Calculations were based on the methodologies discussed in the CAPCOA white paper (January 2008) and included the use of the California Climate Action Registry General Reporting Protocol (January 2009).

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, the SCAQMD has recommended amortizing construction-related emissions over a 30-year period in conjunction with the proposed project's operational emissions.

Construction of the project would generate temporary GHG emissions primarily due to the operation of construction equipment and truck trips. As discussed in Section 4.2, *Air Quality*, for the purposes of this analysis it was assumed that total grading would be approximately 145,000 cubic yards of cut and 2,000 cubic yards of fill (approximately 143,000 cubic yards of export). Site preparation and grading typically generates the greatest amount of emissions due to the use of grading equipment and soil hauling. For construction analysis, it was assumed that the project would be developed by the year 2015 and would take approximately two years to construct. Emissions associated with the construction period were estimated using the California Emissions Estimator Model (CalEEMod) computer model, based on the projected maximum amount of equipment that would be used onsite at one time. Complete CalEEMod results and assumptions can be viewed in Appendix B.

Indirect Emissions. Operational emissions from energy use (electricity and natural gas use) for the 60 residences were estimated using CalEEMod (see Appendix B for calculations). The default values on which CalEEMod model 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, hearth, and architectural coating were calculated in CalEEMod and utilize 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 is 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 for the proposed project were quantified using CalEEMod. 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). Total daily trips for the 60 residences was based on trip rates used in the Traffic Study (prepared by LLG Engineers, June 2012) 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.

One of the limitations to a quantitative analysis is that emission models, such as CalEEMod, evaluate aggregate emissions and do not demonstrate, with respect to a global impact, what proportion of these emissions are "new" emissions, specifically attributable to the project in question. For most projects, the main contribution of GHG emissions is from motor vehicles and the total vehicle miles traveled (VMT), but the quantity of these emissions appropriately characterized as "new" is uncertain. Traffic associated with a project may be relocated trips from other locales, and consequently, may result in either higher or lower net VMT. For the proposed project analyzed in this report, it is likely that some of the GHG emissions associated with traffic and energy demand would be truly "new" emissions. However, it is also likely that some of the emissions represent diversion of emissions from other locations. Thus, although GHG emissions are associated with onsite development, it is not possible to discern how much diversion is occurring or what fraction of those emissions represents global increases. In the absence of information regarding the different types of trips, the VMT estimate generated by CalEEMod is used as a conservative, "worst-case" estimate.

b. Project Impacts and Mitigation Measures.

Impact GHG-1 The proposed project would generate additional GHG emissions beyond existing conditions. However, GHG emissions generated by the project would not exceed the applicable significance thresholds. Impacts would be Class III, *less than significant.*

As stated above, GHG emissions for the project were calculated using the CalEEMod computer model. The following summarizes the project's overall GHG emissions (see Appendix B for full CalEEMod worksheets).

Construction Emissions. For the purpose of this analysis, construction activity is assumed to occur over a period of approximately two years. Based on the CalEEMod model results, construction activity for the project would generate an estimated 1,545 metric tons of carbon dioxide equivalent (CO_2e) units, as shown in Table 4.5-1 below. 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 52 metric tons of CO_2e per year.

Operational Indirect and Stationary Direct Emissions. *Area Source Emissions.* CalEEMod was used to calculate direct sources of air emissions located at the project site. This includes hearths, consumer product use, and landscape maintenance equipment. Because the project would involve residential units which do not typically have large rates of emissions associated with consumer products, emissions associated with consumer products would be negligible (0 metric tons per year). As shown in Table 4.5-2, the area sources would generate approximately 45 metric tons CO_2e per year.

Table 4.5-1
Estimated Construction Emissions of Greenhouse Gases

Emission Source	Annual Emissions	
	Emissions (metric tons)	Carbon Dioxide Equivalent (CO_2e)
Carbon Dioxide (CO_2)[1]	1.5	1,542.38 metric tons
Methane (CH_4)[1]	0.14	2.91 metric tons
Nitrous Oxide (N_2O)[1]	0.0	0.0 metric tons
Total		**1,545.29 metric tons**
Amortized over 30 years		**51.51 metric tons per year**

[1] *See Appendix B for calculations and for GHG emission factor assumptions.*

Table 4.5-2
Estimated Area Source Greenhouse Gas Emissions

Emission Source	Annual Emissions (Carbon Dioxide Equivalent (CO_2e))
Hearth	43.80 metric tons
Landscaping	1.53 metric tons
Total	**45.33 metric tons**

Source: See Appendix B for calculations and for GHG emission factor assumptions.

Energy Use. The proposed new residences would consume both electricity and natural gas (see Appendix B for calculations). 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 the CalEEMod model.

As shown in Table 4.5-3, electricity consumption associated with the project would generate approximately 74 metric tons CO_2e per year. Natural gas use would generate approximately 83 metric tons CO_2e per year. Thus, overall energy use at the project site would generate approximately 157 metric tons CO_2e per year, well below established thresholds.

Table 4.5-3
Estimated Annual Energy-Related GHG Emissions

Emission Source	Annual Emissions (Carbon Dioxide Equivalent (CO_2e))
Electricity [1]	74.35 metric tons
Natural Gas[1]	82.53 metric tons
Total	**157 metric tons**

[1] *See Appendix B for calculations and for GHG emission factor assumptions.*

Solid Waste Emissions. As shown in Table 4.5-4, it is anticipated that the solid waste generated by the potential new residences would generate approximately 13 metric tons of CO_2e.

Table 4.5-4
Estimated Annual Solid Waste Greenhouse Gas Emissions

Emission Source	Annual Emissions (Carbon Dioxide Equivalent (CO_2e)
Solid Waste	**13 metric tons**

Sources: See Appendix B for calculations and for GHG emission factor assumptions.

Water Use Emissions. Based on the amount of electricity generated in order to supply the amount of water used for the project, as shown in Table 4.5-5 the project would generate approximately 26 metric tons of CO_2e per year associated with water use, which is well below the threshold.

Table 4.5-5
Estimated Greenhouse Gas Emissions from Water Use

Emission Source	Annual Emissions (Carbon Dioxide Equivalent (CO2e)
Water Use	**26 metric tons**

Sources: See Appendix B for calculations and for GHG emission factor assumptions.

Transportation Emissions. Mobile source GHG emissions were estimated using the rate for average daily trips for condos in Los Angeles County consistent with the project's traffic study prepared by LLG (June 2012) and by the total vehicle miles traveled (VMT) estimated in CalEEMod. Based on the CalEEMod estimate, potential development would generate approximately 1,598,676 annual VMT.

Table 4.5-6 shows the estimated mobile emissions of GHGs for the project based on the estimated annual VMT. As noted above, the CalEEMod model 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). As shown in Table 4.5-6 below, the project would result in approximately 817 metric tons of CO_2e units associated with mobile emissions, well below the threshold.

Table 4.5-6
Estimated Annual Mobile Emissions of Greenhouse Gases

Emission Source	Annual Emissions (Carbon Dioxide Equivalent (CO_2e)
Mobile Emissions (CO_2 & CH_4) [1]	785.18 metric tons
Mobile Emissions (N_2O) [2]	32 metric tons
Total	**817 metric tons**

[1] *See Appendix B for calculations in CalEEMod Model output.*
[2] *See Appendix B for calculations according to California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1,Jan. 2009, pp. 30-35.*

Combined Construction, Stationary and Mobile Source Emissions. Table 4.5-7 combines the construction, operational and mobile GHG emissions associated with onsite development for the proposed project. Construction emissions associated with construction activity (approximately 1,545 metric tons CO_2e) are amortized over 30 years (the anticipated life of the project).

Table 4.5-7
Combined Annual Emissions of Greenhouse Gases

Emission Source	Annual Emissions
Construction	52 metric tons CO_2e
Operational	
Area	45 metric tons CO_2e
Energy	157 metric tons CO_2e
Solid Waste	13 metric tons CO_2e
Water	26 metric tons CO_2e
Mobile	817 metric tons CO_2e
Total	**1,110 metric tons CO_2e**

Sources: See Appendix B for calculations and for GHG emission factor assumptions.

For the proposed project, the combined annual emissions would total approximately 1,110 metric tons per year in CO_2e units. This total represents roughly 0.00023% of California's total 2004 emissions of 492 million metric tons. These emission projections indicate that the majority of the project's GHG emissions are associated with vehicular travel (74%). However, as noted above, mobile emissions are in part a redirection of existing travel to other locations, and so are already a part of the total California GHG emissions.

As noted above, neither the SCAQMD or the City of Rancho Palos Verdes have adopted formal GHG emissions thresholds that apply to land use projects and no GHG emissions reduction plan have been adopted in Rancho Palos Verdes. Therefore, the proposed project is evaluated based on the SCAQMD's recommended/preferred option threshold for all land use types of 3,000 metric tons CO_2e per year (SCAQMD, "Proposed Tier 3 Quantitative Thresholds – Option 1", September 2010).

For the proposed project total GHG emissions would be approximately 1,110 metric tons CO_2e per year. Although the proposed project would generate additional GHG emissions beyond existing conditions, because the total amount of GHG emissions would be lower than the threshold of 3,000 metric tons per year, impacts from GHG emissions would be less than significant.

Mitigation Measures. As specified above, the proposed project would result in less than 3,000 metric tons CO_2e per year; therefore, no mitigation is necessary.

Significance after Mitigation. Impacts would be less than significant without mitigation.

Impact GHG-2 The proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Impacts would be Class III, *less than significant*.

The proposed project would be generally consistent with applicable regulations or plans addressing greenhouse gas reductions. As indicated above, the CAT published the Climate Action Team Report to Governor Schwarzenegger and the Legislature (the "2006 CAT Report") in March 2006. The CAT Report identifies a recommended list of strategies that the State could pursue to reduce climate change greenhouse gas emissions. The CAT strategies are recommended to reduce GHG emissions at a statewide level to meet the goals of the Executive Order S-3-05. These are strategies that could be implemented by various State agencies to ensure that the Governor's targets are met and can be met with existing authority of the State agencies. 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 4.5-8 and 4.5-9 illustrate that the proposed project would be consistent with the GHG reduction strategies set forth by the 2006 CAT Report as well as the 2008 Attorney General's Greenhouse Gas Reduction Measures.

Table 4.5-8
Project Consistency with Applicable Climate Action Team Greenhouse Gas Emission Reduction Strategies

Strategy	***Project Consistency***
California Air Resources Board	
Vehicle Climate Change Standards 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** 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 The ARB adopted a measure to limit diesel-fueled commercial motor vehicle idling in July 2004.	**Consistent** Current State law restricts diesel truck idling to five minutes or less. Although unlikely since this project would involve residences, diesel trucks operating from and making deliveries to the project site are subject to this state-wide law. Construction vehicles are also subject to this regulation.
Hydrofluorocarbon Reduction 1) Ban retail sale of HFC in small cans. 2) Require that only low GWP refrigerants be used in new vehicular systems. 3) Adopt specifications for new commercial refrigeration. 4) Add refrigerant leak-tightness to the pass criteria for	**Consistent** 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.

Table 4.5-8
Project Consistency with Applicable Climate Action Team Greenhouse Gas Emission Reduction Strategies

Strategy	***Project Consistency***
vehicular inspection and maintenance programs. 5) Enforce federal ban on releasing HFCs.	
Alternative Fuels: Biodiesel Blends ARB would develop regulations to require the use of 1 to 4% biodiesel displacement of California diesel fuel.	**Consistent** The diesel vehicles such as construction vehicles that travel to and from the project site on public roadways could utilize this fuel once it is commercially available.
Alternative Fuels: Ethanol Increased use of E-85 fuel.	**Consistent** Residents 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 Increased efficiency in the design of heavy duty vehicles and an education program for the heavy duty vehicle sector.	**Consistent** The heavy-duty vehicles for construction 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 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 48% has been achieved on a statewide basis. Therefore, a 2% additional reduction is needed.	**Consistent** The City's Source Reduction and Recycling Element (SRRE) is the solid waste reduction planning document, and establishes goals and policies for the City regarding source reduction, recycling and composting and environmentally safe solid waste management alternatives to land disposal. The SRRE also helps the City in maintaining the 50% diversion rate requirement specified by AB 939. As of 2002 (the last verified date by the CIWMB), the City was recycling approximately 51% of its solid waste, thereby complying with the standards established by AB 939 It is anticipated that the proposed project would participate in the City's waste diversion programs and would similarly divert at least 51% of its solid waste.
Zero Waste – High Recycling Efforts to exceed the 50% goal would allow for additional reductions in climate change emissions.	**Consistent** As of 2002 (the last verified date by the CIWMB), the City was recycling 51% of its solid waste, thereby complying with the standards established by AB 939. It is anticipated that the proposed project would participate in the City's waste diversion programs and would similarly divert at least 51% of its solid waste. The project would also be subject to all applicable State and City requirements for solid waste reduction as they change in the future.
Department of Forestry	
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.	**Consistent** Landscaping for the project would result in additional planted trees compared to existing conditions.
Department of Water Resources	
Water Use Efficiency	**Consistent**

Table 4.5-8
Project Consistency with Applicable Climate Action Team Greenhouse Gas Emission Reduction Strategies

Strategy	*Project Consistency*
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.	New residences would be required to comply with Municipal Code Chapter 15.34 - Water Efficient Landscaping. In addition, individual residences would be equipped with low-flow plumbing fixtures, further reducing water use.
Energy Commission (CEC)	
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).	**Consistent** The proposed project would be required to comply with the standards of Title 24 that are in effect at the time of development.
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).	**Consistent** 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.
Fuel-Efficient Replacement Tires & Inflation Programs State legislation established a statewide program to encourage the production and use of more efficient tires.	**Consistent** Residents and visitors of the project site could purchase tires for their vehicles that comply with state programs for increased fuel efficiency.
Municipal Utility Energy Efficiency Programs/Demand Response Includes energy efficiency programs, renewable portfolio standard, combined heat and power, and transitioning away from carbon-intensive generation.	**Not applicable**, but project development would not preclude the implementation of this strategy by municipal utility providers. It should also be noted that the applicant may participate in the City's Voluntary Green Building Construction Program. The program allows those who wish to construct "green buildings" to work with a recognized organization in order to receive "green building" certification. This approach allows green building "experts" to work with interested applicants to achieve their green building objectives.
Municipal Utility Renewable Portfolio Standard California's Renewable Portfolio Standard (RPS), established in 2002, requires that all load serving entities achieve a goal of 20% of retail electricity sales from renewable energy sources by 2017, within certain cost constraints.	**Not applicable**, but the project would not preclude the implementation of this strategy by Southern California Edison.
Municipal Utility Combined Heat and Power Cost effective reduction from fossil fuel consumption in the commercial and industrial sector through the application of on-site power production to meet both heat and electricity loads.	**Not applicable** since this strategy addresses incentives that could be provided by utility providers such as Southern California Edison and The Gas Company.
Alternative Fuels: Non-Petroleum Fuels	**Consistent**

Table 4.5-8
Project Consistency with Applicable Climate Action Team Greenhouse Gas Emission Reduction Strategies

Strategy	***Project Consistency***
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.	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 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** As discussed previously, the project would be required to be constructed in compliance with the standards of Title 24 that are in effect at the time of development. The 2008 Title 24 standards are approximately 15% more efficient than those of the 2005 standards. In addition, the project would be required to adhere to the CAL Green Building Code which would include reducing energy use beyond Title 24 standards. It should also be noted that the applicant may participate in the City's Voluntary Green Building Construction Program. The program allows those who wish to construct "green buildings" to work with a recognized organization in order to receive "green building" certification. This approach allows green building "experts" to work with interested applicants to achieve their green building objectives.
Business, Transportation and Housing	
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. The Governor is finalizing a comprehensive 10-year strategic growth plan with the intent of developing ways to promote, through state investments, incentives and technical assistance, land use, and technology strategies that provide for a prosperous economy, social equity and a quality environment. Smart land use, demand management, ITS, and value pricing are critical elements in this plan for improving mobility and transportation efficiency. Specific strategies include: promoting jobs/housing proximity and transit-oriented development; encouraging high density residential/commercial development along transit/rail corridor; valuing and congestion pricing; implementing intelligent transportation systems, traveler information/traffic control, incident management; accelerating the development of broadband infrastructure; and comprehensive, integrated, multimodal/intermodal transportation planning.	**Consistent** The project site is located between two other senior housing communities increasing the density of the area along an existing transit corridor in Rancho Palos Verdes. The project site is located within walking distance (approximately 0.35 miles) to public transportation such as the Commuter Express stop at Crenshaw Boulevard and Crest Road served by LADOT.

Table 4.5-8
Project Consistency with Applicable Climate Action Team Greenhouse Gas Emission Reduction Strategies

Strategy	***Project Consistency***
Public Utilities Commission (PUC)	
Accelerated Renewable Portfolio Standard The Governor has set a goal of achieving 33% renewable in the State's resource mix by 2020. The joint PUC/Energy Commission September 2005 Energy Action Plan II (EAP II) adopts the 33% goal.	**Not applicable**, but project development would not preclude the implementation of this strategy by energy providers.

Table 4.5-9
Project Consistency with Applicable Attorney General Greenhouse Gas Reduction Measures

Strategy	***Project Consistency***
Transportation-Related Emissions	
Diesel Anti-Idling Set specific limits on idling time for commercial vehicles, including delivery vehicles.	**Consistent** 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 operating from and making deliveries to the project site are subject to this state-wide law. Construction vehicles are also subject to this regulation.
Solid Waste and Energy Emissions	
Solid Waste Reduction Strategy Project construction shall require reuse and recycling of construction and demolition waste.	**Consistent** The City's Source Reduction and Recycling Element (SRRE) is the solid waste reduction planning document, and establishes goals and policies for the City regarding source reduction, recycling and composting and environmentally safe solid waste management alternatives to land disposal. Project construction would be required to adhere to the goals and policies contained in the SRRE.
Water Use Efficiency 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** As described above, the project would be anticipated to incorporate landscaping that would be designed to require minimal irrigation and to reflect the native vegetation of the surrounding area, thereby reducing water use. The project would be required to comply with the provisions of Rancho Palos Verdes Municipal Code Chapter 15.34 - Water Efficient Landscaping. In addition, individual residences would be equipped with low-flow plumbing fixtures, further reducing water use at the project site.

Table 4.5-9
Project Consistency with Applicable Attorney General Greenhouse Gas Reduction Measures

Strategy	***Project Consistency***
Land Use Measures, Smart Growth Strategies and Carbon Offsets	
Smart Land Use and Intelligent Transportation Systems Require pedestrian-only streets and plazas within the project site and destinations that may be reached conveniently by public transportation, walking or bicycling.	**Consistent** The project site is located within walking distance (approximately 0.35 miles) to public transportation such as the Commuter Express stop at Crenshaw Boulevard and Crest Road served by LADOT.

Development facilitated by the proposed project would result in an incremental increase in GHG emissions. However, as indicated in Tables 4.5-8 and 4.5-9, the proposed project would be consistent with CAT strategies and the 2008 Attorney General Greenhouse Gas Reduction Measures. Therefore, the proposed project would be consistent with the objectives of AB 32, SB 97, and SB 375, and its contribution to cumulative GHG emissions and climate change would not be significant.

Mitigation Measures. As specified above, the proposed project would be consistent with the 2006 CAT Report as well as the 2008 Attorney General's Greenhouse Gas Reduction Measures; therefore, no mitigation is necessary.

Significance after Mitigation. Impacts would be less than significant without mitigation.

c. Cumulative Impacts. As indicated above in Impact GHG-1 and GHG-2, GHG emissions associated with the proposed project would be less than significant and the project would be consistent with the objectives of AB 32, SB 97, and SB 375, and its contribution to cumulative GHG emissions and climate change would not be significant. Analyses of greenhouse gases are cumulative in nature as they affect the accumulation of greenhouse gases in the atmosphere. Since there is no cumulative impact, and given the relatively small contribution to cumulative GHG emissions associated with the proposed project, there are no project level impacts as well.