



5.7 Greenhouse Gas Emissions



5.7 GREENHOUSE GAS EMISSIONS

This section evaluates greenhouse gas (GHG) emissions associated with the proposed project and analyzes compliance with applicable regulations. Consideration of the project's consistency with applicable plans, policies, and regulations, as well as the introduction of new sources of GHGs, is included in this section. GHG technical data is included in [Appendix 11.6, *Air Quality and Greenhouse Gas Data*](#).

5.7.1 EXISTING SETTING

The project site lies within the southern portion of the South Coast Air Basin (Basin). The Basin is a 6,600-square mile area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Geronio Pass area in Riverside County. The Basin's terrain and geographical location (i.e., a coastal plain with connecting broad valleys and low hills) determine its distinctive climate.

The general region lies in the semi-permanent high-pressure zone of the eastern Pacific. The climate is mild and tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The extent and severity of the air pollution problem in the Basin is a function of the area's natural physical characteristics (weather and topography), as well as man-made influences (development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and/or dispersion of pollutants throughout the Basin.

SCOPE OF ANALYSIS FOR CLIMATE CHANGE

The study area for climate change and the analysis of GHG emissions is broad as climate change is influenced by world-wide emissions and their global effects. However, the study area is also limited by the CEQA Guidelines [Section 15064(d)], which directs lead agencies to consider an "indirect physical change" only if that change is a reasonably foreseeable impact which may be caused by the project.

The baseline against which to compare potential impacts of the project includes the natural and anthropogenic drivers of global climate change, including world-wide GHG emissions from human activities that have grown more than 70 percent between 1970 and 2004. The State of California is leading the nation in managing GHG emissions. Accordingly, the impact analysis for this project relies on guidelines, analyses, policy, and plans for reducing GHG emissions established by the California Air Resources Board (CARB).



GLOBAL CLIMATE CHANGE – GREENHOUSE GASES

The natural process through which heat is retained in the troposphere is called the “greenhouse effect.”¹ The greenhouse effect traps heat in the troposphere through a threefold process as follows: Short wave radiation emitted by the Sun is absorbed by the Earth; the Earth emits a portion of this energy in the form of long wave radiation; and GHG in the upper atmosphere absorb this long wave radiation and emit this long wave radiation into space and toward the Earth. This “trapping” of the long wave (thermal) radiation emitted back toward the Earth is the underlying process of the greenhouse effect.

The most abundant GHGs are water vapor and carbon dioxide (CO₂). Many other trace gases have greater ability to absorb and re-radiate long wave radiation; however, these gases are not as plentiful. For this reason, and to gauge the potency of GHGs, scientists have established a Global Warming Potential (GWP) for each GHG based on its ability to absorb and re-radiate long wave radiation. GHGs normally associated with the proposed project include the following:²

- Water Vapor (H₂O). Although water vapor has not received the scrutiny of other GHGs, it is the primary contributor to the greenhouse effect. Natural processes, such as evaporation from oceans and rivers, and transpiration from plants, contribute 90 percent and 10 percent of the water vapor in our atmosphere, respectively. The primary human related source of water vapor comes from fuel combustion in motor vehicles; however, this is not believed to contribute a significant amount (less than one percent) to atmospheric concentrations of water vapor. The Intergovernmental Panel on Climate Change (IPCC) has not determined a Global Warming Potential for water vapor.
- Carbon Dioxide (CO₂). Carbon dioxide is primarily generated by fossil fuel combustion in stationary and mobile sources. Due to the emergence of industrial facilities and mobile sources in the past 250 years, the concentration of carbon dioxide in the atmosphere has increased 39 percent.³ Carbon dioxide is the most widely emitted GHG and is the reference gas (Global Warming Potential of 1) for determining Global Warming Potentials for other GHGs.
- Methane (CH₄). Methane is emitted from biogenic sources, incomplete combustion in forest fires, landfills, manure management, and leaks in natural gas pipelines. In the United States, the top three sources of methane are landfills, natural gas systems, and enteric fermentation. Methane is the primary component of natural gas, which is used for space and water heating, steam production, and power generation. The Global Warming Potential of methane is 21.

¹ The troposphere is the bottom layer of the atmosphere, which varies in height from the Earth’s surface to 10 to 12 kilometers.

² All Global Warming Potentials are given as 100 year GWP. Unless noted otherwise, all Global Warming Potentials were obtained from the Intergovernmental Panel on Climate Change. Climate Change (Intergovernmental Panel on Climate Change, *Climate Change, The Science of Climate Change – Contribution of Working Group I to the Second Assessment Report of the IPCC*, 1996).

³ U.S. Environmental Protection Agency, *Inventory of United States Greenhouse Gas Emissions and Sinks 1990 to 2010*, April 2012.



- Nitrous Oxide (N_2O). Nitrous oxide is produced by both natural and human related sources. Primary human related sources include agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic acid production, and nitric acid production. The Global Warming Potential of nitrous oxide is 310.
- Hydrofluorocarbons (HFCs). HFCs are typically used as refrigerants for both stationary refrigeration and mobile air conditioning. The use of HFCs for cooling and foam blowing is growing, as the continued phase out of chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) gains momentum. The Global Warming Potential of HFCs range from 140 for HFC-152a to 11,700 for HFC-23.⁴
- Perfluorocarbons (PFCs). Perfluorocarbons are compounds consisting of carbon and fluorine. They are primarily created as a byproduct of aluminum production and semiconductor manufacturing. Perfluorocarbons are potent GHGs with a Global Warming Potential several thousand times that of carbon dioxide, depending on the specific PFC. Another area of concern regarding PFCs is their long atmospheric lifetime (up to 50,000 years).⁵ The Global Warming Potential of PFCs range from 6,500 to 9,200.
- Sulfur hexafluoride (SF_6). Sulfur hexafluoride is a colorless, odorless, nontoxic, nonflammable gas. It is most commonly used as an electrical insulator in high voltage equipment that transmits and distributes electricity. Sulfur hexafluoride is the most potent GHG that has been evaluated by the Intergovernmental Panel on Climate Change with a Global Warming Potential of 23,900. However, its global warming contribution is not as high as the Global Warming Potential would indicate due to its low mixing ratio compared to carbon dioxide (4 parts per trillion [ppt] in 1990 versus 365 parts per million [ppm], respectively).⁶

In addition to the six major GHGs discussed above (excluding water vapor), many other compounds have the potential to contribute to the greenhouse effect. Some of these substances were previously identified as stratospheric ozone (O_3) depleters; therefore, their gradual phase out is currently in effect. The following is a listing of these compounds:

- Hydrochlorofluorocarbons (HCFCs). HCFCs are solvents, similar in use and chemical composition to CFCs. The main uses of HCFCs are for refrigerant products and air conditioning systems. As part of the Montreal Protocol, all developed countries that adhere to the Montreal Protocol are subject to a consumption cap and gradual phase out of HCFCs. The United States is scheduled to achieve a 100 percent reduction to the cap by 2030. The Global Warming Potentials of HCFCs range from 93 for HCFC-123 to 2,000 for HCFC-142b.⁷

⁴ United States Environmental Protection Agency, *Greenhouse Gas Emissions – Emissions of Fluorinated Gases*, June 14, 2012. <http://epa.gov/climatechange/ghgemissions/gases/fgases.html>.

⁵ Ibid.

⁶ Ibid.

⁷ United States Environmental Protection Agency, *Protection of Stratospheric Ozone: Listing of Global Warming Potential for Ozone Depleting Substances*, dated November 7, 2006. <http://www.epa.gov/EPA-AIR/1996/January/Day-19/pr-372.html>.



- 1,1,1 trichloroethane. 1,1,1 trichloroethane or methyl chloroform is a solvent and degreasing agent commonly used by manufacturers. The Global Warming Potential of methyl chloroform is 110 times that of carbon dioxide.⁸
- Chlorofluorocarbons (CFCs). CFCs are used as refrigerants, cleaning solvents, and aerosols spray propellants. CFCs were also part of the U.S. Environmental Protection Agency's (EPA) Final Rule (57 FR 3374) for the phase out of O₃ depleting substances. Currently, CFCs have been replaced by HFCs in cooling systems and a variety of alternatives for cleaning solvents. Nevertheless, CFCs remain suspended in the atmosphere contributing to the greenhouse effect. CFCs are potent GHGs with Global Warming Potentials ranging from 4,600 for CFC 11 to 14,000 for CFC 13.⁹

5.7.2 REGULATORY FRAMEWORK

FEDERAL

The Federal government is extensively engaged in international climate change activities in areas such as science, mitigation, and environmental monitoring. The U.S. Environmental Protection Agency (EPA) actively participates in multilateral and bilateral activities by establishing partnerships and providing leadership and technical expertise. Multilaterally, the United States is a strong supporter of activities under the United Nations Framework Convention on Climate Change (UNFCCC) and the IPCC.

In 1988, the United Nations and the World Meteorological Organization established the IPCC to assess the scientific, technical, and socioeconomic information relevant to understanding the scientific basis of human-induced climate change, its potential impacts, and options for adaptation and mitigation. The most recent reports of the IPCC have emphasized the scientific consensus around the evidence that real and measurable changes to the climate are occurring, that they are caused by human activity, and that significant adverse impacts on the environment, the economy, and human health and welfare are unavoidable.

In December 2007, Congress passed the first increase in corporate average fleet fuel economy (CAFE) standards. The new CAFE standards represent an increase to 35 miles per gallon (mpg) by 2020. In March 2009, the Obama Administration announced that for the 2011 model year, the standard for cars and light trucks will be 27.3 mpg, the standard for cars will be 30.2 mpg; and standard for trucks would be 24.1 mpg. Additionally, in May 2009 President Barack Obama announced plans for a national fuel-economy and GHG emissions standard that would significantly increase mileage requirements for cars and trucks by 2016. The new requirements represent an average standard of 39 mpg for cars and 30 mpg for trucks by 2016.

In September 2009, the EPA finalized a GHG reporting and monitoring system that began on January 1, 2010. In general, this national reporting requirement will provide the EPA with accurate and timely GHG emissions data from facilities that emit 25,000 metric tons (MT) or more of CO₂

⁸ Ibid.

⁹ United States Environmental Protection Agency, *Class I Ozone Depleting Substances*, August 19, 2010. <http://www.epa.gov/ozone/ods.html>.



per year. This publicly available data will allow the reporters to track their own emissions, compare them to similar facilities, and aid in identifying cost-effective emissions reduction strategies. This new program covers approximately 85 percent of the nation's GHG emissions and applies to approximately 10,000 facilities. The reporting system is intended to provide a better understanding of where GHGs are coming from and will guide development of the best possible policies and programs to reduce emissions.

Currently, the EPA is moving forward with two key climate change regulatory proposals, one to establish a mandatory GHG reporting system and one to address the 2007 Supreme Court decision in *Massachusetts v. EPA* (Supreme Court Case 05-1120) regarding the EPA's obligation to make an endangerment finding under Section 202(a) of the Federal Clean Air Act (FCAA) with respect to GHGs. *Massachusetts v. EPA* was argued before the United States Supreme Court on November 29, 2006. Under the FCAA, the EPA is now obligated to issue rules regulating global warming pollution from all major sources. In April 2009, the EPA concluded that GHGs are a danger to public health and welfare, establishing the basis for GHG regulation.

STATE

Various statewide and local initiatives to reduce California's contribution to GHG emissions have raised awareness that, even though the various contributors to and consequences of global climate change are not yet fully understood, global climate change is occurring, and that there is a real potential for severe adverse environmental, social, and economic effects in the long term. Every nation emits GHGs and as a result makes an incremental cumulative contribution to global climate change; therefore, global cooperation will be required to reduce the rate of GHG emissions enough to slow or stop the human-caused increase in average global temperatures and associated changes in climatic conditions.

Executive Order S-1-07. Executive Order S-1-07 proclaims that the transportation sector is the main source of GHG emissions in California, generating more than 40 percent of statewide emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in California by at least ten percent by 2020. This order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

Executive Order S-3-05. Executive Order S-3-05 set forth a series of target dates by which statewide emissions of GHGs would be progressively reduced, as follows:

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

The Executive Order directed the secretary of the California Environmental Protection Agency (Cal/EPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The secretary will also submit biannual reports to the governor and California Legislature describing the progress made toward the emissions targets, the impacts of global climate change on California's resources, and mitigation and adaptation plans to combat these impacts. To comply with the



executive order, the secretary of Cal/EPA created the California Climate Action Team (CAT), made up of members from various State agencies and commissions. The team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of California businesses, local governments, and communities and through State incentive and regulatory programs.

Executive Order S-13-08. Executive Order S-13-08 seeks to enhance the State's management of climate impacts including sea level rise, increased temperatures, shifting precipitation, and extreme weather events by facilitating the development of State's first climate adaptation strategy. This will result in consistent guidance from experts on how to address climate change impacts in the State of California.

Executive Order S-14-08. Executive Order S-14-08 expands the State's Renewable Energy Standard to 33 percent renewable power by 2020. Additionally, Executive Order S-21-09 (signed on September 15, 2009) directs CARB to adopt regulations requiring 33 percent of electricity sold in the State come from renewable energy by 2020. CARB adopted the "Renewable Electricity Standard" on September 23, 2010, which requires 33 percent renewable energy by 2020 for most publicly owned electricity retailers.

Executive Order S-20-04. Executive Order S-20-04, the California Green Building Initiative, (signed into law on December 14, 2004), establishes a goal of reducing energy use in State-owned buildings by 20 percent from a 2003 baseline by 2015. It also encourages the private commercial sector to set the same goal. The initiative places the California Energy Commission (CEC) in charge of developing a building efficiency benchmarking system, commissioning and retro-commissioning (commissioning for existing commercial buildings) guidelines, and developing and refining building energy efficiency standards under Title 24 to meet this goal.

Executive Order S-21-09. Executive Order S-21-09, 33 percent Renewable Energy for California, directs CARB to adopt regulations to increase California's Renewable Portfolio Standard (RPS) to 33 percent by 2020. This builds upon SB 1078 (2002) which established the California RPS program, requiring 20 percent renewable energy by 2017, and SB 107 (2006) which advanced the 20 percent deadline to 2010, a goal which was expanded to 33 percent by 2020 in the 2005 Energy Action Plan II.

Assembly Bill 32 (California Global Warming Solutions Act of 2006). California passed the California Global Warming Solutions Act of 2006 (AB 32; *California Health and Safety Code* Division 25.5, Sections 38500 - 38599). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then CARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.



Assembly Bill 1493. AB 1493 (also known as the Pavley Bill) requires that CARB develop and adopt, by January 1, 2005, regulations that achieve “the maximum feasible reduction of GHG emitted by passenger vehicles and light-duty trucks and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the State.”

To meet the requirements of AB 1493, CARB approved amendments to the California Code of Regulations (CCR) in 2004 by adding GHG emissions standards to California’s existing standards for motor vehicle emissions. Amendments to CCR Title 13, Sections 1900 and 1961 and adoption of 13 CCR Section 1961.1 require automobile manufacturers to meet fleet-average GHG emissions limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty weight classes for passenger vehicles (i.e., any medium-duty vehicle with a gross vehicle weight rating less than 10,000 pounds that is designed primarily to transport people), beginning with the 2009 model year. Emissions limits are reduced further in each model year through 2016. When fully phased in, the near-term standards will result in a reduction of about 22 percent in GHG emissions compared to the emissions from the 2002 fleet, while the mid-term standards will result in a reduction of about 30 percent.

Assembly Bill 3018. AB 3018 established the Green Collar Jobs Council (GCJC) under the California Workforce Investment Board (CWIB). The GCJC will develop a comprehensive approach to address California’s emerging workforce needs associated with the emerging green economy. This bill will ignite the development of job training programs in the clean and green technology sectors.

Senate Bill 97. SB 97, signed in August 2007 (Chapter 185, Statutes of 2007; PRC Sections 21083.05 and 21097), acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. This bill directs the Governor’s Office of Planning and Research (OPR), which is part of the State Natural Resources Agency, to prepare, develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions (or the effects of GHG emissions), as required by CEQA.

OPR published a technical advisory recommending that CEQA lead agencies make a good-faith effort to estimate the quantity of GHG emissions that would be generated by a proposed project. Specifically, based on available information, CEQA lead agencies should estimate the emissions associated with project-related vehicular traffic, energy consumption, water usage, and construction activities to determine whether project-level or cumulative impacts could occur, and should mitigate the impacts where feasible. OPR requested CARB technical staff to recommend a method for setting CEQA thresholds of significance as described in CEQA Guidelines Section 15064.7 that will encourage consistency and uniformity in the CEQA analysis of GHG emissions throughout the State.

The Natural Resources Agency adopted the CEQA Guidelines Amendments prepared by OPR, as directed by SB 97. On February 16, 2010, the Office of Administration Law approved the CEQA Guidelines Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The CEQA Guidelines Amendments became effective on March 18, 2010.



Senate Bill 375. SB 375, signed in September 2008 (Chapter 728, Statutes of 2008), aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a sustainable communities strategy (SCS) or alternative planning strategy (APS) that will prescribe land use allocation in that MPOs regional transportation plan. CARB, in consultation with MPOs, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, transportation projects may not be eligible for funding programmed after January 1, 2012.

Senate Bills 1078 and 107. SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010.

Senate Bill 1368. SB 1368 (Chapter 598, Statutes of 2006) is the companion bill of AB 32 and was signed into law in September 2006. SB 1368 required the California Public Utilities Commission (CPUC) to establish a performance standard for baseload generation of GHG emissions by investor-owned utilities by February 1, 2007. SB 1368 also required the CEC to establish a similar standard for local publicly owned utilities by June 30, 2007. These standards could not exceed the GHG emissions rate from a baseload combined-cycle, natural gas fired plant. Furthermore, the legislation states that all electricity provided to California, including imported electricity, must be generated by plants that meet the standards set by CPUC and CEC.

CARB Scoping Plan

On December 11, 2008, CARB adopted its Scoping Plan, which functions as a roadmap to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations. CARB's Scoping Plan contains the main strategies California will implement to reduce CO₂eq¹⁰ emissions by 174 million metric tons (MT), or approximately 30 percent, from the State's projected 2020 emissions level of 596 million MT CO₂eq under a business as usual (BAU)¹¹ scenario. This is a reduction of 42 million MT CO₂eq, or almost ten percent, from 2002 to 2004 average emissions, but requires the reductions in the face of population and economic growth through 2020.

CARB's Scoping Plan calculates 2020 BAU emissions as the emissions that would be expected to occur in the absence of any GHG reduction measures. The 2020 BAU emissions estimate was derived by projecting emissions from a past baseline year using growth factors specific to each of the different economic sectors (e.g., transportation, electrical power, commercial and residential,

¹⁰ Carbon Dioxide Equivalent (CO₂eq) - A metric measure used to compare the emissions from various greenhouse gases based upon their global warming potential.

¹¹ "Business as Usual" refers to emissions that would be expected to occur in the absence of GHG reductions. See <http://www.arb.ca.gov/cc/inventory/data/forecast.htm>. Note that there is significant controversy as to what BAU means. In determining the GHG 2020 limit, CARB used the above as the "definition." It is broad enough to allow for design features to be counted as reductions.



industrial, etc.). CARB used three-year average emissions, by sector, for 2002 to 2004 to forecast emissions to 2020. At the time CARB's Scoping Plan process was initiated, 2004 was the most recent year for which actual data was available. The measures described in CARB's Scoping Plan are intended to reduce the projected 2020 BAU to 1990 levels, as required by AB 32.

LOCAL

South Coast Air Quality Management District

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

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

The legislative and regulatory activity detailed above is expected to require significant development and implementation of energy efficient technologies and shifting of energy production to renewable sources.

City of Lake Forest

The City of Lake Forest does not have any plans, policies, regulations, significance thresholds, or laws addressing climate change at this time. The Recreation and Resources Element of the General Plan also includes goals and policies addressing energy conservation. The General Plan states that energy requirements can be diminished through innovative architectural design, building construction, structural orientation and landscaping. The City has established ECONomic, which is a voluntary green home education program. The City, through ECONomic, encourages homeowners and building professionals to incorporate green building design into construction projects. The City also promotes utility company incentive programs to retrofit existing development with energy efficient lighting, air conditioning and heating systems to reduce energy consumption.

The *Portola Center Area Plan* includes Development Regulations that establish guidelines and programs for the Portola Center community. The *Portola Center Area Plan* requires the project to incorporate green development techniques, which may be achieved through energy conservation, reduction, and California appropriate landscape practices. The landscape sustainability regulations require drought tolerant plants, low flow irrigation, and efficient controllers.



5.7.3 IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA

At this time, there is no absolute consensus in the State of California among CEQA lead agencies regarding the analysis of global climate change and the selection of significance criteria. In fact, numerous organizations, both public and private, have released advisories and guidance with recommendations designed to assist decision-makers in the evaluation of GHG emissions given the current uncertainty regarding when emissions reach the point of significance.

Lead agencies may elect to rely on thresholds of significance recommended or adopted by State or regional agencies with expertise in the field of global climate change (CEQA Guidelines Section 15064.7(c).) CEQA leaves the determination of significance to the reasonable discretion of the lead agency and encourages lead agencies to develop and publish thresholds of significance to use in determining the significance of environmental effects. However, the City has yet established specific quantitative significance thresholds for GHG emissions for development projects.

The SCAQMD has formed a GHG CEQA Significance Threshold Working Group (Working Group) to provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents. As of the last Working Group meeting (Meeting No. 15) held in September 2010, the SCAQMD is proposing to adopt a tiered approach for evaluating GHG emissions for development projects where SCAQMD is not the lead agency.¹²

With the tiered approach, the project is compared with the requirements of each tier sequentially and would not result in a significant impact if it complies with any tier. Tier 1 excludes projects that are specifically exempt from SB 97 from resulting in a significant impact. Tier 2 excludes projects that are consistent with a GHG reduction plan that has a certified final CEQA document and complies with AB 32 GHG reduction goals. Tier 3 excludes projects with annual emissions lower than a screening threshold. For all non-industrial projects, the SCAQMD is proposing a screening threshold of 3,000 MTCO₂eq per year. SCAQMD concluded that projects with emissions less than the screening threshold would not result in a significant cumulative impact.

Tier 4 consists of three decision tree options. Under the Tier 4 first option, the project would be excluded if design features and/or mitigation measures resulted in emissions 30 percent lower than business as usual emissions. Under the Tier 4 second option the project would be excluded if it had early compliance with AB 32 through early implementation of CARB's Scoping Plan measures. Under the Tier 4 third option, project would be excluded if was below an efficiency-based threshold of 4.8 MTCO₂eq per service population (SP) per year.¹³ Tier 5 would exclude projects that implement offsite mitigation (GHG reduction projects) or purchase offsets to reduce GHG emission impacts to less than the proposed screening level.

¹² The most recent SCAQMD GHG CEQA Significance Threshold Working Group meeting was held on September 2010.

¹³ The project-level efficiency-based threshold of 4.8 MTCO₂eq per SP per year is relative to the 2020 target date. The SCAQMD has also proposed efficiency-based thresholds relative to the 2035 target date to be consistent with the GHG reduction target date of SB 375. GHG reductions by the SB 375 target date of 2035 would be approximately 40 percent. Applying this 40 percent reduction to the 2020 targets results in an efficiency threshold for plans of 4.1 MTCO₂eq per SP per year and an efficiency threshold at the project level of 3.0 MTCO₂eq/year.



GHG efficiency metrics are utilized as thresholds to assess the GHG efficiency of a project on a per capita basis or on a “service population” basis (the sum of the number of jobs and the number of residents provided by a project) such that the project would allow for consistency with the goals of AB 32 (i.e., 1990 GHG emissions levels by 2020 and 2035). GHG efficiency thresholds can be determined by dividing the GHG emissions inventory goal of the State, by the estimated 2035 population and employment. This method allows highly efficient projects with higher mass emissions to meet the overall reduction goals of AB 32, and is appropriate, because the threshold can be applied evenly to all project types (residential or commercial/retail only and mixed use).

The 4.8 MTCO₂eq per SP per year efficiency-based threshold has been selected as the significance threshold, as it is most applicable to the proposed project. The 4.8 MTCO₂eq per SP per year threshold is used in addition to the qualitative thresholds of significance set forth below from section VII of Appendix G to the CEQA Guidelines.

CEQA SIGNIFICANCE CRITERIA

The environmental analysis in this section is patterned after the Initial Study Checklist recommended by Appendix G of the CEQA Guidelines, as amended, and used by the City of Lake Forest in its environmental review process. The Initial Study Checklist includes questions relating to GHG emissions. The issues presented in the Initial Study Checklist have been utilized as thresholds of significance in this section. Accordingly, a project may create a significant adverse environmental impact if it would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; refer to Impact Statement GHG-1.
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases; refer to Impact Statement GHG-2.

Based on these standards/criteria, the effects of the proposed project have been categorized as either a “less than significant impact” or a “potentially significant impact.” If a potentially significant impact cannot be reduced to a less than significant level through the application of goals, policies, standards or mitigation, it is categorized as a significant and unavoidable impact. The standards used to evaluate the significance of impacts are often qualitative rather than quantitative because appropriate quantitative standards are either not available for many types of impacts or are not applicable for some types of projects.

5.7.4 OVERVIEW OF OSA PEIR GHG ANALYSIS

The OSA PEIR analyzed GHG emissions in Chapter 7, *Recirculated Portions of the Draft PEIR*. The OSA PEIR determined that future development projects anticipated during implementation of the OSA would result in increased GHG emissions due to increased vehicle miles traveled (VMT), increased electricity and natural gas consumption, and increased solid waste generation and subsequent disposal into landfills.



Development under the OSA in 2030 would result in a total of approximately 124,140 tons of CO₂eq compared to 382,873 tons of CO₂eq without the OSA. City-wide development in 2030 with the OSA is estimated to generate approximately 1,160,491 tons of CO₂eq compared with approximately 1,373,266 tons of CO₂eq without the OSA. Therefore, as a land use strategy, the OSA would likely result in fewer GHG emissions than the existing General Plan land use designations in the project area.

Implementation of OSA PEIR Mitigation Measures GCC1 through GCC8 would reduce the incremental GHG emissions associated with implementation of the OSA. However, the OSA PEIR conservatively assumed that the reductions would not be to a level less than cumulatively significant. Even with implementation of OSA PEIR Mitigation Measures GCC1 through GCC8, implementation of the OSA would emit a significant amount of GHG emissions. Therefore, OSA PEIR determined that the cumulatively considerable incremental contribution to the worldwide increase in GHG emissions represented by development anticipated to occur with implementation of the OSA would be significant and unavoidable. It should be noted that this analysis does not include the implementation of OSA PEIR Mitigation Measure GCC1, as it requires the City to comply with the requirements of AB 32 and SB 97 once the implementation requirements are developed. As the AB 32 and SB 97 requirements have already been developed and are in place, the analysis set forth within this section serves as compliance with OSA PEIR Mitigation Measure GCC1.

5.7.5 IMPACTS AND MITIGATION MEASURES

GREENHOUSE GAS EMISSIONS

GHG-1 GREENHOUSE GAS EMISSIONS GENERATED BY THE PROJECT WOULD HAVE A SIGNIFICANT IMPACT ON GLOBAL CLIMATE CHANGE.

Impact Analysis: The OSA PEIR (page 7-25) determined that future development projects anticipated during implementation of the OSA would result in increased GHG emissions due to increased VMT, increased electricity and natural gas consumption, and increased solid waste generation and subsequent disposal into landfills. The OSA PEIR (pages 7-28 through 7-30) conservatively assumed that despite implementation of OSA PEIR Mitigation Measures GCC1 through GCC8, implementation of the OSA would emit a significant amount of GHG emissions. GHG impacts associated with the proposed Portola Center project are discussed below.

Direct project-related GHG emissions for “business as usual” conditions include emissions from construction activities, area sources, and mobile sources. Table 5.7-1, *Business As Usual Greenhouse Gas Emissions*, presents the estimated CO₂, N₂O, and CH₄ emissions.



**Table 5.7-1
Business As Usual Greenhouse Gas Emissions**

Source	CO ₂	CH ₄		N ₂ O		Total Metric Tons of CO ₂ eq
	Metric Tons/year ¹	Metric Tons/year ¹	Metric Tons of CO ₂ eq ²	Metric Tons/year ¹	Metric Tons of CO ₂ eq ²	
Direct Emissions						
▪ Construction (amortized over 30 years)	656.53	0.07	1.54	0.00	0.00	657.62
▪ Area Source	704.78	0.33	6.93	0.01	3.10	716.05
▪ Mobile Source	12,738.98	0.53	11.13	0.00	0.00	12,750.15
<i>Total Unmitigated Direct Emissions³</i>	<i>14,100.29</i>	<i>0.93</i>	<i>19.60</i>	<i>0.01</i>	<i>3.10</i>	<i>14,123.82</i>
Indirect Emissions						
▪ Energy	3,262.09	0.10	2.10	0.06	18.60	3,282.22
▪ Solid Waste	180.13	10.65	223.65	0.00	0.00	403.68
▪ Water Demand	407.86	1.93	40.53	0.05	15.50	465.15
<i>Total Unmitigated Indirect Emissions³</i>	<i>3,850.08</i>	<i>12.68</i>	<i>266.28</i>	<i>0.11</i>	<i>34.10</i>	<i>4,151.05</i>
Total Project-Related Emissions³	18,274.87 MTCO₂eq/year					
Per Capita GHG Emissions^{3,4}	6.6 MTCO₂eq/year					
Notes:						
1. Emissions calculated using CalEEMod computer model.						
2. CO ₂ Equivalent values calculated using the EPA Website, <i>Greenhouse Gas Equivalencies Calculator</i> , http://www.epa.gov/cleanenergy/energy-resources/calculator.html , accessed June 2013.						
3. Totals may be slightly off due to rounding.						
4. Per capita emissions are based on a service population of 2,779 (2,759 residents and 20 employees) calculated within <u>Section 4.13, Population and Housing</u> of the <i>Portola Center Project Modified Initial Study/Environmental Checklist</i> (dated June 2012); refer to <u>Appendix 11.1, Modified Initial Study and Notice of Preparation</u> .						
Refer to <u>Appendix 11.6, Air Quality and Greenhouse Gas Data</u> , for detailed model input/output data.						

The California Emissions Estimator Model (CalEEMod) computer model outputs contained within the Appendix 11.6 Air Quality and Greenhouse Gas Data, were used to calculate mobile source, area source, and construction related GHG emissions. Operational GHG estimations are based on energy emissions from natural gas usage and automobile emissions. CalEEMod relies upon construction phasing and project specific land use data to calculate emissions; refer to Appendix 11.6. GHGs associated with area sources and mobile sources would be 716.05 MTCO₂eq/year and 12,750.15 MTCO₂eq/year, respectively. GHG emissions from construction would result in 19,728.46 MTCO₂eq for all construction phases. Construction GHG emissions are typically summed and amortized over the lifetime of the project (assumed to be 30 years), then added to the operational emissions.¹⁴ Total project-related direct operational emissions would result in 14,123.82 MTCO₂eq/year.

Indirect Project Related Sources of Greenhouse Gases

Energy Consumption. Energy Consumption emissions were calculated using the CalEEMod model and project-specific land use data. Electricity would be provided to the project site via Southern

¹⁴ The project lifetime is based on the standard 30 year assumption of the South Coast Air Quality Management District (<http://www.aqmd.gov/hb/2008/December/081231a.htm>).



California Edison. The project would indirectly result in 3,282.22 MTCO₂eq/year due to energy consumption; refer to [Table 5.7-1](#).

Solid Waste. Solid waste associated with operations of the proposed project would result in 403.68 MTCO₂eq/year; refer to [Table 5.7-1](#).

Water Demand. The Irvine Ranch Water District would be the main water supply provider to the proposed project. Approximately 50 percent of the project's water supply would be provided by imported sources and the balance of the potable supplies would come from local groundwater. Emissions from indirect energy impacts due to water supply would result in 465.15 MTCO₂eq/year.

Total Project-Related Sources of Greenhouse Gases. As shown in [Table 5.7-1](#), the total amount of project-related "business as usual" GHG emissions from direct and indirect sources combined would total 18,274.87 MTCO₂eq/year, which would be approximately 6.6 MTCO₂eq/year per capita.

Greenhouse Gas Emission Reduction Features

The proposed project would incorporate several design features that reduce GHG emissions. The proposed project would incorporate sustainable practices which include transportation, water, energy, solid waste, and land use efficiency measures. A list of the proposed project's GHG reducing design features are provided below.

Energy Efficiency

- The proposed project would use both indoor and outdoor energy efficient lighting and design. The proposed project would be required to comply with the California Green Building Standards Code (CalGreen) (Title 24 of the California Code of Regulations). Indoor residential appliances and heating and cooling systems would also meet the EPA's energy star certification. Homes and community facilities would be pre-plumbed for solar heating for pools and spas. Additionally, OSA PEIR Mitigation Measure GCC2 requires all buildings to achieve the applicable Tier 1 voluntary measures of the *2010 California Green Building Standards Code* (California Code of Regulations, Title 24, Part 11).
- The project would reduce unnecessary outdoor lighting. The proposed buildings and parking lots would only include lighting necessary to ensure safety, and would not be excessive. All outdoor lighting, including lighting for streets, parks, and other public spaces, would meet Title 24 standards. In general, lighting would be optimized to balance energy conservation with public safety.
- The project would include tree shading along paved areas to reduce solar heat gain. Additionally, green spaces and parks are integrated throughout the project to reduce the heat island effect.



Water Conservation and Efficiency

- Indoor residential plumbing products would carry the EPA Water Sense certification. Indoor water fixtures (shower heads, faucets, and toilets) would comply with CalGreen standards. The project would also comply with the City's Water Efficient Landscape Ordinance by using high-efficiency irrigation equipment including drip emitters and smart irrigation water meters (e.g., soil moisture sensors, etc.) for all dedicated irrigation water meters. The project would also incorporate drought tolerant, low-water usage plants in public and private landscaped areas. Watering methods would be restricted and runoff would be controlled. These reductions are also required in OSA PEIR Mitigation Measure GCC6.
- The project includes pre-treatment sediment, oil, and trash removal through the use of nutrient separating baffle boxes and storm water retention and pollutant removal strategies to manage storm water runoff.

Solid Waste

- The project would reuse and recycle construction and demolition waste to the extent practicable and required by the City of Lake Forest. OSA PEIR Mitigation Measure GCC5 requires 25 percent of nonhazardous construction and/or debris to be recycled and/or salvaged.
- The project's public spaces, community facilities, and commercial areas would provide easy and convenient recycling opportunities to residents and users. Recycling service would be provided to all single family, multi-family, and nonresidential users on site. Additionally, Mitigation Measure GHG-1 requires a solid waste diversion rate of at least 50 percent for the project.

Land Use

- The project includes a mixture of single family, multi-family, affordable housing, and 10,000 square feet of neighborhood-serving retail/commercial uses. Pedestrian-oriented/walkable parks are located throughout the project site, including a large 5-acre public neighborhood park. The project also includes over 1.5 miles of new hiking and walking trails with exercise/fitness stations "par courses". The project would also preserve and create open space and parks. In addition to the trails and parks described above, the project includes 32.4 acres of offsite preserve land that has already been dedicated to the City.
- The project site is served by bus transit lines operated by the Orange County Transportation Authority (OCTA) along various roadways surrounding the project site including Portola Parkway, Pauling Drive, and Lake Forest Drive. Approximately nine stops are within one-mile of the project site.



- Trees and vegetation would be planted in the landscape areas, including parkways adjacent to most streets and in the private and public parks onsite, consistent with Orange County Fire Authority guidelines and the project's Landscape Plan.
- The project would not disrupt or create barriers to non-motorized transportation. The project includes sidewalks and paths connecting the project site to the surrounding circulation network.
- Sidewalks along most streets are set back from the street by a landscaped parkway to buffer pedestrians from moving traffic. Parks, multi-family, and mixed use areas would incorporate bicycle parking.
- The project includes over 1.5 miles of new trails with connections to Glenn Ranch Road as well as to the open space trail networks in the Whiting Ranch Regional Preserve and Aliso Creek corridor. Street widths have also been narrowed to slow traffic and support bicycle use.
- The project includes 57 affordable apartments co-located in a mixed use center supporting 10,000 square feet of neighborhood-serving commercial/retail space. The project also includes 18 attached secondary units distributed throughout single-family neighborhoods as part of its affordable housing obligation.

Mitigated Greenhouse Gas Emissions

Implementation of the project design features, OSA Mitigation Measures GCC2 through GCC8, and Mitigation Measure GHG-1 would result in reduced project-related GHG emissions. GHG reductions were applied using CalEEMod. Table 5.7-2, *Mitigated Greenhouse Gas Emissions*, shows the reduced GHG emissions associated with the project design features required by the OSA Mitigation Measures and Mitigation Measure GHG-1 regarding water, energy, solid waste, and land use efficiency measures.

Reduction measures accounted for in Table 5.7-2 and required by the OSA PEIR Mitigation Measures and Mitigation Measure GHG-1 include the following:

- Pedestrian connections to the off-site circulation network;
- Energy efficient buildings, 15 percent above Title 24 requirements;
- Install high efficiency lights for public street and area lighting;
- Light colored "cool" roofs and cool pavements, and strategically placed shade trees;
- High efficiency lighting, and energy efficient heating and cooling systems;
- Reduced unnecessary outdoor lighting;
- Water-efficient irrigation systems;
- Low-flow faucets and toilets;
- Reuse and recycling of construction and demolition waste;
- Interior and exterior storage areas for recyclables and adequate recycling containers located in public areas; and
- Institute recycling and composting services to reduce solid waste by at least 50 percent.



**Table 5.7-2
Mitigated Greenhouse Gas Emissions**

Source	CO ₂	CH ₄		N ₂ O		Total Metric Tons of CO ₂ eq
	Metric Tons/year ¹	Metric Tons/year ¹	Metric Tons of CO ₂ eq ²	Metric Tons/year ¹	Metric Tons of CO ₂ eq ²	
Direct Emissions						
▪ Construction (amortized over 30 years)	656.53	0.07	1.54	0.00	0.00	657.62
▪ Area Source	638.24	0.03	0.63	0.01	3.10	642.46
▪ Mobile Source	10,934.66	0.46	9.66	0.00	0.00	10,944.36
<i>Total Mitigated Direct Emissions</i>	<i>12,229.43</i>	<i>0.56</i>	<i>11.83</i>	<i>0.01</i>	<i>3.10</i>	<i>12,244.44</i>
Indirect Emissions						
▪ Energy	2,965.83	0.09	1.89	0.05	15.50	2,984.15
▪ Water Demand	360.42	1.63	34.23	0.05	15.50	408.88
▪ Waste	90.06	5.32	111.72	0.00	0.00	201.84
<i>Total Mitigated Indirect Emissions³</i>	<i>3,416.31</i>	<i>7.04</i>	<i>147.84</i>	<i>0.10</i>	<i>31.00</i>	<i>3,594.87</i>
Total Mitigated Project-Related Emissions³	15,839.31 MTCO₂eq/year					
Mitigated Per Capita Emissions	5.7 MTCO₂eq/year					
Per Capita Threshold	4.8 MTCO₂eq/year					
Mitigated GHG Emissions Exceed Reduction Target?	Yes					
Notes:						
1. Mitigated emissions calculated using CalEEMod computer model.						
2. CO ₂ Equivalent values calculated using the U.S. EPA Website, <i>Greenhouse Gas Equivalencies Calculator</i> , http://www.epa.gov/cleanenergy/energy-resources/calculator.html , accessed June 2013.						
3. Totals may be slightly off due to rounding.						
4. Per capita emissions are based on a service population of 2,779 (2,759 residents and 20 employees) calculated within Section 4.13, <i>Population and Housing</i> of the <i>Portola Center Project Modified Initial Study/Environmental Checklist</i> (dated June 2012); refer to <u>Appendix 11.1, Modified Initial Study and Notice of Preparation</u> .						
Refer to <u>Appendix 11.6, Air Quality and Greenhouse Gas Data</u> , for detailed model input/output data.						

As seen in Table 5.7-2, despite the implementation of project design features, OSA PEIR Mitigation Measures, and Mitigation Measure GHG-1, the project would result in GHG emissions of 5.9 MTCO₂eq per capita per year. Therefore, the project would exceed the 4.8 MTCO₂eq per capita per year project level GHG threshold. Impacts in this regard would be significant and unavoidable despite the implementation of OSA PEIR Mitigation Measures GCC2 through GCC8 and Mitigation Measure GHG-1.

Jobs Housing Balance

As described in the OSA PEIR, certain land use strategies could potentially lead to reductions in GHG emissions. For example, improving a community's jobs/housing balance could reduce vehicle miles traveled. Because VMT makes up such a large component of GHG emissions, improving the jobs/housing balance may reduce those emissions. According to the OSA PEIR, implementation of the project would improve the City's jobs/housing balance by providing greater housing, including



affordable housing² opportunities. Specifically, implementation would improve the City's jobs/housing ratio.¹⁵

The City is located within a jobs-rich portion of South Orange County. According to the OSA PEIR, the City contained 26,671 housing units and 33,022 jobs in 2005 (a ratio of 1.24 jobs per housing unit). Countywide there were 1,014,331 housing units and 1,615,936 jobs in 2005 for a ratio of 1.59 jobs per housing unit. The City borders the jobs-rich City of Irvine which contained 68,735 housing units and 219,454 jobs in 2005 for a ratio of 3.19 jobs per housing unit.

The OSA PEIR determined that implementation of the OSA (including the proposed project) would add up to 5,415 housing units and approximately 1,297 new jobs, which would improve the jobs/housing ratio from 2.23 to 1.29. According to SCAG, areas with jobs to household ratios between 1.0 and 1.29 are considered in balance. Therefore, the OSA PEIR and the proposed project would ensure a better jobs/housing balance within the City and also would place housing in a jobs dense region providing an opportunity for workers employed in the City and Irvine to live closer to work and to reduce total VMT.¹⁶

Conclusion

As shown in Table 5.7-1, "business as usual" emissions would be 18,274.87 MTCO₂eq/year (6.6 MTCO₂eq per capita per year). The project would implement project design features, OSA PEIR Mitigation Measures, and Mitigation Measure GHG-1. These sustainability measures target the transportation, water, energy, solid waste, and land use emission sectors. Implementation of these measures would reduce GHG emissions to 15,839.31 MTCO₂eq/year (5.7 MTCO₂eq per capita per year). Therefore, the project would exceed the 4.8 MTCO₂eq per capita per year project level GHG threshold. Impacts in this regard would be significant and unavoidable despite the implementation of OSA PEIR Mitigation Measures and Mitigation Measure GHG-1.

Standard Conditions of Approval: No Standard Conditions of Approval are applicable to this topical area.

Applicable OSA Mitigation Measures:

- GCC2 Prior to the issuance of building permits ~~for new commercial and retail projects or residential projects within the Opportunities Study Area~~, the City shall review the plans to confirm that the project complies with the Tier 1 requirements of Title 24, Part 11 (California Green Building Standards Code) of the California Code of Regulations.
- GCC3 Prior to the issuance of a Site Development Permit ~~for new commercial and retail projects within the Opportunities Study project area~~, site plans shall include prioritized parking for electric vehicles, hybrid vehicles, and alternative fuel vehicles.
- GCC4 The City Applicant shall ~~identify~~ utilize energy efficient street lights ~~and water and wastewater pumps and treatment systems~~ which are currently available for all private

¹⁵ EIP Associates, *City of Lake Forest Opportunities Study Draft Program EIR*, page 3.11-11, February 2006.

¹⁶ EIP Associates, *City of Lake Forest Opportunities Study Final Program EIR*, page 7-18, May 23, 2008.



- streets and which when installed will provide for a 10 percent reduction beyond the 2007 baseline energy use for this infrastructure, and shall require the use of this technology in all new development. All new traffic signals and traffic signal safety lighting (at intersections), lights installed in conjunction with the Portola Center project within the City shall use LED technology per the City's requirements. All other public street lights and water and wastewater pumps and treatment systems shall be consistent with City and/or other public agency standards.
- GCC5 The Applicant shall ~~City shall require all new development projects in the Opportunities Study Area to~~ recycle and/or salvage at least 25 percent of nonhazardous construction and demolition debris. To implement this requirement, the applicant shall submit a construction waste management plan for review and approval of the Development Services Director prior to issuance of a Building Permit. The construction waste management plan shall identify materials to be diverted from disposal and whether the materials will be stored on-site or commingled. Excavated soil and land-clearing debris do not contribute to this credit. Calculation can be done by weight or volume but must be documented.
- GCC6 Prior to approval of a Site Development Permit ~~for new development in the Opportunity Study Area,~~ the Applicant shall demonstrate on conceptual landscape plans ~~the City shall require~~ that new development within the Opportunity Study Area project site will use reclaimed water for public and common area landscaping where available; install 50 percent native/drought-tolerant plant species in developer-installed landscaped areas; and utilize “smart” advanced capability controllers (e.g., Weather-Trac) to reduce water and energy consumption.
- GCC7 Prior to approval of a Site Development Permit ~~for new commercial, retail and industrial projects within the Opportunities Study Area,~~ site plans must incorporate any combination of the following strategies to reduce heat gain created by impervious areas:
- Utilizing shade trees in common area landscaping;
 - Reducing the street widths to minimize impervious areas and reduce the use of asphalt;
 - Utilizing light-colored and reflective roofing materials and paint; and
 - Incorporating bioswales where feasible in development areas to capture urban runoff and increase the amount of pervious surfaces.
- GCC8 All commercial, ~~industrial~~ and retail development in the ~~Opportunities Study Area~~ project site shall be required to post signs and limit idling time for commercial vehicles, including delivery trucks to no more than 5 minutes.

Additional Mitigation Measures:

- GHG-1 The proposed project shall include, but not be limited to, the following list of potential design features. These features shall be incorporated into the project design to ensure consistency with adopted statewide plans and programs. The project applicant shall



demonstrate the incorporation of the following project design features prior to the issuance of building or occupancy permits as applicable.

Transportation

- Provide pedestrian connections to the off-site circulation network (prior to issuance of building permits).
- Bicycle lanes and walking paths shall be incorporated into the street system of new residential development to provide alternative circulation routes to reach logical points of destinations such as schools, parks, and retail areas (prior to issuance of building permits).
- Implement a trip reduction program, for which all employees shall be eligible to participate (prior to issuance of occupancy permit). This measure is not applicable to residential uses.
- Provide a ride sharing program, for which all employees shall be eligible to participate (prior to issuance of occupancy permit). This measure is not applicable to residential uses.

Energy Efficiency

- Install Energy Star rated appliances (prior to issuance of building permits).
- Install high efficiency heating ventilation and air conditioning (HVAC) equipment with a Seasonal Energy Efficiency Rating (SEER) of 13 or higher and thermostatic expansion (TXV) valve (prior to issuance of building permits).
- Install vinyl frame windows with dual pane low emissivity glass (prior to issuance of building permits).
- Reduce unnecessary outdoor lighting (prior to issuance of building permits).

Water Conservation and Efficiency

- Install low-flow faucets and toilets (prior to issuance of building permits).

Solid Waste

- Provide interior and exterior storage areas for recyclables and adequate recycling containers located in public areas (prior to issuance of occupancy permit).

Level of Significance: Significant and Unavoidable Impact.

CONSISTENCY WITH APPLICABLE GHG PLANS, POLICIES, OR REGULATIONS

GHG-2 IMPLEMENTATION OF THE PROPOSED PROJECT WOULD NOT CONFLICT WITH AN APPLICABLE GREENHOUSE GAS REDUCTION PLAN, POLICY, OR REGULATION.



Impact Analysis: The City of Lake Forest does not have an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. The proposed project has created an Area Plan (*Portola Center Area Plan*, dated August 11, 2011). The *Portola Center Area Plan* establishes guidelines and programs for the proposed project to achieve energy conservation through building design and reduction of non-renewable resources, and implement California-appropriate landscape practices.

In addition, the project would also be subject to all applicable regulatory requirements, which would also reduce the GHG emissions of the project. After implementation of OSA PEIR Mitigation Measures and Mitigation Measure GHG-1 and the project's Development Regulations and application of regulatory requirements, the project would implement appropriate GHG reduction strategies and would not conflict with or impede implementation of reduction goals identified in AB 32 and other strategies to help reduce GHG emissions. Therefore, the project would not conflict with an applicable GHG reduction plan, policy, or regulation and impacts would be less than significant in this regard.

Standard Conditions of Approval: No Standard Conditions of Approval are applicable to this topical area.

Applicable OSA Mitigation Measures: Refer to OSA PEIR Mitigation Measures GCC2 through GCC8.

Additional Mitigation Measures: Refer to Mitigation Measure GHG-1.

Level of Significance: Less Than Significant Impact With Mitigation Incorporated.

5.7.6 CUMULATIVE IMPACTS

Table 4-1, *Cumulative Projects List*, identifies the related projects and other possible development in the area determined as having the potential to interact with the proposed project to the extent that a significant cumulative effect may occur. The following discussions are included per topic area to determine whether a significant cumulative effect would occur.

GREENHOUSE GAS EMISSIONS

- **GREENHOUSE GAS EMISSIONS GENERATED BY THE PROJECT AND OTHER RELATED CUMULATIVE PROJECTS, WOULD HAVE A SIGNIFICANT IMPACT ON GLOBAL CLIMATE CHANGE.**

Impact Analysis: As stated above, despite project design elements, OSA PEIR Mitigation Measures GCC2 through GCC8, and Mitigation Measure GHG-1, the proposed project would result in a significant impact regarding GHG emissions. The project would implement the project design features within the *Portola Center Area Plan* as well as sustainability measures required by the OSA PEIR Mitigation Measures and additional mitigation measures. However, these sustainability measures would not reduce GHG emissions below thresholds identified in [Section 5.7.3](#).



On December 30, 2009, the Natural Resources Agency adopted the CEQA Guideline Amendments prepared by Office of Planning and Research (OPR), as directed by SB 97. On February 16, 2010, the Office of Administration Law approved the CEQA Guidelines Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The CEQA Guidelines Amendments became effective on March 18, 2010. The Natural Resources Agency originally proposed to add subdivision (f) to section 15130 to clarify that sections 21083 and 21083.05 of the Public Resources Code do not require a detailed analysis of GHG emissions solely due to the emissions of other projects (i.e., State CEQA Guidelines, Section 15130(a)(1); *Santa Monica Chamber of Commerce v. City of Santa Monica* (2002) 101 Cal.App.4th 786, 799). Rather, the proposed subdivision (f) would have provided that a detailed analysis is required when evidence shows that the incremental contribution of the project's GHG emissions is cumulatively considerable when added to other cumulative projects (i.e., *Communities for a Better Environment v. California Resources Agency* (2002), supra, 103 Cal.App.4th at 119-120). In essence, the proposed addition would be a restatement of law as applied to GHG emissions. Analysis of GHG emissions as a cumulative impact is consistent with case law arising under the National Environmental Policy Act (e.g., *Center for Biological Diversity v. National Highway Traffic Safety Administration*, 538 F.3d 1172, 1215-1217 [9th Cir. 2008]). Other portions of the CEQA Guideline Amendments address how lead agencies may determine whether a project's emissions are cumulatively considerable (e.g., Proposed Sections 1506(h)(3) and 15064.4). However, public comments noted that the new subdivision merely restated the law, and was capable of misinterpretation. The Natural Resources Agency, therefore, determined that because other provisions of the CEQA Guideline Amendments address the analysis of GHG emissions as a cumulative impact, and because the reasoning of those is fully explained in the Initial Statement of Reasons, subdivision (f) should not be added to the CEQA Guidelines. The deletion was reflected in the revisions that were made available for further public review and comment on October 23, 2009.

It is generally the case that an individual project of this size and nature is of insufficient magnitude by itself to influence climate change or result in a substantial contribution to the global GHG inventory.¹⁷ GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective.¹⁸ The additive effect of the project's GHG emissions would not result in a reasonably foreseeable cumulatively considerable contribution to global climate change. In addition, the proposed project as well as other cumulative related projects would also be subject to all applicable regulatory requirements, which would also reduce the GHG emissions of the project. However, despite the implementation of applicable OSA PEIR mitigation measures and additional mitigation measures, the proposed project would result in a significant and unavoidable impact regarding GHG emissions. It should be noted that the OSA PEIR also determined that GHG emissions would be significant on a cumulative level. Therefore, the project's cumulative GHG emissions would be considered significant and unavoidable.

Standard Conditions of Approval: No Standard Conditions of Approval are applicable to this topical area.

¹⁷ California Air Pollution Control Officers Association, *CEQA & Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*, 2008.

¹⁸ Ibid.



Applicable OSA Mitigation Measures: Refer to OSA PEIR Mitigation Measures GCC2 through GCC8.

Additional Mitigation Measures: Refer to Mitigation Measure GHG-1.

Level of Significance After Mitigation: Significant and Unavoidable Impact.

CONSISTENCY WITH APPLICABLE GHG PLANS, POLICIES, OR REGULATIONS

■ IMPLEMENTATION OF THE PROPOSED PROJECT AND OTHER RELATED CUMULATIVE PROJECTS, WOULD NOT CONFLICT WITH AN APPLICABLE GREENHOUSE GAS REDUCTION PLAN, POLICY, OR REGULATION.

Impact Analysis: As described above, the proposed project would not conflict with an adopted plan, policy, or regulation pertaining to GHGs and would be required to comply with the Development Regulations within the *Portola Center Area Plan*. Additionally, the proposed project and all related cumulative projects would be subject to all applicable regulatory requirements, which would also reduce the GHG emissions of the project. Implementation of OSA PEIR Mitigation Measures GCC2 through GCC8 and Mitigation Measure GHG-1, the project's Development Regulations, and other regulatory requirements would ensure that the project would not conflict with or impede implementation of reduction goals identified in AB 32, SB 375 and other strategies to help reduce GHG emissions. Cumulative projects would be required to be consistent with the reduction goals of AB 32, SCAG's SB 375 SCS, and other state and regional strategies to avoid significant GHG impacts. The proposed project would not generate a significant amount of per capita GHG emissions and the proposed project would not result in a cumulatively considerable impact with regard to a conflict with an adopted GHG reduction plan, policy, or regulation. There are no other applicable plans, policies, or regulations that have been adopted by the City or other regulating agency for the purpose of reducing GHG emissions. Therefore, impacts in this regard would be less than significant.

Standard Conditions of Approval: No Standard Conditions of Approval are applicable to this topical area.

Applicable OSA Mitigation Measures: Refer to OSA PEIR Mitigation Measures GCC2 through GCC8.

Additional Mitigation Measures: Refer to Mitigation Measure GHG-1.

Level of Significance After Mitigation: Less Than Significant Impact.

5.7.7 SIGNIFICANT UNAVOIDABLE IMPACTS

Implementation of the proposed project would result in a significant and unavoidable impact for the following areas:



- Greenhouse Gas Emissions – Implementation of these mitigation measures would reduce project-related GHG emissions to 5.9 MTCO₂eq per capita per year, which would exceed the 4.8 MTCO₂eq per capita per year project level GHG threshold. Therefore, impacts in this regard would be significant and unavoidable despite the implementation of project design features (within the *Portola Center Area Plan*), OSA PEIR Mitigation Measures GCC2 through GCC8, and Mitigation Measure GHG-1.
- Cumulative Greenhouse Gas Emissions – As stated above, project-related GHG emissions would be significant and unavoidable despite the implementation of applicable OSA PEIR Mitigation Measures GCC2 through GCC8, and Mitigation Measure GHG-1. Therefore, the project's cumulative GHG emissions would be considered significant and unavoidable.

If the City of Lake Forest approves the project, the City shall be required to adopt findings of fact in accordance with Section 15091 of the CEQA Guidelines, as well as adopt a Statement of Overriding Considerations in accordance with Section 15093 of the CEQA Guidelines.