5.7 GREENHOUSE GASES AND CLIMATE CHANGE

This section evaluates greenhouse gas (GHG) emissions associated with the proposed project and analyzes project 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 as Appendix 15.3, AIR QUALITY/GREENHOUSE GAS EMISSIONS DATA.

5.7.1 ENVIRONMENTAL SETTING

CLIMATE AND METEOROLOGY

The proposed project is located five miles east of the City of Redding, between the unincorporated communities of Bella Vista and Palo Cedro, which is in Shasta County at the northern end of the Northern Sacramento Valley Air Basin (NSVAB). The environmental conditions of Shasta County are conducive to potentially adverse air quality conditions. The basin area traps pollutants between two mountain ranges to the east and the west. This problem is exacerbated by a temperature inversion layer that traps air at lower levels below an overlying layer of warmer air. Prevailing winds in the area are from the south and southwest. Sea breezes flow over the San Francisco Bay Area and into the Sacramento Valley, transporting pollutants from the large urban areas. Growth and urbanization in Shasta County have also contributed to an increase in emissions.

The valley is frequently subjected to inversions that, coupled with geographic barriers and high summer temperatures, create a high potential for air pollution problems. Generally, areas below 1,000 feet in elevation within Shasta County experience moderate to poor capability to disperse pollutants in both the horizontal and vertical wind fields. This is, in large measure, due to relatively stable atmospheric conditions which act to suppress vertical air movement. Extremely stable atmospheric conditions referred to as "inversions" act as barriers to the dispersal of pollutants. In valley locations, at or below 1,000 feet in elevation, such as the project area, inversions create a "lid" under which pollutants are trapped. Dust and other pollutants trapped within these inversion layers will not disperse until atmospheric conditions become unstable. This situation creates concentrations of pollutants at or near the ground surface, and as a result may pose significant health risks for plants, animals, and people.

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.

California is a substantial contributor of global GHGs, emitting over 400 million tons of carbon dioxide (CO_2) per year.[1] Climate studies indicate that California is likely to see an increase of three to four degrees Fahrenheit (ºF) over the next century. Methane is also an important GHG that potentially contributes to global climate change. GHGs are global in their effect, which is to increase the earth's ability to absorb heat in the atmosphere. As primary GHGs have a long lifetime in the atmosphere, accumulate over time,

[1] California Energy Commission. *California Greenhouse Gas Inventory for 2000-2012 – Trends of Emissions and Other Indicators*. May 2014.

and are generally well-mixed, their impact on the atmosphere is mostly independent of the point of emission.

The impact of human activities on global climate change is apparent in the observational record. Air trapped by ice has been extracted from core samples taken from polar ice sheets to determine the global atmospheric variation of CO_2, methane (CH_4), and nitrous oxide (N_2O) from before the start of industrialization (approximately 1750), to over 650,000 years ago. For that period, it was found that CO_2 concentrations ranged from 180 parts per million (ppm) to 300 ppm. For the period from approximately 1750 to the present, global CO_2 concentrations increased from a pre-industrialization period concentration of 280 ppm to 379 ppm in 2005, with the 2005 value far exceeding the upper end of the pre-industrial period range.

GLOBAL CLIMATE CHANGE – GREENHOUSE GASES

The natural process through which heat is retained in the troposphere is called the "greenhouse effect."[2] 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 GHGs in the upper atmosphere absorb this long wave radiation and emit it 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. Typical GHGs include the following:[3]

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 Intergovernmental Panel on Climate Change (IPCC) has not determined a GWP for water vapor.

Carbon Dioxide (CO_2)

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, CO_2 emissions from fossil fuel combustion increased by 8.8 percent between 1990 and 2013.[4] Carbon dioxide is the most widely emitted GHG and is the reference gas (GWP of 1) for determining GWPs for other GHGs.

[2] The troposphere is the bottom layer of the atmosphere, which varies in height from the Earth's surface to 10 to 12 kilometers.
[3] All Global Warming Potentials are given as 100-year Global Warming Potential. Unless noted otherwise, all Global Warming Potentials were obtained from the Intergovernmental Panel on Climate Change. ([IPCC] Intergovernmental Panel on Climate Change. 1996. Climate *Change, The Science of Climate Change – Contribution of Working Group I to the Second Assessment Report of the IPCC*.).
[4] EPA (U.S. Environmental Protection Agency). 2015. *Inventory of United States Greenhouse Gas Emissions and Sinks 1990 to 2013*. April 15, 2015.

Methane (CH_4)

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 GWP of methane is 21.

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 GWP 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 GWP of HFCs range from 140 for HFC-152a to 11,700 for HFC-23.[5]

Perfluorocarbons (PFCs)

PFCs are compounds produced as a by-product of various industrial processes associated with aluminum production and the manufacturing of semiconductors. Like HFCs, PFCs generally have long atmospheric lifetimes and high Global Warming Potentials of approximately 7,390 and 10,300.[6]

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 IPCC 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 carbon dioxide (4 parts per trillion [ppt] in 1990 versus 365 parts per million [ppm], respectively).[7]

OTHER GREENHOUSE GAS COMPOUNDS

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) depletors; therefore, their gradual phase out is currently in effect. The following is a listing of these compounds:

[5] Intergovernmental Panel on Climate Change, *Climate Change 2007: Working Group I: The Physical Science Basis, 2.10.2, Direct Global Warming Potentials*, https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html, accessed on August 30, 2017.
[6] Ibid.
[7] Ibid.

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 GWPs of HCFCs range from 90 for HCFC-123 to 1,800 for HCFC-142b.[8]

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 146 times that of carbon dioxide.[9]

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 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.[10]

5.7.2 REGULATORY SETTING

FEDERAL

The federal government is extensively engaged in international climate change activities in areas such as science, mitigation, and environmental monitoring. The 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 would be 27.3 mpg, the standard for cars would be 30.2 mpg; and standard for trucks would be

[8] Ibid.
[9] EPA (U.S. Environmental Protection Agency). 2010. *Class I Ozone Depleting Substances*. August 19. [Online]: http://www.epa.gov/ozone/ods.html. Accessed January 14, 2016.
[10] Ibid.

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.

Under the federal clean air act, 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. However, as of the date of this study there are no federal regulations or policies regarding GHG emissions applicable to the project.

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 would 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-01-07 (2007) requires a 10 percent or greater reduction in the average fuel carbon intensity for transportation fuels in California. The regulation took effect in 2010 and is codified at Title 17, California Code of Regulations, Sections 95480–95490. The low carbon fuel standard (LCFS) will reduce greenhouse gas emissions by reducing the carbon intensity of transportation fuels used in California by at least 10 percent by 2020.

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 would 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 B-30-15 (2015)

EO B-30-15 established a medium-term goal for 2030 of reducing GHG emissions by 40% below 1990 levels and requires ARB to update its current AB 32 Scoping Plan to identify the measures to meet the 2030 target. The EO supports EO S-03-05, described above, but is currently only binding on state agencies. However, there are current (2015/2016) proposals (SB 32) at the state legislature to establish a statutory target for 2030.

Assembly Bill 1493

Assembly Bill 1493 ("the Pavley Standard") (Health and Safety Code Sections 42823 and 43018.5) aims to reduce GHG emissions from noncommercial passenger vehicles and light-duty trucks of model years 2009–2016 by achieving "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. By 2025, when all rules will be fully implemented, new automobiles will emit 34 percent fewer CO_2e emissions and 75 percent fewer smog-forming emissions.

Assembly Bill 2188

With the passage of Assembly Bill 2188, California became the first state in the country to mandate a standardized procedure for solar permitting. Every city and county in the state is required to adopt a simplified procedure for residential rooftop solar panel systems. A streamlined permitting process greatly benefits California homeowners with shorter wait times between contract signing, installation, inspection, and saving on their first month's electricity bill. AB 2188 requires permitting to conform to the most updated version of Office of Planning and Research's Solar Permitting Guidebook, key elements include:

- An efficient and timely permitting process, best practices dictate the permitting review process take less than 24 hours and inspections will be scheduled within 24 hours of request.
- Cities and counties are required to post permitting requirements and documents online. They must also accept permit applications by internet, email, or fax and accept electronic signatures.
- Only one inspection shall be required for those eligible for expedited review.
- Reduces both the limits a Homeowner Association (HOA) can apply to a rooftop installation and if applicable, the number of days an applicant must wait for a written denial of a plan.

Assembly Bill 3018

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

Senate Bill 375

Senate Bill (SB) 375 (codified in the Government Code and the Public Resources Code) took effect in 2008 and provides a new planning process to coordinate land use planning, regional transportation plans, and funding priorities in order to help California meet the GHG reduction goals established in AB 32. SB 375 requires metropolitan planning organizations (MPOs) to incorporate a Sustainable Communities Strategy in their Regional Transportation Plans that will achieve GHG emissions reduction targets by reducing vehicle miles traveled from light-duty vehicles through the development of more compact, complete, and efficient communities.

Renewables Portfolio Standard (Senate Bill X1-2 & Senate Bill 350)

California's Renewables Portfolio Standard (RPS) requires retail sellers of electric services to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020. The 33 percent standard is consistent with the RPS goal established in the Scoping Plan. The passage of Senate Bill 350 in 2015 updates the RPS to require the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources to be increased to 50 percent by December 31, 2030. The bill would make other revisions to the RPS program and to certain other requirements on public utilities and publicly owned electric utilities.

California Building Energy Efficiency Standards

In general, the California Building Energy Efficiency Standards require the design of building shells and building components to conserve energy. The California Energy Commission adopted changes to the 2016 Building Energy Efficiency Standards contained in the California Code of Regulations, Title 24, Part 6 (also known as the California Energy Code) and associated administrative regulations in Part 1. The amended standards took effect in January 2017. The 2016 update to the Building Energy Efficiency Standards focuses on several key areas to improve the energy efficiency of newly constructed buildings and additions and alterations to existing buildings. The most significant efficiency improvements to the residential Standards include improvements for attics, walls, water heating, and lighting. New efficiency requirements for elevators and direct digital controls are included in the nonresidential Standards. The 2016 Standards also include changes made throughout all of its sections to improve the clarity, consistency, and readability of the regulatory language.

California Green Building Standards

The California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, is a statewide mandatory construction code that was developed and adopted by the California Building Standards Commission and the Department of Housing and Community Development. The CALGreen standards require new residential and commercial buildings to comply with mandatory measures under the topics of planning and design, energy efficiency, water efficiency/conservation, material conservation and resource efficiency, and environmental quality. CALGreen also provides voluntary tiers and measures that local governments may adopt that encourage or require additional measures in the five green building topics. The most recent update to the CALGreen Code went into effect January 1, 2017.

Assembly Bill 32 (California Global Warming Solutions Act of 2006)

The primary acts that have driven GHG regulation and analysis in California include the California Global Warming Solutions Act of 2006 (AB 32; California Health and Safety Code Division 25.5, Sections 38500 - 38599), which instructs CARB to develop and enforce regulations for the reporting and verifying of statewide GHG emissions. The act directed CARB to set a greenhouse gas emissions limit based on 1990 levels, to be achieved by 2020. The bill set a timeline for adopting a scoping plan for achieving GHG reductions in a technologically and economically feasible manner. The heart of the bill is the requirement that statewide GHG emissions be reduced to 1990 levels by 2020.

CARB Scoping Plan

On December 11, 2008, the California Air Resources Board (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 CO_2eq emissions by 174 million metric tons (MT), or approximately 30 percent, from the State's projected 2020 emissions level of 596 million $MTCO_2$eq under a business as usual (BAU)[11] scenario. This is a reduction of 42 million $MTCO_2$eq, 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, 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. AB 32 requires CARB to update the Scoping Plan at least once every five years. CARB adopted the first major update to the Scoping Plan on May 22, 2014. The updated Scoping Plan summarizes the most recent science related to climate change, including anticipated impacts to California and the levels of GHG reduction necessary to likely avoid risking irreparable damage. It identifies the actions California has already taken to reduce GHG emissions and focuses on areas where further reductions could be achieved to help meet the 2020 target established by AB 32. The Scoping Plan update also looks beyond 2020 toward the 2050 goal established in Executive Order S-3-05, though not yet adopted as state law, and observes that "a mid-term statewide emission limit will ensure that the State stays on course to meet our long-term goal." The Scoping Plan update does not establish or propose any specific post-2020 goals, but identifies such goals adopted by other governments or recommended by various scientific and policy organizations.

Senate Bill 32

Signed into law on September 2016, SB 32 codifies the 2030 GHG reduction target in Executive Order B-30-15 (40 percent below 1990 levels by 2030). The bill authorizes CARB to adopt an interim GHG emissions level target to be achieved by 2030. CARB also must adopt rules and regulations in an open public process to achieve the maximum, technologically feasible, and cost-effective GHG reductions.

[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.

LOCAL

Shasta County Regional Climate Action Plan

In 2010, the Shasta County Air Quality Management District (SCAQMD) initiated the regional climate action planning (RCAP) process. The primary objectives of the RCAP process are to contribute to the State's climate protection efforts and to provide CEQA review streamlining benefits for development projects within the region's four jurisdictions: the City of Anderson, the City of Redding, the City of Shasta Lake, and the unincorporated areas of Shasta County. To facilitate these objectives, the SCAQMD worked with the four jurisdictions to prepare community-specific, independent climate action plans that contain GHG emission inventories and forecasts, emission reduction measures, and implementation and monitoring programs. The Climate Action Plans (CAP) provide a summary of jurisdictional GHG inventories and describe how each jurisdiction will achieve GHG reductions through local actions that contribute to the statewide GHG emissions reduction target defined in AB 32, the California Global Warming Solutions Act of 2006, CEQA guidelines, and other State guidance. The RCAP document serves as a collection of the individual climate action plans and demonstrates the region's commitment to the State's GHG reduction efforts. The RCAP was finalized in 2012, although not adopted by the SCAQMD.

Chapter 2 of the RCAP serves as the CAP for the unincorporated areas within the County, including the project site. Chapter 2 provides a summary of unincorporated Shasta County's communitywide 2008 baseline GHG emissions inventory, the business-as-usual emissions forecasts, and the adjusted business-as-usual (ABAU) forecasts. The 2008 GHG emissions inventory serves as the foundation of the unincorporated County's CAP. Using data collected from County departments, utilities, and other relevant agencies and locally-specific emissions factors, the inventory provides an accurate assessment of the sources of GHG emissions generated within the County or as a direct result of County operations (even if outside unincorporated county areas) in the baseline year. This data allows the County to establish a baseline inventory and identify appropriate GHG reduction targets and strategies.

To ensure a comprehensive and complete GHG inventory, the County developed a Total Inventory that contains emissions from all sectors including building energy (electricity and natural gas), transportation, waste, water, off-road vehicles/recreation, stationary sources (industrial), agriculture, and forestry. Due to a lack of jurisdictional control over the GHG emissions produced by agriculture, and forestry, these sectors are excluded from the Jurisdictional Inventory. Examples of permitted stationary sources that are not under the control of the County include cement plants, biomass facilities, and other industrial processes at manufacturing facilities. These facilities and equipment are permitted by the SCAQMD, and their GHG emissions would be controlled under the jurisdiction of the Air Resources Board pursuant to AB 32. The Jurisdictional Inventory is used within this CAP for the purposes of developing reduction targets and strategies.

Total Inventory

In 2008, the community's total baseline emissions included 3,131,054 $MTCO_2eq$. Stationary sources generated the largest portion of emissions at approximately 2,271,000 $MTCO_2eq$ (73 percent of the total emissions). The transportation sector generated the second highest amount of emissions in the unincorporated County at approximately 243,700 $MTCO_2e$ (8 percent of the total emissions), followed by energy consumption emissions at approximately 206,300 $MTCO_2eq$ (7 percent of the total emissions). The forestry sector contributed approximately 156,500 $MTCO_2eq$ (5 percent of total emissions), and the agriculture sector generated approximately 132,200 $MTCO_2eq$ (4 percent of total emissions). The off-road vehicle/recreation, solid waste, and water (including water and wastewater) sectors comprise the remaining 4 percent of the emissions inventory.

Greenhouse Gas Reduction Targets

The County has selected emission reduction targets that are both ambitious and practical. The targets will allow the County to contribute to State climate protection efforts and are purposely set at levels that are likely to provide CEQA streamlining benefits to new development projects in the community. Unincorporated Shasta County's GHG reduction targets are as follows:

- Reduce community emissions to 15 percent below 2008 levels by 2020 (485,567 $MTCO_2eq/yr$);
- Reduce community emissions to 49 percent below 2008 levels by 2035 (291,340 $MTCO_2eq/yr$); and
- Reduce community emissions to 83 percent below 2008 levels by 2050 (97,113 $MTCO_2eq/yr$).

This CAP describes measures that can achieve the 2020 reduction target and work toward the 2035 target. While the County supports the goal of Executive Order S-03-05, it recognizes that estimating 2050 emission levels and reduction potentials are highly speculative. For this reason, the County has chosen not to focus on the 2050 reduction target at this time. The County will regularly re-evaluate its long-term GHG reduction efforts to reflect future conditions and adjust emission reduction measures accordingly.

Greenhouse Gas Reduction Measures

To meet its adopted emissions reduction targets, the RCAP provides policies, programs, and other projects related to energy, waste, water, transportation, and carbon sequestration. The measures are organized into five categories including: energy, water, waste, transportation, and carbon sequestration. Applicable measures relative to the proposed project are listed in Table 5.7-1, CONSISTENCY ANALYSIS WITH SHASTA COUNTY REGIONAL CLIMATE ACTION PLAN, followed by a brief explanation of how the proposed project complies with the reduction measures.

Table 5.7-1
CONSISTENCY ANALYSIS WITH SHASTA COUNTY REGIONAL CLIMATE ACTION PLAN

Reduction Measure	Consistency Analysis
Measure BE-2, New Construction	
Develop a priority permitting program for new residential projects that demonstrate 15 percent higher efficiency than Title 24 requirements.	The Project Design Features would reduce annual energy usage by 15 percent. Additionally, **MM 5.7-1** requires Title 24 energy standards to be exceeded by 15 percent.
Measure BE-4, Energy-Efficient Appliances	
New homes install ENERGY STAR appliances at the following rates: 40% refrigerators, 40% clothes washers, and 70% dishwashers.	Energy Star Appliances are required per **MM 5.7-1**.
Existing homes replace ENERGY STAR appliances at the following rates: 20% refrigerators, 20% clothes washers, and 20% dishwashers.	
New homes install ENERGY STAR appliances at the following rates: 90% refrigerators, 90% clothes washers, and 90% dishwashers	
Measure BE-5, Smart Grid Integration	
67.5% of new residential and commercial customers adopt smart-grid technology.	Smart Grid technology is required per **MM 5.7-1**.
Measure BE-6, Solar Water Heaters	
11.3% each of single-family residential buildings, multi-family residential buildings, and nonresidential buildings install a solar hot water system.	The Project Design Features and **MM 5.7-1** require solar water heaters and other construction design techniques to reduce energy consumption by 15 percent.
Measure BE-7, Photovoltaic Solar Systems	
22.5% of single-family residential units install a rooftop PV system County government installs 15 MW of solar power.	The Project Design Features include green building design components that may use a combination of photovoltaic cells, solar water heating, and other construction design techniques to reduce energy consumption by 15 percent.
Measure W-1, Residential Fixture and Fittings Retrofit	
11.3% of residential households install high-efficiency toilets, showerheads, faucets, dishwashers, and clothes washers.	**MM 5.7-1** requires the use of high-efficiency water fixtures.

Source: Shasta County. *Shasta Regional Climate Action Plan*. November 2012.

5.7.3 STANDARDS OF SIGNIFICANCE

SIGNIFICANCE CRITERIA

CEQA Thresholds

The environmental analysis in this section is patterned after the Initial Study Checklist recommended by Appendix G of the State *CEQA Guidelines*, as amended, and used by Shasta County 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 5.7-1, below.

- *Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.* Refer to Impact 5.7-1 through Impact 5.7-3, below.

Addressing GHG generation impacts requires a determination as to what constitutes a significant impact. Determining a threshold of significance for GHG-related impacts poses a special difficulty since much of the science in this area is new and is evolving constantly. At the same time, neither the State nor local agencies is specialized in this area, and there are currently no local, regional, or state thresholds for determining whether a commercial land use development has a significant impact on climate change. The CEQA Amendments do not prescribe specific significance thresholds but instead leave considerable discretion to lead agencies to develop appropriate thresholds to apply to development projects within their jurisdiction.

As noted earlier, AB 32 is a legal mandate requiring that statewide GHG emissions be reduced to 1990 levels by 2020. In adopting AB 32, the legislature determined the necessary GHG reductions for the State to make in order to sufficiently offset California's contribution to the cumulative climate change problem to reach 1990 levels. CARB adopted the Scoping Plan in 2008 to achieve the goals of AB 32, which determined that achieving the 1990 emission level would require a reduction of GHG emissions of approximately 29 percent below what would otherwise occur in 2020 in the absence of new laws and regulations (referred to as "business as usual" or BAU).[12] In 2012, CARB released revised estimates of the expected 2020 emissions reductions. The revised analysis relies on emissions projections updated in light of current economic forecasts that account for the economic downturn since 2008 as well as reduction measures already approved and put in place relating to future fuel and energy demand, in addition to other factors. This reduced the projected 2020 emissions from 596 million metric tons of CO_2eq to 507 million metric tons of CO_2eq. The reduction in projected 2020 emissions means that the revised BAU reduction necessary to achieve AB 32's goal of reaching 1990 levels by 2020 is now 16 percent.

As described above, the Shasta County RCAP utilizes reduction targets of 15 percent below 2008 by 2020, 49 percent below 2008 by 2035, and 83 percent below 2008 by 2050. These targets were developed to allow the County to contribute to State reduction targets and provide CEQA streamlining benefits to new development projects. However, it should be noted that the RCAP does not provide specific reduction targets or thresholds for individual development projects. Other prominent air districts such as the Bay

[12] Business as usual (BAU) is the project's projected GHG emissions level in 2020 under the assumption that consumption patterns and efficiencies are maintained at their 2005 levels. Under a BAU scenario, state, regional, and project-level efforts to reduce GHG emissions are not taken into consideration; rather, the BAU assumes the year 2005 status quo.

Area Air Quality Management District and the Sacramento Metropolitan Air Quality Management District have established the project level threshold of 1,100 $MTCO_2eq$. The Bay Area Air Quality Management District also provides an efficiency based threshold of 4.6 $MTCO_2eq$ per project resident and employee.

The use of a reduction from a BAU scenario as a threshold became a focal point in a recent California Supreme Court decision, *Center for Biological Diversity v. California Department of Fish and Wildlife.* In the EIR for the Newhall Ranch project, the California Department of Fish and Wildlife relied on the AB 32 Scoping Plan to set a threshold of significance for GHG emissions (i.e., 29 percent below BAU levels). The GHG analysis for the Newhall Ranch project determined that it would reduce GHG emissions by 31 percent from BAU conditions. Based on this determination, the EIR concluded that the project's GHG would result in a less than significant impact. The Supreme Court upheld this approach, and found that evaluating the significance of GHG emissions by their effect on the state's efforts to meet its long-term goals is acceptable. However, the Court also held that there was no evidence that Newhall Ranch's project-level reduction of 31 percent in comparison to a BAU conditions would be consistent with achieving AB 32's statewide goal of a 29 percent reduction. The Court decision also indicates that local governments should prepare GHG reduction plans or CAPs to substantiate project-level significance criteria for use in subsequent CEQA evaluations.

For the purposes of this assessment, the proposed project is compared to the achievement of at least a 49 percent reduction in GHG emissions as compared to BAU (consistent with the RCAP reduction target) in order to provide a conservative assessment. The RCAP 2035 reduction target is used since the project build-out is anticipated to occur over a 10 to 15 year period. As this reduction target is based on the RCAP targets and calculations pursuant to the AB 32 goal, it represents a threshold based on substantial evidence that is specific to Shasta County. Additionally, total construction-generated GHG emissions were conservatively amortized over the estimated life of the development and included with operational emissions for comparison to the significance thresholds. A life of 30 years was assumed for the proposed project.

In terms of evaluating this proposed project's potential to conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions, the County has elected utilized the GHG-reduction measures contained in the Shasta County RCAP for unincorporated Shasta County.

5.7.4 POTENTIAL IMPACTS AND MITIGATION MEASURES

METHODOLOGY

GHG emissions of the proposed project were calculated using the California Emissions Estimator Model (CalEEMod). CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for the use of government agencies, land use planners, and environmental professionals. This model was developed in coordination with the South Coast Air Quality Management District and is the most current emissions model approved for use in California by various other air districts. Greenhouse gas and climate change impacts are analyzed below according to topic. Mitigation measures directly correspond with an identified impact.

IMPACT 5.7-1	***Greenhouse gas emissions, either directly or indirectly, generated by the proposed project may have a significant impact on the environment.***

Significance: Potentially Significant Impact.

Impact Analysis: The proposed project would result in direct and indirect emissions of CO_2, CH_4, and N_2O, and would not result in other GHGs that would facilitate a meaningful analysis. Therefore, this analysis focuses on these three forms of GHG emissions. Direct project-related GHG emissions include emissions from construction activities, area sources, and mobile sources, while indirect sources include emissions from electricity consumption, water demand, and solid waste generation. Operational GHG estimations are based on energy emissions from natural gas usage and automobile emissions. Project related GHG emissions were quantified with the California Emissions Estimator Model (CalEEMod). CalEEMod relies upon vehicle trip rates and project specific land use data to calculate emissions.

The project proposes a 166 single family lots, and a total of 1,774 daily vehicle trips per the *Tierra Robles Traffic Impact Study* (refer to Appendix 15.9). Table 5.7-2, ESTIMATED GREENHOUSE GAS EMISSIONS, presents the estimated CO_2, N_2O, and CH_4 emissions of the proposed project. CalEEMod outputs with the GHG emissions data are contained within Appendix 15.3.

Table 5.7-2
ESTIMATED GREENHOUSE GAS EMISSIONS

Source	CO_2	CH_4		N_2O		Total $MTCO_2eq$[3]
	MT/yr[1]	MT/yr[1]	$MTCO_2eq$[2]	MT/yr[1]	$MTCO_2eq$[2]	
Direct Emissions						
Construction (amortized over 30 years)	151.17	0.03	0.84	0.00	0.00	151.87
Area Source	245.40	0.16	4.01	0.01	3.98	253.42
Mobile Source	2,506.27	0.13	3.30	0.00	0.00	2,509.49
Total Direct Emissions[3]	***2,902.84***	***0.32***	***8.15***	***0.01***	***3.98***	***2,914.78***
Indirect Emissions						
Energy	739.17	0.03	0.75	0.01	2.52	742.64
Solid Waste	24.11	1.42	35.62	0.00	0.00	59.72
Water Demand	27.40	0.35	8.84	0.01	2.52	38.78
Total Indirect Emissions[3]	***555.84***	***1.79***	***45.01***	***0.02***	***5.04***	***841.14***
Total Project-Related Emissions[3]	***3,755.92 $MTCO_2eq$***					

Notes:
1. Emissions calculated using CalEEMod.
2. Carbon dioxide equivalent values calculated using the U.S. Environmental Protection Agency Website, *Greenhouse Gas Equivalencies Calculator*, [online]: http://www2.epa.gov/energy/greenhouse-gas-equivalencies-calculator. Accessed August 2017.
3. Totals may be slightly off due to rounding.

Refer to Appendix 15.3, AIR QUALITY/GREENHOUSE GAS EMISSIONS DATA, for model input/output data.

Direct Proposed Project-Related Sources of Greenhouse Gases

Construction Emissions. 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.[13] As depicted in Table 5.7-2, the proposed project would result in 151.87 $MTCO_2eq$/yr (amortized over 30 years which is the expected lifecycle of the project), which represents a total of approximately 4,556.07 $MTCO_2eq$ from construction activities.

Area Source. Area source emissions were calculated using CalEEMod and project-specific land use data. As noted in Table 5.7-2, the proposed project would result in 253.42 $MTCO_2eq$/yr of area source GHG emissions.

[13] The project lifetime is based on the standard 30-year assumption of the South Coast Air Quality Management District (South Coast Air Quality Management District, *Minutes for the GHG CEQA Significance Threshold Stakeholder Working Group #13,* August 26, 2009). The Shasta County Air Quality Management District does not provide specific guidance regarding construction emissions. Therefore, the South Coast Air Quality Management District approach was conservatively used.

Mobile Source. CalEEMod relies upon trip data within the project Traffic Study and project specific land use data to calculate mobile source emissions. The proposed project would directly result in approximately 2,509.49 $MTCO_2eq/yr$ of mobile source-generated GHG emissions; refer to Table 5.7-2.

Indirect Proposed Project-Related Sources of Greenhouse Gases

Energy Consumption. Energy consumption emissions were calculated using CalEEMod and project-specific land use data. Electricity would be provided to the project site via Pacific Gas & Electric Company. The proposed project would indirectly result approximately 742.64 $MTCO_2eq/yr$ due to energy consumption; refer to Table 5.7-2.

Solid Waste. Solid waste associated with operations of the proposed project would result in an approximately 59.72 $MTCO_2eq/yr$; refer to Table 5.7-2.

Water Demand. The proposed project's operations would result in a demand of approximately 80 acre-feet per year (AFY). Emissions from indirect energy impacts due to water supply would result in approximately 38.78 $MTCO_2eq/yr$; refer to Table 5.7-2.

Total Proposed Project-Related Sources of Greenhouse Gases

As depicted in Table 5.7-2, the total amount of unmitigated project-related GHG emissions from direct and indirect sources combined would total 3,755.92 $MTCO_2eq/yr$, without the implementation of reductions from Project Design Features or mitigation measures.

Project Design Features/Mitigation Measures

The project includes project design features that would further reduce project-related GHG emissions: grey water diverter system; inclusion of solar design in new homes which reduces annual energy usage by 15 percent or more; class 1 public bikeways within the project site; and pedestrian trails located along project roadways. Individual homes would be required to be constructed with a grey water system that complies with Chapter 16 of the California Plumbing Code. This would allow diversion of flow from washing machines, showers, and bath tubs to a manual diverter valve. Typical operations would direct flow to provide subsurface irrigation for appropriate drought tolerant trees and shrubs within the individual yard, reducing domestic water demand. Design criteria for landscaping selection, dispersal system criteria, as well as for operation and maintenance of the system would be included in the Covenants, Conditions, and Restrictions (CC&Rs) for the proposed project.

The passive solar design of the project would be required as a Condition of Approval for each single-family home built onsite would include green building design components and use a combination of photovoltaic cells, solar water heating, and other construction design techniques to reduce energy usage by 15 percent or more. Additionally, the Class 1 bikeways and pedestrian trails would provide non-motorized transit opportunities and connections surrounding neighborhoods and land uses.

Additionally, **MM 5.7-1** would be required to further reduce GHG emissions to the extent feasible. GHG reductions were applied using CalEEMod. Reduction measures applied in CalEEMod from Project Design Features and required by **MM 5.7-1** include the following:

- Pedestrian connections to the offsite circulation network;
- Natural gas hearths;
- Use low VOC paint;
- Exceed Title 24 energy standards by 15 percent;

- Install high efficiency lighting for a 20 percent reduction in lighting energy use;
- Include onsite renewable energy (photovoltaic cells, solar water heating, or other design techniques) to reduce energy use by 15 percent;
- Use grey water diverter system;
- Install low-flow faucets, toilets, and showers;
- Install water-efficient irrigation systems;
- Institute recycling and composting services to reduce solid waste by at least 65 percent.

Table 5.7-3, MITIGATED GREENHOUSE GAS EMISSIONS, shows the reduced GHG emissions resulting from implementation of Project Design Features and **MM 5.7-1** associated with water, energy, solid waste, and land use efficiency measures.

Table 5.7-3
MITIGATED GREENHOUSE GAS EMISSIONS

Source	CO_2	CH_4		N_2O		Total $MTCO_2eq$[3]
	MT/yr[1]	MT/yr[1]	$MTCO_2eq$[2]	MT/yr[1]	$MTCO_2eq$[2]	
Direct Emissions						
Construction (amortized over 30 years)	151.17	0.03	0.84	0.00	0.00	151.87
Area Source	119.69	0.00	0.00	0.00	0.64	120.44
Mobile Source	2,506.27	0.13	3.30	0.00	0.00	2,509.49
Total Mitigated Direct Emissions[3]	***2,777.13***	***0.16***	***4.14***	***0.00***	***0.64***	***2,781.80***
Indirect Emissions						
Energy	613.09	0.02	0.45	0.01	2.14	615.99
Solid Waste	12.05	0.71	17.81	0.00	0.00	29.86
Water Demand	16.37	0.28	7.06	0.01	2.00	25.45
Total Mitigated Indirect Emissions[3]	***641.51***	***1.01***	***25.32***	***0.02***	***4.14***	***671.30***
Total Project-Related Emissions[3]	***3,453.10 $MTCO_2eq$***					

Notes:
1. Emissions calculated using CalEEMod.
2. Carbon dioxide equivalent values calculated using the U.S. Environmental Protection Agency Website, *Greenhouse Gas Equivalencies Calculator*, [online]: http://www2.epa.gov/energy/greenhouse-gas-equivalencies-calculator. Accessed August 2017.
3. Totals may be slightly off due to rounding.

Refer to Appendix 15.3, AIR QUALITY/GREENHOUSE GAS EMISSIONS DATA, for model input/output data.

Conclusion

As depicted in Table 5.7-2, the project's GHG emissions would be 3,755.92 $MTCO_2eq$/yr without the implementation of any reduction measures. Implementation of proposed energy efficiency measures, water conservation measures, and **MM 5.7-1** would reduce project GHG emissions to 3,453.10 $MTCO_2eq$, resulting in an 8.1 percent reduction; refer to Table 5.7-3. It should be noted that the Project Design Features and **MM 5.7-1** represent all feasible mitigation measures available to reduce project related GHG emissions. Despite the implementation of the Project Design Features and **MM 5.7-1**, project related GHG emissions would not meet the reduction targets established by AB 32 or SB 32, and impacts would remain *significant and unavoidable*.

Mitigation Measures:

MM 5.7-1: The project shall include, but not be limited to, the following improvements, which shall be incorporated into the project site plans to ensure consistency with adopted statewide plans and programs. The project applicant shall demonstrate compliance with this measure, prior to issuance of Building Permits:

Transportation

- Pedestrian connections to the offsite circulation network shall be provided on improvement/grading plans and implemented concurrent with subdivision backbone infrastructure improvements (Building Permit).

Area Sources

- Install natural gas hearths. Wood burning hearths are prohibited (Building Permit).
- Use low VOC paint. Requirements for low VOC interior and exterior paints shall be included in the project Covenants, Conditions, and Restrictions (CC&Rs) (Building Permit).

Energy Efficiency

- Exceed Title 24 energy efficiency standards by 15 percent (Building Permit).
- Install high efficiency lighting. High efficiency lighting shall achieve at least a 20 percent reduction in power rating by using either high efficiency fixtures and/or bulbs (Building Permit).
- Install Energy efficient appliances. Appliances shall comply with EPA Energy Star requirements (Occupancy Permit).
- Use Smart Grid Technology. Install PG&E Smart Meters in all lots/dwelling units (Occupancy Permit).
- Include onsite renewable energy (photovoltaic cells, solar water heating, or other design techniques) to reduce energy use by 15 percent, in addition to State required reductions (Building Permit).

Water Conservation and Efficiency

- Individual homes shall be constructed with an engineered grey water system that complies with Chapter 16 of the California Plumbing Code (Building Permit).
- Install water-efficient irrigation systems (Building Permit).
- Install water-efficient fixtures (e.g., low-flow faucets, toilets, showers) (Building Permit).

Solid Waste

- Divert at least 65 percent of solid waste to be recycled. Requirements for recycling shall be included in the project Covenants, Conditions, and Restrictions (CC&Rs) to ensure the project's solid waste collection contractor provides containers for recyclables (Building Permit).

Level of Significance After Mitigation: Impacts would remain *significant and unavoidable*.

IMPACT 5.7-2	*Implementation of the proposed project could potentially conflict with an applicable greenhouse gas reduction plan, policy, or regulation.*

Significance: Potentially Significant Impact.

Impact Analysis: As described above, the SCAQMD prepared their RCAP in 2012. Although not adopted at this time by the SCAQMD, the County has elected utilized the GHG-reduction measures contained in the Shasta County RCAP for unincorporated Shasta County. The RCAP establishes a community-wide emissions reduction target of 15 percent below 2008 levels by 2020, 49 percent below 2008 levels by 2035, and 83 percent below 2008 levels by 2050 following guidance from CARB and the Governor's Office of Planning and Research. CARB and the California Attorney General have determined this approach to be consistent with the statewide AB 32 goal of reducing emissions to 1990 levels by the year 2020, and the SB 32 goal of reducing emissions to 40 percent below 1990 levels by 2030. Progress toward achieving the 2020 and 2030 emissions reduction targets will be monitored over time through progress indicators, where possible. RCAP progress indicators provide mid-course checks to evaluate if a measure is on the right path to achieving targeted GHG reductions.

To meet emissions reduction targets, the RCAP relies on a combination of statewide actions and local emissions reduction efforts. As previously described, statewide emissions reduction programs have been developed to implement AB 32 and SB 32. These statewide actions provide the majority of reductions under the RCAP. Local reduction measures and actions are included to address the remaining gap between the reduction targets and statewide actions. These local actions are organized into reduction categories according to the source of emissions that they address. Reduction categories include energy, solid waste, transportation, water, and carbon sequestration.

Several GHG reduction measures apply to the unincorporated areas of Shasta County; refer to Table 5.7-1, above. For example, the RCAP contains waste-related measures that are expected to provide the largest portion, 63 percent, of the local reductions achieved in the unincorporated county. RCAP waste-related GHG reduction measures include the adoption of a construction and demolition lumber waste diversion ordinance that requires 75 percent of construction-generated lumber waste to be diverted from the waste stream, and the installation of methane capture facilities at the West Central Landfill. RCAP energy-related measures (i.e., smart grid integration and solar photovoltaic system installation incentives) are estimated to provide 36 percent of the local reductions achieved in the unincorporated county, followed by transportation measures such as bicycle lane expansion in the unincorporated county (0.7 percent reduction), water measures (0.3 percent reduction), and carbon sequestration measures (0.1 percent reduction). As shown in Table 5.7-1, the proposed project would be consistent with numerous RCAP GHG reduction measures, and would be required to adhere to all applicable County regulations. As such, the project would not inhibit any RCAP measures, and therefore, would not conflict with the RCAP. Furthermore, implementation of the various project design features and **MM 5.7-1** would reduce indirect GHG emissions (water consumption, solid waste generation, and energy consumption) by 20.2 percent, which would exceed the RCAPs target of a 15 percent reduction.

Shasta County is also subject to compliance with AB 32 and SB 32, which is a legal mandate requiring that statewide GHG emissions be reduced to 1990 levels by 2020, and 40 percent below 1990 levels by 2030, respectively. In adopting the AB 32 and SB 32 reduction targets, the legislature determined the necessary GHG reductions for the state to make in order to sufficiently offset its contribution to the cumulative climate change problem to reach 1990 levels by 2020, and be 40 percent below 1990 levels by 2030. As identified above, the proposed project would not achieve the County's 2035 reduction target of 49

percent. Compliance with this reduction threshold is part of the solution to the cumulative GHG emissions problem, rather than a hindrance of the State's ability to meet its goals of reduced statewide GHG emissions under AB 32 and SB 32. Therefore, the proposed project would potentially conflict with the County's RCAP, AB 32, and SB 32 despite the implementation of the Project Design Features and **MM 5.7-1**, noted above. Impacts would be *significant and unavoidable.*

Mitigation Measures: Implement **MM 5.7-1**.

Level of Significance After Mitigation: Impacts would remain *significant and unavoidable*.

5.7.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

IMPACT 5.7-3	***Greenhouse gas emissions generated by the project could potentially have a significant impact on global climate change.***

Significance: Potentially Significant Impact.

Cumulative Setting: Under AB 32, the CARB, which is the agency in charge of regulating sources of emissions of GHGs in California, has been tasked with adopting regulations for reduction of GHG emissions. The effects of this project are evaluated based not upon the quantity of emissions, but rather on whether the project implements reduction strategies identified in AB 32, the Governor's Executive Order S-3-05, or other strategies to help toward reducing GHGs to the level proposed by the governor. If so, it could reasonably follow that the project would not result in a significant contribution to the cumulative impact of global climate change.

Impact Analysis: 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.[14] GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective.[15] The additive effect of project-related GHGs 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 further reduce GHG emissions. However as stated above, the proposed project would not achieve the County's 2035 reduction target of 49 percent despite the implementation of Project Design Features and **MM 5.7-1**. Therefore, the project's cumulative GHG impacts would be *significant and unavoidable*.

Mitigation Measures: Implement **MM 5.7-1**.

Level of Significance After Mitigation: Cumulative GHG impacts would remain *significant and unavoidable*.

[14] CAPCOA (California Air Pollution Control Officers Association). 2008. *CEQA & Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*.
[15] Ibid.