SECTION 5.5
Greenhouse Gas Emissions

5.5 GREENHOUSE GAS EMISSIONS

This section evaluates the potential global climate change impacts associated with the proposed project. The proposed project's potential direct and cumulative contribution to greenhouse gas (GHG) emissions and global climate change are analyzed. Climate change modeling and mitigation guidance is taken from numerous sources noted in the text, including the California Air Resources Board (CARB) *Scoping Plan* (October 2008), the California Air Pollution Control Officers Association (CAPCOA) *CEQA and Climate Change White Paper* (January 2008), CAPCOA, *Quantifying Greenhouse Gas Mitigation Measures (*September 2010), and the California Attorney General recommended mitigation measures. Refer to Appendix I, Greenhouse Gas Data, for the assumptions used in this analysis.

5.5.1 REGULATORY SETTING

FEDERAL

The Federal Clean Air Act (FCAA) requires the U.S. Environmental Protection Agency (U.S. EPA) to define national ambient air quality standards (national standards) to protect public health and welfare in the United States. The FCAA does not specifically regulate GHG emissions; however, on April 2, 2007 the U.S. Supreme Court in *Massachusetts v. U.S. Environmental Protection Agency*, determined that GHGs are pollutants that can be regulated under the FCAA. The EPA adopted an endangerment finding and cause or contribute finding for GHGs on December 7, 2009. The final findings were published in the Federal Register on December 15, 2009 under Docket ID No. EPA-HQ-OAR-2009-0171. The final rule was effective January 14, 2010.

Under the endangerment finding, the Administrator found that the current and projected atmospheric concentrations of the six, key, well-mixed GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) threaten the public health and welfare of current and future generations. Under the cause of contribute finding, the Administrator found that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare.

Based on these findings, on April 1, 2010, the U.S. EPA finalized the light-duty vehicle rule controlling GHG emissions. This rule confirmed that January 2, 2011, is the earliest date that a 2012 model year vehicle meeting these rule requirements may be sold in the United States. On May 13, 2010, the U.S. EPA issued the final GHG Tailoring Rule. This rule set thresholds for GHG emissions that define when permits under the Prevention of Significant Deterioration and Title V Operating Permit programs are required for new and existing industrial facilities. Currently, U.S. EPA rules do not cover residential construction projects. Implementation of the Federal rules is expected to reduce the level of emissions from new motor vehicles and large stationary sources. The U.S. EPA annually publishes the *Inventory of U.S. Greenhouse Gas Emissions and Sinks* for estimating sources of GHGs that is generally consistent with the Intergovernmental Panel on Climate Change (IPCC) methodology developed in its *Guidelines for National Greenhouse Gas Inventories*.

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.

There are currently no state regulations in California that establish ambient air quality standards for GHGs. However, California has passed laws directing CARB to develop actions to reduce GHG emissions, and several state legislative actions related to climate change and GHG emissions have come into play in the past decade.

Assembly Bill 1493. In 2002, then-Governor Gray Davis signed AB 1493 (Chapter 200, Statutes of 2002, amending Section 42823 of the California Health and Safety Code and adding Section 43018.5 to the code). AB 1493 required CARB to develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of GHGs 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 (13 CCR Section 1900, 1961), and adoption of Section 1961.1 (13 CCR Section 1961.1), require automobile manufacturers, beginning with the 2009 model year, to meet fleet-average GHG emissions limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes (i.e., any medium-duty vehicle with a gross vehicle weight rating less than 10,000 pounds that is designed primarily for the transportation of persons). The regulations would reduce GHG emissions from California passenger vehicles by about 22 percent by 2012 and about 30 percent by 2016.

In December 2004, a group of car dealerships, automobile manufacturers, and trade groups representing automobile manufacturers filed suit against CARB to prevent enforcement of 13 CCR Sections 1900 and 1961, as amended by AB 1493 and 13 CCR 1961.1 (*Central Valley Chrysler-Jeep et al. v. Catherine E. Witherspoon, in Her Official Capacity as Executive Director of the California Air Resources Board, et al*. [456 F.Supp.2d 1150, 1172, E.D. Cal. 2006]). The suit in the U.S. District Court for the Eastern District of California contended that California's implementation of regulations that regulate vehicle fuel economy would violate various federal laws, regulations, and policies.

In January 2007, the judge hearing the case accepted a request from the California Attorney General's office that the trial be postponed until a decision is reached by the U.S. Supreme Court on a separate case addressing GHGs. In the U.S. Supreme Court case, *Massachusetts v. U.S. Environmental Protection Agency*, the primary issue in question was whether the FCAA authorizes the U.S. EPA to regulate CO_2 emissions. The U.S. EPA contended that the FCAA does not authorize regulation of CO_2 emissions, whereas Massachusetts and ten other states,

including California, sued the EPA to begin regulating CO_2. As mentioned above, the U.S. Supreme Court ruled on April 2, 2007, that GHGs are "air pollutants" as defined under the FCAA and that the EPA is granted authority to regulate CO_2 (*Massachusetts v. U.S. Environmental Protection Agency* [2007] 549 U.S. 05-1120).

On December 12, 2007, the U.S. District Court for the Eastern District of California rejected the automakers' claim by finding that if California receives appropriate authorization from the U.S. EPA (the last remaining factor in enforcing the standard); these regulations would be consistent with and have the force of federal law. This authorization to implement more stringent standards in California was requested in the form of a FCAA Section 209(b) waiver in 2005. Since that time, the U.S. EPA has failed to act in granting California authorization to implement the standards. The U.S. EPA denied California's request for the waiver to implement AB 1493 in late December 2007. On January 21, 2009, CARB submitted a letter to U.S. EPA Administrator Jackson regarding California's request to reconsider the waiver denial. The U.S. EPA approved the waiver on June 30, 2009.

Assembly Bill 32. 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. This reduction will be accomplished by enforcing a statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. 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.

AB 32 requires CARB to adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrived at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state reduces GHG emissions enough to meet the cap. AB 32 also includes guidance on instituting emissions reductions in an economically efficient manner, along with conditions to ensure that businesses and consumers are not unfairly affected by the reductions. Using these criteria to reduce statewide GHG emissions to 1990 levels by 2020 would represent an approximate 25 to 30 percent reduction in current emissions levels. However, CARB has discretionary authority to seek greater reductions in more significant and growing GHG sectors, such as transportation, as compared to other sectors that are not anticipated to significantly increase emissions. Under AB 32, CARB must adopt regulations by January 1, 2011 to achieve reductions in GHGs to meet the 1990 emission cap by 2020.

Executive Order S-10-04. 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 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.[1]

Executive Order S-3-05. Executive Order S-3-05 was established in 2005, in recognition of California's vulnerability to the effects of climate change. 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 CalEPA 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 CalEPA 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-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.

On April 23, 2009 CARB approved the proposed regulation to implement the LCFS. The LCFS will reduce GHG emissions from the transportation sector in California by about 16 million metric tons (MMT) in 2020. The LCFS is designed to reduce California's dependence on petroleum, create a lasting market for clean transportation technology, and stimulate the production and use of alternative, low-carbon fuels in California. The LCFS is designed to provide a durable framework that uses market mechanisms to spur the steady introduction of lower carbon fuels. The framework establishes performance standards that fuel producers and importers must meet each year beginning in 2011. One standard is established for gasoline and the alternative fuels that can replace it. A second similar standard is set for diesel fuel and its replacements.

[1] California Energy Commission, *Green Building Initiative, State of California Executive Order S-20-04,* http://www.energy.ca.gov/greenbuilding/, accessed on January 13, 2011.

The standards are "back-loaded"; that is, there are more reductions required in the last five years, than the first five years. This schedule allows for the development of advanced fuels that are lower in carbon than today's fuels and the market penetration of plug-in hybrid electric vehicles, battery electric vehicles, fuel cell vehicles, and flexible fuel vehicles. It is anticipated that compliance with the LCFS will be based on a combination of strategies involving lower carbon fuels and more efficient, advanced-technology vehicles.

Senate Bill 97. Senate Bill (SB) 97 of 2007 requires the California Office of Planning and Research (OPR) to develop CEQA guidelines for analysis and, if necessary, the mitigation of effects of GHG emissions to the Resources Agency. These guidelines for analysis and mitigation must address, but are not limited to, GHG emissions effects associated with transportation or energy consumption. On December 30, 2009, 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. These new guidelines require a survey of existing climate change analyses performed by various lead agencies under CEQA[2]. In his signing statement, then Governor Arnold Schwarzenegger noted:

> Current uncertainty as to what type of analysis of GHG emissions is required under the California Environmental Quality Act has led to legal claims being asserted, which would stop these important infrastructure projects. Litigation under CEQA is not the best approach to reduce GHG emissions and maintain a sound and vibrant economy. To achieve these goals, we need a coordinated policy, not a piecemeal approach dictated by litigation.

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 address 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 8 years but can be updated every 4 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.

This law also extends the minimum time period for the regional housing needs allocation cycle from five years to eight years for local governments located within an MPO that meets certain requirements. City or County land use policies (including general plans) are not required to be consistent with the regional transportation plan (and associated SCS or APS). However, new provisions of CEQA would incentivize (through streamlining and other provisions) qualified projects that are consistent with an approved SCS or APS, categorized as "transit priority projects."

[2] California Natural Resources Agency, *CEQA Guidelines Amendments*, http://ceres.ca.gov/ceqa/docs/Adopted_Text_of_SB97_CEQA_Guidelines_Amendments.pdf. Accessed March 2010.

CARB Scoping Plan. CARB prepared the *Draft AB 32 Climate Change Scoping Plan* (Scoping Plan) in June 2008 to achieve reductions in GHG emissions in California pursuant to the requirements of AB 32. The Scoping Plan contains the main strategies California will use to reduce GHG emissions. Additionally, the Scoping Plan has a range of GHG reduction actions which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 cost of implementation fee regulation to fund the program. These measures were introduced through four workshops between November 30, 2007 and April 17, 2008. The Draft Scoping Plan was released for public review and comment on June 26, 2008, followed by more workshops in July and August 2008. CARB adopted the Draft Scoping Plan at its December 12, 2008 board hearing.

LOCAL

CITY OF SANTA CLARITA GENERAL PLAN

The *General Plan Conservation and Open Space Element* includes goals, objectives, and policies relating to the reduction of GHG emissions within the City.
The following objectives and policies from the *General Plan Conservation and Open Space Element* are relevant to the proposed project.

Objective CO 8.1: Comply with the requirements of State law, including AB 32, SB 375 and implementing regulations, to reach targeted reductions of GHG emissions.

Policy CO 8.1.4: Provide information Provide information and education to the public about energy conservation and local strategies to address climate change.

Policy CO 8.2.6: Promote use of solar lighting in parks and along paseos and trails, where practical.

Policy CO 8.2.8: Promote the purchase of energy-efficient and recycled products, and vendors and contractors who use energy-efficient vehicles and products, consistent with adopted purchasing policies.

Policy CO 8.2.9: Reduce heat islands through installation of trees to shade parking lots and hardscapes, and use of light-colored reflective paving and roofing surfaces.

Policy CO 8.2.10: Support installation of energy-efficient traffic control devices, street lights, and parking lot lights.

Policy CO 8.2.14: Reduce extensive heat gain from paved surfaces through development standards wherever feasible.

Objective CO 8.3: Encourage the following green building and sustainable development practices on private development projects, to the extent reasonable and feasible.

Policy CO 8.3.1: Evaluate site plans proposed for new development based on energy efficiency pursuant to LEED (Leadership in Energy and Environmental Design) standards for New Construction and Neighborhood Development, including the following: a) location efficiency; b) environmental preservation; c) compact, complete, and connected neighborhoods; and d) resource efficiency, including use of recycled materials and water.

Policy CO 8.3.2: Promote construction of energy efficient buildings through requirements for LEED certification or through comparable alternative requirements as adopted by local ordinance.

Policy CO 8.3.4: Encourage new residential development to include on-site solar photovoltaic systems, or pre-wiring, in at least 50% of the residential units, in concert with other significant energy conservation efforts.

Policy CO 8.3.6: Require new development to use passive solar heating and cooling techniques in building design and construction, which may include but are not be limited to building orientation, clerestory windows, skylights, placement and type of windows, overhangs to shade doors and windows, and use of light colored roofs, shade trees, and paving materials.

Policy CO 8.3.7: Encourage the use of trees and landscaping to reduce heating and cooling energy loads, through shading of buildings and parking lots.

Policy CO 8.3.8: Encourage energy-conserving heating and cooling systems and appliances, and energy-efficiency in windows and insulation, in all new construction.

Policy CO 8.3.9: Limit excessive lighting levels, and encourage a reduction of lighting when businesses are closed to a level required for security.

Objective CO 8.4: Reduce energy consumption for processing raw materials by promoting recycling and materials recovery by all residents and businesses throughout the community.

Policy CO 8.4.3: Allow and encourage composting of greenwaste, where appropriate.

5.5.2 ENVIRONMENTAL 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 Gorgonio 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.

GLOBAL CLIMATE CHANGE GASES

The natural process through which heat is retained in the troposphere is called the "greenhouse effect."[3] The greenhouse effect traps heat in the troposphere through a three fold 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 (CO_2). 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. The GWP of a gas is determined using CO_2 as the reference gas with a GWP of 1.

GHGs normally associated with the proposed project include the following:[4]

- *Water Vapor (H_2O)*. 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 IPCC has not determined a GWP for water vapor.

- *Carbon Dioxide (CO_2)*. CO_2 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 CO_2 in the atmosphere has increased 36 percent.[5] CO_2 is the most widely emitted GHG and is the reference gas (GWP of 1) for determining GWPs for other GHGs.

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

4 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).

5 United States Environmental Protection Agency, *Inventory of United States Greenhouse Gas Emissions and Sinks 1990 to 2008*, April 2010.

- *Methane (CH_4)*. CH_4 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 $CH_4$are landfills, natural gas systems, and enteric fermentation. $CH_4$is the primary component of natural gas, which is used for space and water heating, steam production, and power generation. The GWP of $CH_4$is 21.
- *Nitrous Oxide (N_2O)*. N_2O 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 GWP of N_2O 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 GWP of HFCs range from 140 for HFC-152a to 11,700 for HFC-23.[6]
- *Perfluorocarbons (PFCs)*. PFCs are compounds consisting of carbon and fluorine. They are primarily created as a byproduct of aluminum production and semi conductor manufacturing. PFCs are potent GHGs with a GWP several thousand times that of CO_2, depending on the specific PFC. Another area of concern regarding PFCs is their long atmospheric lifetime (up to 50,000 years).[7] The GWP of PFCs range from 6,500 to 9,200.
- *Sulfur hexafluoride (SF_6)*. SF_6 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. SF_6 is the most potent GHG that has been evaluated by the Intergovernmental Panel on Climate Change with a GWP of 23,900. However, its global warming contribution is not as high as the GWP would indicate due to its low mixing ratio compared to CO_2 (4 parts per trillion [ppt] in 1990 versus 365 parts per million [ppm], respectively).[8]

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 O_3 depletors; 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

6 United States Environmental Protection Agency, *High GWP Gases and Climate Change*, June 22, 2010. http://www.epa.gov/highgwp/scientific.html#hfc
7 United States Environmental Protection Agency, *High GWP Gases and Climate Change*, June 22, 2010. http://www.epa.gov/highgwp/scientific.html#pfc
8 United States Environmental Protection Agency, *High GWP Gases and Climate Change*, June 22, 2010. http://www.epa.gov/highgwp/scientific.html#sf6

cap by 2030. The GWPs of HCFCs range from 93 for HCFC-123 to 2,000 for HCFC-142b.[9]

- *1,1,1 trichloroethane*. 1,1,1 trichloroethane or methyl chloroform is a solvent and degreasing agent commonly used by manufacturers. The GWP of methyl chloroform is 110 times that of CO_2.[10]
- *Chlorofluorocarbons (CFCs)*. CFCs are used as refrigerants, cleaning solvents, and aerosols spray propellants. CFCs were also part of the EPA's Final Rule (57 FR 3374) for the phase out of O_3 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 GWPs ranging from 4,600 for CFC 11 to 14,000 for CFC 13.[11]

5.5.3 SIGNIFICANCE THRESHOLD 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. That being said, several options are available to lead agencies.

First, 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 (see *CEQA Guidelines* Section15064.7(c)). However, to date, neither CARB nor SCAQMD have adopted significance thresholds for GHG emissions for residential or commercial development under CEQA.[12] CARB has suspended all efforts to develop a threshold, and SCAQMD's threshold remains in draft form. Accordingly, this option (i.e., reliance on an adopted threshold) is not viable.

Second, lead agencies may elect to conclude that the significance of GHG emissions under CEQA is too speculative. However, this option is not viable due to the important focus on global climate change created by the various regulatory schemes and scientific determinations cited in this section.

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9 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

10 Ibid.

11 United States Environmental Protection Agency, *Class I Ozone Depleting Substances*, March 7, 2006. http://www.epa.gov/ozone/ods.html

12 Of note, in December 2009, the San Joaquin Valley Unified Air Pollution Control District adopted guidance for use by lead agencies in the valley, in assessing the significance of a project's GHG emissions under CEQA. The guidance relies on the use of performance-based standards, and requires that projects demonstrate a 29 percent reduction in GHG emissions, from business-as-usual, to determine that a project would have a less than significant impact. The guidance is for valley land use agencies and not applicable to areas outside the district. The Bay Area Air Quality Management District (BAAQMD) adopted its own GHG thresholds of significance on June 2, 2010. The threshold is based on quantitative standards including a per capita emission standard and project emission standard as well as a qualitative standard based on compliance with a qualified GHG reduction strategy. The BAAQMD thresholds are based on an analysis of local inventories of GHG emissions and local reduction programs; therefore, they would not be an appropriate basis for a GHG significance threshold in the City of Santa Clarita.

Third, lead agencies may elect to use a zero-based threshold, such that any emission of GHGs is significant and unavoidable. However, the use of this type of threshold would indirectly truncate the analysis provided in CEQA documents and the mitigation commitments secured from new development, and could result in the preparation of extensive environmental documentation for even the smallest of projects, thereby inundating lead agencies and creating an administrative burden. Moreover, because the GHG analysis is a cumulative analysis, a zero based threshold would be inconsistent with *CEQA Guidelines* Section 15130(a)(3), which requires that cumulatively significant impacts, such as GHG emissions, be "cumulatively considerable", as defined by Section 15065(a)(3).

Fourth, lead agencies may elect to utilize their own significance criteria, so long as such criteria are informed and supported by substantial evidence. Recent amendments to the CEQA Guidelines, and specifically the addition of CEQA Guidelines Section 15064.4, subdivision (b), informed the City's selection of a significance criterion:

> *"A lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:*
>
> *(1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;*
>
> *(2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project;*
>
> *(3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project".*

CEQA Guidelines Appendix G has been revised to provide some guidance regarding the criteria that may be used to assess whether a project's impacts on global climate change are significant. The Appendix G environmental checklist form asks whether a project would: (i) generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or (ii) conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs.

Based on the above factors (and particularly the adopted addition of *CEQA Guidelines S*ection 15064.4, subdivisions (b)(2) and (b)(3)), the City of Santa Clarita (the lead agency for the proposed project) has determined it is appropriate to rely on AB 32 implementation guidance (such as the CARB Scoping Plan) as a benchmark for purposes of this EIR and use the statute to inform their judgment as to whether the proposed project's GHG emissions would result in a significant impact (refer to *CEQA Guidelines*, §15064, subdivision [f][1]). Accordingly, the following significance criterion is used to assess impacts:

Will the project's GHG emissions impede compliance with the GHG emissions reductions mandated in AB 32?

The GHG emission levels will be analyzed to determine whether project approval would impede compliance with the GHG emissions reduction mandate established by the AB 32, which requires that California's GHG emissions limit be reduced to 1990 levels by 2020. As noted in the Scoping Plan,[13] a reduction of 28.5 percent below the "business as usual" scenario is required to meet the goals of AB 32.[14] Therefore, should the project reduce its GHG emissions by 28.5 percent or greater, impacts would be less than significant.

The *City of Santa Clarita Local CEQA Guidelines* (Resolution 05-38) adopted on April 26, 2005 and the Initial Study Environmental Checklist form in *CEQA Guidelines* Appendix G serve as the thresholds for determining the significance of impacts relating to greenhouse gas emissions. As such, a project would be considered to have a significant environmental impact if it would result in the following:

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

Based on these standards, the effects of the proposed project have been categorized as either a "less than significant impact" or a "potentially significant impact." Mitigation measures are recommended for potentially significant impacts. If a potentially significant impact cannot be reduced to a less than significant level through the application of mitigation, it is categorized as a significant unavoidable impact.

5.5.4 PROJECT IMPACTS AND MITIGATION MEASURES

GREENHOUSE GAS EMISSIONS

- ***GREENHOUSE GAS EMISSIONS GENERATED BY THE PROPOSED PROJECT COULD HAVE A SIGNIFICANT IMPACT ON THE ENVIRONMENT.***

Level of Significance Before Analysis and Mitigation: Potentially Significant Impact.

Impact Analysis: Currently, there is no adopted threshold of significance for determining the cumulative significance of a project's GHG emissions on global climate change. However, the available scientific evidence suggests that even without a net increase in GHG emissions, effects would remain significant due to past and existing emissions levels. In the most recent IPCC assessment report (2007), the IPCC acknowledges that anthropogenic climate change and sea level rise would continue for centuries due to the time scales associated with climate

[13] California Air Resources Board, *Climate Change Proposed Scoping Plan: A Framework for Change*, adopted December 2008.

[14] "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.

processes and feedbacks even if GHG concentrations were to be stabilized.[15] The IPCC further found that both past and future anthropogenic CO_2 emissions would continue to contribute to climate change and sea level rise for more than a millennium, due to the time scales required for the removal of this gas from the atmosphere.[16] Further, the IPCC assessment noted that defining what is dangerous anthropogenic interference with the climate system and, consequently, the limits to be set for policy purposes are complex tasks that can only be partially based on science, as such definitions inherently involve normative judgments.[17]

The IPCC constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. It concluded that a stabilization of GHGs at 400 to 450 parts per million (ppm) CO_2-equivalent concentration is required to keep global mean warming below two degrees Celsius, which in turn is assumed to be necessary to avoid dangerous climate change.

California Governor Arnold Schwarzenegger issued Executive Order S-3-05 in June 2005, which established the following GHG emission reduction targets:

- 2010: Reduce GHG emissions to 2000 levels;
- 2020: Reduce GHG emissions to 1990 levels; and
- 2050: Reduce GHG emissions to 80 percent below 1990 levels.

Assembly Bill 32 requires that CARB determine what the statewide GHG emissions level was in 1990, and approve a statewide GHG emissions limit that is equivalent to that level, to be achieved by 2020. CARB has approved a 2020 emissions limit of 427 million metric tons of CO_2 equivalent ($MTCO_2eq$).

Due to the nature of global climate change, it is not anticipated that any single development project would be capable of having a significant effect on global climate change. It is difficult to deem a single development as individually responsible for a global temperature increase. In actuality, GHG emissions from the proposed project would combine with emissions emitted across California, the United States, and the world to cumulatively contribute to global climate change.

Effects of Climate Change on the Project

In addition to analyzing a project's impacts on the environment, *CEQA* requires a lead agency to consider the effects of bringing development into an area that may present hazards.[18] The primary effect of global climate change has been a rise in average global tropospheric temperature of 0.2 degrees Celsius per decade, determined from meteorological measurements worldwide between 1990 and 2005.[19] Climate change modeling using year 2000 emission rates shows that further warming would occur, which would include further changes in the global climate system during the current century.[20] Changes to the global climate system and ecosystems and to California would include, but would not be limited to:

15 Intergovernmental Panel on Climate Change, *Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, 2007.
16 Ibid.
17 Ibid.
18 *CEQA Guidelines* Section 15126.2[a] (*Consideration and Discussion of Significant Environmental Impacts*)
19 Ibid.
20 Ibid.

- The loss of sea ice and mountain snow pack resulting in higher sea levels and higher sea surface evaporation rates with a corresponding increase in tropospheric water vapor due to the atmosphere's ability to hold more water vapor at higher temperatures;[21]
- Rise in global average sea level primarily due to thermal expansion and melting of glaciers and ice caps and the Greenland and Antarctic ice sheets;[22]
- Changes in weather that include widespread changes in precipitation, ocean salinity, and wind patterns, and more energetic extreme weather including droughts, heavy precipitation, heat waves, extreme cold, and the intensity of tropical cyclones;[23]
- Decline of the Sierra snow pack (which accounts for approximately half of the surface water storage in California) by 70 percent to as much as 90 percent over the next 100 years;[24]
- Increase in the number of days conducive to ozone formation by 25 to 85 percent (depending on the future temperature scenario) in high ozone areas of Los Angeles and the San Joaquin Valley by the end of the 21st century;[25] and
- High potential for erosion of California's coastlines and sea water intrusion into the Delta and levee systems due to the rise in sea level.[26]

While there is broad agreement on the causative role of GHGs to climate change, there is considerably less information or consensus on how climate change would affect any particular location, operation, or activity. The IPCC has published numerous reports on potential impacts of climate change on the human environment. These reports provide a comprehensive and up-to-date assessment of the current state of knowledge on climate change. Despite the extensive peer review of reports and literature on the impacts of global climate change, the IPCC notes the fact that there is little consensus as to the ultimate impact of human interference with the climate system and its causal connection to global warming trends.

The following climate change effects could affect the proposed project. However, the type and degree of the impacts that climate change would have on humans and the environment is difficult to predict at the local scale.

- Sea Level Rise. According to the IPCC, climate change is expected to raise sea levels by up to four feet. The project site is approximately 30 miles from the Pacific Ocean and approximately 1,600 feet above mean sea level. Therefore, sea level rise of this magnitude would be unlikely to inundate the project area. Additionally, the effects related to sea level rise are speculative at this time. If determined to be a significant threat, protective measures such as levees would likely be installed by regional and local governments to protect urbanized areas.

21 Ibid.
22 Ibid.
23 Ibid.
24 California Environmental Protection Agency, *Climate Action Team, Climate Action Team Report to Governor Schwarzenegger and the Legislature (Executive Summary)*, March, 2006.
25 Ibid.
26 Ibid.

- Natural Disasters. Climate change could result in increased flooding and weather-related disasters. The proposed project is located approximately 30 miles from the Pacific Ocean and would not be exposed to intense coastal storms. The frequency of large floods on rivers and streams could also increase. The proposed project would not impede flood flows or be susceptible to increased flooding; thus, flood-related impacts would be less than significant even under an intensified flooding scenario.

- Wildfires. Climate change could result in increased occurrences and duration of wildfire events. The project site is located within a generally undeveloped area, in which is designated by the Los Angeles County Fire Department as a Very High Fire Hazard Severity Zone (VHFHSZ) comprised of natural brush and oak woodlands. However, development within the VHFHSZ is required to meet strict building construction requirements specified in the City's Building and Safety Code which would substantially reduce the risk of wildland fires. The warming climate could cause more frequent wildfires of great intensity. However, as the project site would be subject to the City's Building and Safety Code, wildfire risks as a result of global climate change would be less than significant.

- Air Quality. Climate change could compound negative air quality impacts in the Basin, resulting in respiratory health impacts.[27] However, this would be a regional, not a project-specific effect.

Other predicted physical and environmental impacts associated with climate change include heat waves, alteration of disease vectors, biome shifts, impacts on agriculture and the food supply, reduced reliability in the water supply, and strain on the existing capacity of sanitation and water-treatment facilities. While these issues are a concern for society at large, none of these impacts would have a disproportionate effect on the implementation of the proposed project.

Greenhouse Gas Emissions

Direct Project Related Sources of Greenhouse Gases

Direct project-related GHG emissions include emissions from construction activities, area sources, and mobile sources. *Table 5.5-1*, *Estimated Annual Greenhouse Gas Emissions Projections*, estimates the CO_2, N_2O, and CH_4 emissions of proposed project. The URBEMIS 2007 computer model outputs contained within the project's *Air Quality Impact Analysis* (refer to Appendix I) were used to calculate mobile source CO_2 emissions. The URBEMIS 2007 model relies upon trip data within the *Traffic Impact Analysis* and project specific land use data to calculate emissions. Estimations are based on energy emissions from natural gas usage, as well as automobile emissions.

[27] California Environmental Protection Agency, *AB 1493 Briefing Package*, 2008.

Table 5.5-1
Estimated Annual Greenhouse Gas Emissions Projections

Source	CO_2	N_2O		CH_4		Total Metric Tons of CO_2eq[6]
	Metric Tons/year	Metric Tons/year	Metric Tons of CO_2eq[6]	Metric Tons/year	Metric Tons of CO_2eq[6]	
Construction Emissions[1]						
▪ Year 1	70.37	0.00	0.07	0.01	4.12	74.56
▪ Year 2	733.36	0.01	0.14	0.03	8.88	742.38
▪ Year 3	659.55	0.01	0.17	0.05	16.70	676.42
Total Amortized Construction Emissions Over 30 Years($MTCO_2eq$/year)	*48.78*	*0.00*	*0.01*	*0.00*	*0.99*	*49.78*
Operational Emissions						
Direct Emissions						
▪ Area Source[2]	342.02	0.00	0.00	0.00	0.00	342.02
▪ Mobile Source[3]	1,587.82	0.46	141.71	0.10	2.15	1,731.67
Total Direct Emissions[7]	*1,929.84*	*0.46*	*141.71*	*0.10*	*2.15*	*2,073.69*
Indirect Emissions						
▪ Electricity Consumption[4]	161.96	0.00	0.52	0.01	0.21	162.69
▪ Water Supply[5]	2,659.61	0.02	7.04	0.14	2.92	2,669.57
Total Indirect Emissions[7]	*2,821.57*	*0.02*	*7.56*	*0.15*	*3.13*	*2,832.26*
Total Project-Related Emissions WITHOUT Reductions	*4,955.73 $MTCO_2eq$/year*[7]					
Total Project-Related Emissions WITH 30.16% Reductions	*3,461.08 $MTCO_2eq$/year*[7]					

Notes:
1 – Emissions calculated using the CARB's Construction Equipment Emissions Table and the URBEMIS 2007 computer model output.
2 – Emissions calculated using URBEMIS 2007 computer model for CO_2 and the SCAQMD's *CEQA Handbook* for N_2O and CH_4.
3 – Emissions calculated using URBEMIS 2007 computer model outputs from the project's *Air Quality Impact Analysis* contained in Appendix H, and EMFAC 2007, *Highest (Most Conservative) Emission Factors for On-Road Passenger Vehicles and Delivery Trucks*, http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html, accessed December 2008.
4 – Electricity Consumption emissions calculated using the SCAQMD's *CEQA Handbook*, United States Energy Information Administration, *Domestic Electricity Emissions Factors 1999-2002*, October 2007, and the California Energy Commission, *Reference Appendices for the 2008 Building Energy Efficiency Standards for Residential and Nonresidential Buildings*, revised June 2009.
5 – Water Supply emissions were calculated using the projected water demand for the project in Section 5.14, *Water Supply*, and the SCAQMD's *CEQA Handbook*, 2003.
6 – CO_2 Equivalent values calculated using the United States EPA Website, *Greenhouse Gas Equivalencies Calculator*, http://www.epa.gov/cleanenergy/energy-resources/calculator.html, accessed October 2010.
7 – Totals may be slightly off due to rounding.

Refer to Appendix I, Greenhouse Gas Data, for detailed model input/output data.

Indirect Project Related Sources of Greenhouse Gases

Electricity Consumption. Indirect GHG emissions from electricity usage are calculated using the utility specific carbon-intensity factor from the California Air Pollution Control Officers Association (CAPCOA) document, *Quantifying Greenhouse Gas Mitigation Measures*, September 2010, and the California Climate Action Registry (CCAR) Database, *Power/Utility Protocol (PUP) Report*, 2006. Additional data were utilized from the United States Energy Information Administration,[28] and project-specific land use data; refer to Appendix I, Greenhouse Gas Data.

[28] United States Energy Information Administration, *Domestic Electricity Emissions Factors 1999-2002*.

The emission factors for electricity use (641 pounds of CO_2 per MWh, 0.00659 pounds of N_2O per MWh, and 0.4037 pounds of CH_4 per MWh) were obtained from CCAR and the United States Energy Information Administration. As a result, the proposed project would indirectly result in 162.69 $MTCO_2eq$/year due to electricity usage; refer to *Table 5.5-1*.

Water Supply. Based on water usage projections from Section 5.14, Water Supply, the water demand for the proposed project would be approximately 192 acre-feet per year (589 million gallons per year). The proposed project's water supply would be provided by local sources (i.e., surface water and groundwater). Emissions from indirect energy impacts due to water supply would result in 2,669.57 $MTCO_2eq$/year.

Total project-related business as usual operational emissions (direct and indirect) would result in 2,832.26 $MTCO_2eq$/year without incorporation of project design features (reduction measures). An analysis of the reduction measures is included below.

Consistency with the California Attorney General's Mitigation Measures

With implementation of Mitigation Measure GHG-1, the proposed project would incorporate several design features that are consistent with the California Office of the Attorney General's recommended measures to reduce GHG emissions. A list of the Attorney General's recommended measures and the proposed project's compliance with each applicable measure is presented in *Table 5.5-2*, *Project Consistency with the Attorney General's Recommendations*. The proposed project would incorporate sustainable practices which include water, energy, solid waste, land use, and transportation efficiency measures. The California Attorney General's recommendations comprehensively outline the various categories of reduction measures and provide a framework for the GHG analysis. The measures are not necessarily exhaustive, and are not utilized as thresholds.

Table 5.5.2 also identifies GHG emissions reductions associated with the measures that would implemented by the project. The emissions reductions calculations are based on the CAPCOA document, *Quantifying Greenhouse Gas Mitigation Measures,* September 2010*.* This guidance document primarily focuses on the quantification of project-level mitigation of GHG emissions associated with land use, transportation, energy use, and other related project areas. Various strategies also require the implementation of other strategies to be effective. When these strategies are implemented together, the combination can result in either an enhancement to the primary strategy by improving its effectiveness or a non-negligible reduction in effectiveness that would not occur without the combination. Therefore, this is accounted for in the emissions reduction calculations to avoid double counting. Refer to Appendix I for the emissions reductions calculations. It should be noted that the reductions indicated in *Table 5.5-2* are the percent reduction within the emissions source and are not the overall reduction percentage.

Table 5.5-2
Project Consistency with the Attorney General's Recommendations

Recommended Measures	Proposed Project Compliance with Measure	Emission Source Percent Reduction [1]	Overall Percent Reduction
Energy Efficiency			
Incorporate green building practices and design elements.	The proposed project would comply with the *2010 California Green Building Code*, which became effective on January 1, 2011. The *Green Building Code* requires a 20 percent reduction in water usage and a 50 percent reduction of construction waste. It also requires inspection of energy systems to ensure the efficiency of heating, ventilation, and air conditioning (HVAC) units, and other mechanical equipment. Furthermore, the project would voluntarily comply with Tier 1 of the *Green Building Code* and exceed *California Energy Code* standards by 15 percent.	15 percent (reduction of energy usage)	1.52 percent
Meet recognized green building and energy efficiency benchmarks (e.g., Energy Star-qualified buildings, LEED).	Compliance with *2010 California Green Building Code* would allow the proposed project to obtain green building certification from the State as well as Leadership in Energy and Environmental Design (LEED) registration.		
Install energy efficient lighting (e.g., light emitting diodes [LEDs]), heating and cooling systems, appliances, equipment, and control systems.	Energy efficient lighting and lighting control systems would be utilized throughout on-site buildings. Lighting would consist of a minimum of 90 percent Energy Star qualified hard-wired fixtures. All appliances within the residential units would be Energy Star rated (where applicable).	8.22 percent (reduction of energy usage)	0.26 percent
Use passive solar design, e.g., orient buildings and incorporate landscaping to maximize passive solar heating during cool seasons, minimize solar heat gain during hot seasons, and enhance natural ventilation. Design buildings to take advantage of sunlight.	Trees would be incorporated into the project site design which would provide shade throughout the site. Energy efficient HVAC systems, appliances/equipment, and efficient control systems would be installed in the residential units.	Accounted for Above	
Install light colored "cool" roofs and cool pavements.	Roofs on the residential structures would be *California Green Building Standard Code* Tier 1 Cool Roofs. Shade trees would also be incorporated into the project site design.	Accounted for Above	

Table 5.5-2 (continued)
Project Consistency with the Attorney General's Recommendations

Recommended Measures	Proposed Project Compliance with Measure	Emission Source Percent Reduction [1]	Overall Percent Reduction
Renewable Energy			
Meet "reach" goals for building energy efficiency and renewable energy use.	The proposed project would comply with *2010 California Green Building Code* and would seek LEED registration. Tankless hot water heaters and energy-efficient HVAC units would be utilized in the residential units.	Accounted for Above	
Install solar, wind, and geothermal power systems and solar hot water heaters.	Approximately 20 percent of pools within the project site would be heated by solar energy sources. Roofs would also be set up to be solar ready for future solar uses. A minimum of 300 square feet of unobstructed roof area facing within 30 degrees of south would be provided for future solar collector or photovoltaic panels. Rough-in penetrations through the roof surface within 24 inches of the boundary of the unobstructed roof area would be provided for electrical conduit and water piping. However, GHG reductions are not able to be quantified as of yet, as the amount of units that would actually install photovoltaic panels is unknown at this time.	N/A	
Where solar systems cannot feasibly be incorporated into the project at the outset, build "solar ready" structures.			
Water Conservation and Efficiency			
Incorporate water-reducing features into building and landscape design.	The proposed project would comply with the *2010 California Green Building Code*, which requires a 20 percent reduction in water usage.	19.70 percent (reduction in outdoor water usage)	10.61 percent
Create water-efficient landscapes.	Water-efficient landscaping measures would be incorporated into the proposed project. Vegetation utilized for landscaping would be 50 percent low plant factor (requires low water usage) and 50 percent moderate plant factor (requires moderate water usage). These vegetation types would be ensured with implementation of Mitigation Measure GHG-2. On-site irrigation systems would be equipped with weather, moisture, and timing controllers.		
Install water-efficient irrigation systems and devices, such as soil moisture-based irrigation controls.			

Table 5.5-2 (continued)
Project Consistency with the Attorney General's Recommendations

Recommended Measures	Proposed Project Compliance with Measure	Emission Source Percent Reduction [1]	Overall Percent Reduction
Implement low-impact development practices that maintain the existing hydrology of the site to manage storm water and protect the environment.	The project proposes to implement the following Best Management Practices (BMPs): biofiltration strips or swales, sand filters, and extended detention basins. The proposed project would include permeable paving for a minimum of 20 percent of all parking, walking, and patio surfaces. Turf areas would be limited to a maximum of 50 percent of the total landscaped area of the project.	N/A	
Devise a comprehensive water conservation strategy appropriate for the project and location.	The proposed project would install water-efficient fixtures and appliances and would comply with the *2010 California Green Building Code*, which requires a 20 percent reduction in water usage.	10.4 percent (reduction in indoor water usage)	5.59 percent
Design buildings to be water-efficient. Install water-efficient fixtures and appliances.			
Make effective use of graywater. (Graywater is untreated household waste water from bathtubs, showers, bathroom wash basins, and water from clothes washing machines. Graywater to be used for landscape irrigation.)	Backbone infrastructure would be supplied for the use of recycled water on-site, and would be stubbed out at the curbs. Also, alternative plumbing piping would be installed to permit the discharge from clothes washing machines or other fixtures to be used for an irrigation system in compliance with Chapter 16A of the *California Plumbing Code*.	0.88 percent (reduction in outdoor water usage)	0.47 percent
Solid Waste Measures			
Reuse and recycle construction and demolition waste (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard).	Construction and demolition waste materials from the proposed project would be reused and recycled. However, the use of alternative construction fuels is the only form of quantifiable reductions.	N/A	
Integrate reuse and recycling into residential, industrial, institutional and commercial projects.	Storage areas and containers for recyclables and green waste would be provided at each proposed residence.	N/A	
Provide easy and convenient recycling opportunities for residents, the public, and tenant businesses.			
Land Use Measures			
Ensure consistency with "smart growth" principles – mixed-use, infill, and higher density projects that provide alternatives to individual vehicle travel and promote the efficient delivery of services and goods.	The proposed project is considered to be an infill development, as the project site is currently vacant area of the City. The project site is served by Santa Clarita Transit, local east-west Route 6 (nearest stop approximately one mile to the northeast). The proposed project is also located in proximity to Metrolink's Antelope Valley Line (Via Princessa Station).	25 percent (reduction in VMT)	8.73 percent

Table 5.5-2 (continued)
Project Consistency with the Attorney General's Recommendations

Recommended Measures	Proposed Project Compliance with Measure	Emission Source Percent Reduction [1]	Overall Percent Reduction
Preserve and create open space and parks. Preserve existing trees, and plant replacement trees at a set ratio.	The City of Santa Clarita adopted an *Oak Tree Preservation Ordinance* in 1989 which regulates the removal, pruning, cutting of oak trees. A total of 347 oak trees protected by this Ordinance were surveyed within the project site boundaries. Of these, 96 oak trees would require permits from the City (8 to be removed and 88 to be encroached upon). Mitigation Measure BIO-11 requires the replacement of removed or damaged oak trees at a set ratio determined by the City's Urban Forestry Division. The proposed project would also include landscaping and trees throughout the project site.	N/A	
Protect existing trees and encourage the planting of new trees. Adopt a tree protection and replacement ordinance.			
Transportation and Motor Vehicles			
Include pedestrian and bicycle facilities within projects and ensure that existing non-motorized routes are maintained and enhanced.	Bicycle lanes would be incorporated into the on-site street design for encouragement of alternative transportation modes. Also, the proposed project would be located in the vicinity of multiple recreational trails, encouraging walking and bicycling. Use of public transportation is encouraged due to the project site's proximity to the Metrolink Station and Santa Clarita Transit Route 6.	8.5 percent (reduction in VMT)	2.97 percent
Connect parks and open space through shared pedestrian/bike paths and trails to encourage walking and bicycling.			
Create bicycle lanes and walking paths directed to the location of schools, parks and other destination points.			
Promote "least polluting" ways to connect people and goods to their destinations.			
Ensure that the project enhances, and does not disrupt or create barriers to, non-motorized transportation.	The proposed project consists of an infill development within the City. The proposed project would be located in proximity to non-motorized transportation (i.e., trails, bike lanes, and transit) and would not create barriers to non-motorized transportation.	Accounted for Above	
Purchase, or create incentives for purchasing, low or zero-emission vehicles.	On-site residential units would be supplied with a dedicated circuit for electrical vehicles, which could incentivize residents to purchase low- or zero-emission vehicles.	N/A	

Table 5.5-2 (continued)
Project Consistency with the Attorney General's Recommendations

Recommended Measures	Proposed Project Compliance with Measure	Emission Source Percent Reduction [1]	Overall Percent Reduction
Enforce and follow limits idling time for commercial vehicles, including delivery and construction vehicles.	Construction vehicles are required by CARB to meet the terms set forth in CARB Regulation for in-use Off Road Diesel Vehicles, paragraph (d)(3) Idling. All vehicles, including diesel trucks accessing the project site, would be subject to CARB measures and would be required to adhere to the five-minute limit for vehicle idling. Also refer to Mitigation Measures AQ-1 and AQ-2.	N/A	
	Total Reductions	--	30.16

Notes:
1. Emissions reductions calculated in accordance with the California Air Pollution Control Officers Association guidance document, *Quantifying Greenhouse Gas Mitigation Measures*, September 2010.

Source: State of California Department of Justice, Attorney General's Office, *Addressing Climate Change at the Project Level,* updated January 6, 2010.

In addition to being compliant with many of the Attorney General's recommended design features, the proposed project is also consistent with the California Environmental Protection Agency Climate Action Team proposed early action measures to mitigate climate change. These early action measures are designed to ensure that projects meet the Governor's climate reduction targets, and are documented in the *Climate Action Team Report to Governor Schwarzenegger at the Legislature*, March 2006. The early action measures are also included in the CARB Scoping Plan and are mandated under AB 32.

IMPACT CONCLUSION

As shown in *Table 5.5-1*, operational-related emissions including amortized construction emissions would be 4,955.73 $MTCO_2eq$/year without reductions from project design features required by Mitigation Measures GHG-1 and GHG-2. To quantify GHG emissions reductions resulting from project operations, the CAPCOA *Quantifying Greenhouse Gas Mitigation Measures* (September 2010) guidance document was utilized. With implementation of Mitigation Measures GHG-1 and GHG-2, the proposed project would incorporate sustainable practices which include water, energy, solid waste, and transportation efficiency measures that are summarized in *Table 5.5-2*. Based on the reduction measures in *Table 5.5-2*, the proposed project would reduce its GHG emissions 30.16 percent below the "business as usual" scenario, and would reduce the proposed project's operational GHG emissions to 3,461.08 $MTCO_2eq$/year. AB 32 requires the reduction of GHG emissions to 1990 levels, which would require a minimum 28.5 percent reduction in "business as usual" GHG emissions for the entire State. Therefore, with implementation of Mitigation Measures GHG-1 and GHG-2, the proposed project would be consistent with the 28.5 percent GHG reduction goals of AB 32, and a less than significant impact would occur.

Mitigation Measures:

GHG-1 The proposed project shall include, but not be limited to, the following list of potential design features. The project applicant shall demonstrate the incorporation of project design features prior to the issuance of grading permits.

- Install backbone infrastructure for recycled water which shall be stubbed out at the curb.
- Incorporate bicycle lanes into the on-site street design.
- Provide connections to regional trails.
- Restore areas disrupted during construction with native vegetation species and patterns.
- Utilize permeable paving for parking, walking, or patio surfaces in at least 20 percent of paved areas.

GHG-2 The proposed project's Homeowner's Association (HOA) shall include the following in the HOA's Covenants, Conditions, and Restrictions (CC&Rs). Demonstration of the incorporation of the features outlined below shall be provided prior to the issuance of building permits:

- A certified Landscape Architect shall be retained to prepare a landscape palette to be included in the proposed project's CC&Rs. The landscape palette shall require 50 percent of landscaping to be of a low plant factor (water usage) and 50 percent shall be of a moderate plant factor. High plant factor landscaping shall be prohibited.
- Install weather/moisture/timing controllers on all irrigation systems.
- Gas fireplaces shall be a direct-vent sealed-combustion type. Any woodstoves or pellet stoves shall comply with U.S. EPA Phase II emission limits where applicable.
- Limit turf areas to no more than 50 percent of the total landscaped area.
- Utilize at least 75 percent native California or drought tolerant plant and tree species appropriate for the climate zone region.
- Install California Green Building Standard Code Tier 1 "Cool Roofs" on residential structures.
- Comply with Tier 1 of the Green Building Code and exceed California Energy Code standards by 15 percent.
- Install at least 90 percent Energy Star qualified hard-wired lighting fixtures.
- Install Energy Star rated appliances.

- Install alternative plumbing piping to permit the discharge from the clothes washer or other fixtures to be used for an irrigation system in compliance with Chapter 16A of the California Plumbing Code.
- Water-efficient fixtures and appliances shall comply with the 2010 California Green Building Code.
- Develop a commissioning plan to document specified building components meet the project design and performance goals.

Level of Significance After Analysis and Mitigation: Less Than Significant Impact.

CONSISTENCY WITH APPLICABLE GHG PLANS, POLICIES OR REGULATIONS

- ***DEVELOPMENT OF THE PROPOSED PROJECT COULD CONFLICT WITH AN APPLICABLE GREENHOUSE GAS REDUCTION PLAN, POLICY, OR REGULATION.***

Level of Significance Before Analysis and Mitigation: Potentially Significant Impact.

Impact Analysis: The City does not currently have an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, but is in the process of preparing a Climate Action Plan, which is anticipated to be completed in September 2012. Therefore, the proposed project would not conflict with an adopted plan, policy, or regulation pertaining to GHGs. However, the City recently adopted an updated General Plan in June 2011, which includes specific policies in the Conservation and Open Space Element regarding reducing greenhouse gas emissions, cited earlier in the Regulatory Setting in this section. Objectives and policies cited include: Objective CO 8.1 and related policies CO 8.1.4, 8.2.6, 8.2.8, 8.2.9, 8.2.10, 8.2.14; Objective CO 8.3 and related policies CO 8.3.1, 8.3.2, 8.3.4, 8.3.6, 8.3.7, 8.3.8, 8.3.9; and Objective CO 8.4 and related policy CO 8.4.3.

Also, as described above, the proposed project would comply with the *2010 California Green Building Code* and would include design features to reduce energy and water consumption, reduce vehicle trips, and achieve LEED certification and green building certification from the State with implementation of the *General Plan Conservation and Open Space Element* objectives and policies cited in the previous paragraph and Mitigation Measures GHG-1 and GHG-2. Thus, a less than significant impact would occur in this regard.

Mitigation Measures: Refer to Mitigation Measures GHG-1 and GHG-2. No additional mitigation measures are required.

Level of Significance After Analysis and Mitigation: Less Than Significant Impact.

5.5.5 CUMULATIVE IMPACTS AND MITIGATION MEASURES

- ***GREENHOUSE GAS EMISSIONS RESULTING FROM DEVELOPMENT OF THE PROPOSED PROJECT COULD IMPACT GREENHOUSE GAS LEVELS ON A CUMULATIVELY CONSIDERABLE BASIS.***

Level of Significance Before Analysis and Mitigation: Potentially Significant Impact.

Impact Analysis: Project-related GHG impacts were determined to be less than significant as the proposed project would reduce its GHG emissions 30.16 percent below the "business as usual" scenario, and would reduce the proposed project's operational GHG emissions to 3,461.08 $MTCO_2eq$/year. The background and formulation of the GHG threshold that was utilized is described under Section 5.5-3, Significance Threshold Criteria.

On December 30, 2009, the Natural Resources Agency adopted the CEQA Guidelines 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., CEQA Guidelines, § 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 Guidelines 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 is of insufficient magnitude by itself to influence climate change or result in a substantial contribution to the global GHG inventory.[29] GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative

[29] 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.

GHG emission impacts from a climate change perspective.[30] The additive effect of the project's indirect and direct GHG emissions would not result in a reasonably foreseeable significant impact on the environment. For the reasons discussed in this section and because the project incorporates GHG reduction measures and design features, the project's GHG emissions would not be cumulatively considerable.

Mitigation Measures: Refer to Mitigation Measures GHG-1 and GHG-2. No additional mitigation measures are required.

Level of Significance After Analysis and Mitigation: Less than Significant Impact.

5.5.6 SIGNIFICANT UNAVOIDABLE IMPACTS

All potentially significant impacts can be reduced to less than significant with implementation of applicable mitigation measures. As such, implementation of the proposed project would not result in any significant unavoidable greenhouse gas emissions impacts.

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