

5. Environmental Analysis

5.7 GREENHOUSE GAS EMISSIONS

This section of the Draft Environmental Impact Report (DEIR) evaluates the potential for the Rancho San Gorgonio Specific Plan project (proposed project) to cumulatively contribute to greenhouse gas (GHG) emissions. Because no single project is large enough to result in a measurable increase in global concentrations of GHG emissions, climate change impacts of a project are considered on a cumulative basis.

The chapter evaluates consistency of the project with the strategies outlined in the California Air Resources Board's (ARB) Scoping Plan in accordance with the GHG reduction goals of Assembly Bill 32 (AB 32) and strategies proposed by the Southern California Association of Governments (SCAG) to reduce vehicle miles traveled (VMT) in the region, in accordance with Senate Bill 375 (SB 375). The analysis in this section is based in part on the following technical report:

- *Air Quality Impact Analysis, Rancho San Gorgonio Specific Plan, City of Banning, Riverside County, California*, LSA Associates, April 2016.

A complete copy of this study is included in the Technical Appendices to this Draft EIR (Volume II, Appendix C).

The South Coast Air Quality Management District (SCAQMD) submitted a Notice of Preparation (NOP) comment letter addressing greenhouse gas emissions. SCAQMD recommends quantifying pollutant emissions and comparing the results to the regional significance thresholds. The NOP comment letter is included in Appendix B. Pollutant emissions are quantified and compared to SCAQMD's significance thresholds below in Section 5.7.3.

5.7.1 Environmental Setting

Greenhouse Gases and Climate Change

Global climate change (GCC) is the observed increase in the average temperature of the Earth's atmosphere and oceans along with other significant changes in climate (such as precipitation or wind) that last for an extended period of time. The term "global climate change" is often used interchangeably with the term "global warming," but "global climate change" is preferable because it helps convey that there are other changes in addition to rising temperatures.

Global climate change refers to any change in measures of weather (such as temperature, precipitation, or wind) lasting for an extended period of time (decades or longer). GCC may result from natural factors (e.g., changes in the sun's intensity), natural processes within the climate system (e.g., changes in ocean circulation), or human activities (e.g., burning fossil fuels, land clearing, or agriculture). The primary observed effect of GCC has been a rise in the average global tropospheric temperature of 0.36 degree Fahrenheit (°F) per decade, determined from meteorological measurements worldwide between 1990 and 2005. Climate change modeling shows that further warming could occur, which would induce additional changes. Changes to the global climate system and ecosystems and the environment of California could include higher sea levels; drier or wetter weather; changes in ocean salinity; changes in wind patterns; and more extreme weather, including

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droughts, heavy precipitation, heat waves, extreme cold, and increased intensity of tropical cyclones. Specific effects in California might include a decline in the Sierra Nevada snowpack, erosion of California's coastline, and seawater intrusion in the Sacramento Delta.

Global surface temperatures have risen by $1.33^{\circ}\text{F} \pm 0.32^{\circ}\text{F}$ over the last 100 years (1906–2005). The rate of warming over the last 50 years is almost double that over the last 100 years. The latest projections, based on state-of-the-art climate models, indicate that temperatures in California are expected to rise 3°F to 10.5°F by the end of the century. The prevailing scientific opinion on GCC is that most of the warming observed over the last 60 years is attributable to human activities. Increased amounts of carbon dioxide (CO_2) and other GHGs are the primary causes of the human-induced component of warming. The observed warming effect associated with the presence of GHGs in the atmosphere (from either natural or human sources) is often referred to as the greenhouse effect.

GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced GCC include:

- carbon dioxide (CO_2)
- Methane (CH_4)
- Nitrous oxide (N_2O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur hexafluoride (SF_6)

Over the last 200 years, human activities have caused substantial quantities of GHGs to be released into the atmosphere. The increasing GHG concentrations enhance the natural greenhouse effect, which is believed to cause global warming. GHGs produced by human activities include naturally occurring GHGs such as CO_2 , CH_4 , and N_2O , but some gases, like HFCs, PFCs, and SF_6 , are completely new to the atmosphere. Certain other gases, such as water vapor, are short-lived in the atmosphere compared to these GHGs, which remain in the atmosphere for significant periods of time, contributing to climate change in the long term. Water vapor is generally excluded from the list of GHGs because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation. For the purposes of this report, the term “GHGs” will refer collectively to the six gases in the bulleted list above.

These gases vary considerably in terms of global warming potential (GWP), a concept developed to compare different GHGs’ ability to trap heat in the atmosphere. The GWP is based on several factors, including how well it absorbs infrared radiation and how long it remains in the atmosphere (“atmospheric lifetime”). The GWP of each gas is measured relative to CO_2 , the most abundant GHG. The definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO_2 over a specified time period. GHG emissions are typically measured in terms of pounds or tons of “ CO_2 equivalence” (CO_2e). Table 5.7-1 shows the GWP for each type of GHG. For example, SF_6 is 23,900 times as potent as CO_2 at contributing to global warming.

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Table 5.7-1 Global Warming Potential of Greenhouse Gases

Gas	Atmospheric Lifetime (Years)	Global Warming Potential (100-year Time Horizon)
Carbon Dioxide (CO ₂)	50–200	1
Methane (CH ₄)	12 ±3	21
Nitrous Oxide (N ₂ O)	120	310
HFC-23	264	11,700
HFC-134a	14.6	1,300
HFC-152a	1.5	140
PFC: Tetrafluoromethane (CF ₄)	50,000	6,500
PFC: Hexafluoromethane (C ₂ F ₆)	10,000	9,200
Sulfur Hexafluoride (SF ₆)	3,200	23,900

Source: ARB 2014.

Note: While updated global warming potential (GWP) values are available in the intergovernmental Panel on Climate Change's (IPCC) fourth and fifth assessment reports, this impact analysis uses the second assessment report values to be consistent with the California Air Resources Board (ARB) modeling and significance criteria.

HFC = Hydrofluorocarbons; PFC = Perfluorocarbons

The following discussion summarizes the characteristics of seven of the primary GHGs.

- **Carbon Dioxide.** In the atmosphere, carbon generally exists in its oxidized form, as CO₂. Natural sources of CO₂ include the respiration (breathing) of humans, animals and plants, volcanic outgassing, decomposition of organic matter, and evaporation from the oceans. Human-caused sources of CO₂ include the combustion of fossil fuels and wood, waste incineration, mineral production, and deforestation. The earth maintains a natural carbon balance, and when concentrations of CO₂ are upset, the system gradually returns to its natural state through natural processes. Natural changes to the carbon cycle work slowly, especially compared to the rapid rate at which humans are adding CO₂ to the atmosphere. Natural removal processes, such as photosynthesis by land- and ocean-dwelling plant species, cannot keep pace with this extra input of human-made CO₂, and consequently the gas is building up in the atmosphere. The concentration of CO₂ in the atmosphere has risen approximately 30 percent since the late 1800s.

In 2002, CO₂ emissions from fossil fuel combustion accounted for approximately 98 percent of human-made CO₂ emissions and approximately 84 percent of California's overall GHG emissions (in CO₂e). The transportation sector accounted for California's largest portion of CO₂ emissions, with gasoline consumption making up the greatest portion of these emissions. Electricity generation was California's second-largest category of GHG emissions.

- **Methane.** CH₄ is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources include wetlands, termites, and oceans. Anthropogenic sources include rice cultivation, livestock, landfills and waste treatment, biomass burning, and fossil fuel combustion (burning of coal, oil, and natural gas, etc.). Decomposition occurring in landfills accounts for the majority of human-generated CH₄ emissions in California, followed by enteric fermentation (emissions from the digestive processes of livestock).¹ Agricultural processes such as manure management and rice cultivation are also significant sources of human-made CH₄ in California. CH₄ accounted for approximately 8 percent of gross climate

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change emissions (in CO₂e) in California in 2012. It is estimated that over 60 percent of global CH₄ emissions are related to human-related activities. As with CO₂, the major removal process of atmospheric CH₄—a chemical breakdown in the atmosphere—cannot keep pace with source emissions, and CH₄ concentrations in the atmosphere are increasing.

- **Nitrous Oxide.** N₂O is produced naturally by a wide variety of biological sources, particularly microbial action in soils and water. Tropical soils and oceans account for the majority of natural source emissions. N₂O is a product of the reaction that occurs between nitrogen and oxygen during fuel combustion. Both mobile and stationary combustion emit N₂O, and the quantity emitted varies according to the types of fuel, technology, and pollution control devices used, as well as maintenance and operating practices. Agricultural soil management and fossil fuel combustion are the primary sources of human-generated N₂O emissions in California. N₂O emissions accounted for nearly 7 percent of human-made GHG emissions (in CO₂e) in California in 2002.
- **Hydrofluorocarbons, Perfluorocarbons, and Sulfur Hexafluoride.** HFCs are primarily used as substitutes for O₃-depleting substances regulated under the Montreal Protocol. PFCs and SF₆ are emitted from various industrial processes, including aluminum smelting, semiconductor manufacturing, electric power transmission and distribution, and magnesium casting. There is no aluminum or magnesium production in California; however, the rapid growth in the semiconductor industry, which is active in California, leads to greater use of PFCs. HFCs, PFCs, and SF₆ accounted for about 3.5 percent of human-made GHG emissions (in CO₂e) in California in 2002.
- **Halons.** These compounds are used in fire extinguishers and behave as both O₃-depleting gases and GHGs. Halon production ended in the US in 1993. SCAQMD Rule 1418, Halon Emissions from Fire Extinguishing Equipment, requires the recovery and recycling of halons used in fire extinguishing systems and prohibits the sale of halon in small fire extinguishers.

GHG Emissions Sources and Inventories

An emissions inventory that identifies and quantifies the primary human-generated sources and sinks of GHGs is a well-recognized and useful tool for addressing climate change. This section summarizes the latest information on global, national, California, and local GHG emission inventories. However, because GHGs persist for a long time in the atmosphere, accumulate over time, and are generally well mixed, their impact on the atmosphere and climate cannot be tied to a specific point of emission.

Global Emissions

Worldwide emissions of GHGs in 2012 were 29 billion metric tons (MT) of CO₂e per year (MT CO₂e/yr). Global estimates are based on country inventories developed as part of programs of the United Nations Framework Convention on Climate Change.

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United States Emissions

In 2013, the US emitted approximately 6.7 billion MTCO₂e. Total US emissions have increased by 5.9 percent from 1990 to 2013 with emissions from 2012 to 2013 increasing by 2.0 percent. The increase from 2012 to 2013 was due to an increase in the carbon intensity of fuels consumed to generate electricity due to an increase in coal consumption with decreased natural gas consumption. Additionally, relatively cool winter conditions led to an increase in fuels for the residential and commercial sectors for heating,. In 2013, there was also an increase in industrial production across multiple sectors resulting in increases in industrial sector emissions. Lastly, transportation emissions increased as a result of a small increase in vehicle miles traveled and fuel use across on-road transportation modes. Since 1990, US emissions have increased at an average annual rate of 0.3 percent.

State of California Emissions

According to ARB emission inventory estimates, California emitted approximately 459 million metric tons (MMT) of CO₂e emissions in 2013. The 2013 inventory demonstrates that as the State's gross domestic product continues to rise (by 5 percent since 2009), the carbon intensity (i.e., the amount of carbon pollution related to the State's overall economy) has fallen steadily over the same time period.

Emissions from the transportation sector—still California's largest single source of GHGs, contributing 37 percent of total emissions—declined marginally compared to 2011, even while the economy continued to grow. The long-term direction of transportation-related GHG emissions is another clear trend, with a 12 percent drop over the past 7 years.

In 2013, total GHG and per capita emissions increased for the first time, albeit only by a single percentage point, in the last 5 years. This increase was driven primarily by strong economic growth in the State, the unexpected closure of the San Onofre Nuclear Generating Station (SONGS), and drought conditions that limited in State hydropower.

Emissions from sectors other than electricity remained relatively constant from 2011, and the GHG carbon intensity of California's economy continued to decline in 2013. Beginning in 2013, California's Cap-and-Trade program ensures that emissions continually decline, even alongside stronger economic growth and potentially drier hydrological conditions, and in the event of any additional unforeseen circumstances.

Riverside County Emissions

In 2010, the western Riverside County region emitted approximately 5.8 MMT of CO₂e. These emissions were primarily from transportation sources at 57 percent, followed by commercial/industrial at 21 percent and residential energy at 20 percent.

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5.7.1.1 REGULATORY BACKGROUND

Federal

The US has historically had a voluntary approach to reducing GHG emissions. However, on April 2, 2007, the US Supreme Court ruled that the EPA has the authority to regulate CO₂ emissions under the federal Clean Air Act (CAA).

On September 30, 2009, the EPA announced a proposal that focuses on large facilities emitting over 25,000 tons of GHG emissions per year. These facilities would be required to obtain permits that would demonstrate they are using the best practices and technologies to minimize GHG emissions.

On December 7, 2009, the EPA Administrator signed a final action with two distinct findings regarding GHGs under Section 202(a) of the CAA:

- The Administrator is proposing to find that the current and projected concentrations of the mix of six key GHGs (CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆) in the atmosphere constitute a threat to public health and welfare of current and future generations. This is referred to as the endangerment finding.
- The Administrator is further proposing to find that the combined emissions of CO₂, CH₄, N₂O, and HFCs from new motor vehicles and motor vehicle engines contribute to the atmospheric concentrations of these key GHGs and hence to the threat of GCC. This is referred to as the cause or contribute finding.

This EPA action does not impose any requirements on industry or other entities. However, the findings are a prerequisite to finalizing the GHG emission standards for light-duty vehicles discussed below.

Corporate Average Fuel Economy Standards

On April 1, 2010, the EPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) announced a final joint rule to establish a national program consisting of new standards for model years 2012–2016 light-duty vehicles that will reduce GHG emissions and improve fuel economy. The EPA finalized the first-ever national GHG emissions standards under the CAA, and NHTSA finalized Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act. The EPA GHG standards require these vehicles to meet an estimated combined average emissions level of 250 grams of CO₂ per mile in model year 2016, equivalent to 35.5 miles per gallon (mpg). On August 28, 2012, the EPA and the NHTSA issued a joint Final Rulemaking to extend the National Program of harmonized GHG and fuel economy standards to model years 2017 through 2025 passenger vehicles. Over the lifetime of the model years 2017–2025 standards, this program is projected to save approximately 4 billion barrels of oil and 2 billion metric tons of GHG emissions, with net benefits up to \$451 billion.

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State

Assembly Bill 1493

In a response to the transportation sector's significant contribution to California's CO₂ emissions, AB 1493 (Pavley) was enacted on July 22, 2002. AB 1493 requires the ARB to set GHG emission standards for passenger vehicles and light-duty trucks (and other vehicles whose primary use is noncommercial personal transportation in the State) manufactured in 2009 and all subsequent model years. The ARB adopted the standards in September 2004. When fully phased in, the near-term (2009–2012) standards will result in a reduction of approximately 22 percent in GHG emissions compared to the emissions from the 2002 fleet, while the mid-term (2013–2016) standards will result in a reduction of approximately 30 percent.

To set its own GHG emissions limits on motor vehicles, California needed to receive a CAA waiver from the EPA. On June 30, 2009, the EPA granted the waiver of CAA preemption to California for its GHG emission standards for motor vehicles beginning with the 2009 model year. Notice of the decision was published in the Federal Register on July 8, 2009.

Senate Bill 1078

Approved by Governor Davis in September 2002, Senate Bill (SB) 1078 established the Renewal Portfolio Standard program, which requires an annual increase in renewable generation by the utilities equivalent to at least one percent of sales, with an aggregate goal of 20 percent by 2017. This goal was subsequently accelerated, requiring utilities to obtain 20 percent of their power from renewable sources by 2010 (see SB 107 and Executive Order [EO] S-14-08).

Executive Order S-3-05

In June 2005, Governor Schwarzenegger established California's GHG emissions reduction targets in EO S-3-05. This EO established the following goals for the State of California: GHG emissions should be reduced to 2000 levels by 2010; GHG emissions should be reduced to 1990 levels by 2020; and GHG emissions should be reduced to 80 percent below 1990 levels by 2050. The Secretary of the California Environmental Protection Agency (CalEPA) is required to coordinate efforts of various agencies in order to collectively and efficiently reduce GHGs. Representatives from several state agencies comprise the Climate Action Team (CAT). The CAT is responsible for implementing global warming emissions reduction programs. The CAT fulfilled its report requirements through the March 2006 CAT Report to Governor Schwarzenegger and the legislature (CalEPA 2006). Subsequent CAT reports were released for 2009 and 2010.

Assembly Bill 32

California's major initiative for reducing GHG emissions is outlined in AB 32, the "Global Warming Solutions Act," passed by the California State legislature on August 31, 2006. AB 32 required ARB to:

- Establish a statewide GHG emissions cap for 2020, based on 1990 emissions, by January 1, 2008;
- Adopt mandatory reporting rules for significant sources of GHG emissions by January 1, 2008;

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- Adopt an emissions reduction plan by January 1, 2009, indicating how emissions reductions will be achieved via regulations, market mechanisms, and other actions;
- Adopt regulations to achieve the maximum technologically feasible and cost-effective reductions of GHGs by January 1, 2011; and
- Prepare a Scoping Plan outlining the State's strategy to achieve the 2020 GHG emissions limit.

The ARB has established that the level of annual GHG emissions in 1990 was 427 MMT CO₂e. Based on economic projections in 2008, the emissions target of 427 MMT of CO₂e/year required the reduction of 80 MMT from the State's projected "business as usual" (BAU) 2020 emissions of 507 MMT² (i.e., the 1990 levels were approximately 28.4 percent below BAU). BAU is a forecast of the California economy in 2020 without implementation of any of the GHG reduction measures identified in the Scoping Plan.

The Scoping Plan was approved by the ARB on December 11, 2008, and includes measures to address GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among other measures. More specifically, the Scoping Plan includes aggressive energy efficiency goals and methods for increasing renewable energy use. Meeting the goals in the Scoping Plan will require expanded utility-based energy efficiency programs, more stringent building and appliance standards, green building practices, waste reduction, and innovative strategies that go beyond traditional approaches. The Scoping Plan also relies on expanded efforts by the California Energy Commission (CEC) and California Public Utilities Commission (CPUC).

In August 2011, the Scoping Plan was revised and reapproved by the ARB and includes the Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document (FED). The 2011 revisions to the Scoping Plan include a new BAU benchmark of 507 MMT of CO₂e/year in 2020 and revised emissions reduction requirements based on updated emissions projections in light of the economic downturn since 2008. The revised Scoping Plan indicates that California needs to reduce GHG emissions by approximately 16 percent below BAU GHG emissions for year 2020 to attain the emissions goal of 427 MMT of CO₂e by 2020. The Scoping Plan includes a range of GHG reduction actions that may include direct regulations, alternative compliance mechanisms, monetary and nonmonetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system. It is important to note that the Scoping Plan, even after Board approval, remains a recommendation. The measures in the Scoping Plan will not be binding until after they are adopted through the normal rulemaking process. The ARB rule-making process includes preparation and release of each of the draft measures, public input through workshops, and a public comment period, followed by an ARB Board hearing and rule adoption.

In addition to reducing GHG emissions to 1990 levels by 2020, Assembly Bill 32 directed the ARB and the CAT¹ to identify a list of "discrete early action GHG reduction measures" that could be adopted and made enforceable by January 1, 2010. On January 18, 2007, Governor Schwarzenegger signed EO S-1-07, further

¹ The CAT is a consortium of representatives from State agencies who have been charged with coordinating and implementing GHG emission reduction programs that fall outside of the ARB's jurisdiction.

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solidifying California's dedication to reducing GHGs by setting a new Low Carbon Fuel Standard. This Executive Order sets a target to reduce the carbon intensity of California transportation fuels by at least 10 percent by 2020 and directs the ARB to consider the Low Carbon Fuel Standard as a discrete early action measure. The ARB adopted the implementing regulation in April 2009. The regulation is expected to increase the production of biofuels, including those from alternative sources such as algae, wood, and agricultural waste. In addition, the Low Carbon Fuel Standard would drive the availability of plug-in hybrid, battery electric, and fuel-cell power motor vehicles. The Low Carbon Fuel Standard is anticipated to replace 20 percent of the fuel used in motor vehicles with alternative fuels by 2020.

In June 2007, the ARB approved a list of 37 early action measures, including three discrete early action measures (Low Carbon Fuel Standard, Restrictions on High Global Warming Potential Refrigerants, and Landfill Methane Capture). Discrete early action measures are measures that were required to be adopted as regulations and made effective no later than January 1, 2010, the date established by Health and Safety Code (HSC) Section 38560.5. The ARB adopted an additional six early action measures in October 2007. These measures relate to truck efficiency, port electrification, reduction of perfluorocarbons from the semiconductor industry, reduction of propellants in consumer products, proper tire inflation, and SF₆ reductions from the non-electricity sector. The combination of early action measures is estimated to reduce statewide GHG emissions by nearly 16 MMT.

Senate Bill 1368

In September 2006, Governor Schwarzenegger signed SB 1368, which requires the CEC to develop and adopt regulations for GHG emissions performance standards for the long-term procurement of electricity by local, publicly owned utilities. These standards must be consistent with the standards adopted by the CPUC. This effort will help to protect energy customers from financial risks associated with investments in carbon-intensive generation by allowing new capital investments in power plants whose GHG emissions are as low as or lower than new combined-cycle natural gas plants, by requiring imported electricity to meet GHG performance standards in California and requiring that the standards be developed and adopted in a public process.

Senate Bill 375

SB 375, signed into law on October 1, 2008, is intended to enhance the ARB's ability to reach AB 32 goals by directing the ARB to develop regional GHG emission reduction targets to be achieved within the automobile and light truck sectors for 2020 and 2035. The targets are required to consider the emission reductions associated with vehicle emission standards (see SB 1493), the composition of fuels (see EO S-1-07), and other ARB-approved measures to reduce GHG emissions. In late September 2010, the ARB announced GHG reduction goals for implementation by regional land use and transportation agencies. As shown in Table 5.7-2, the regional emissions reduction goal for Los Angeles/Southern California is 8 percent by 2020 and 13 percent by 2035 compared to 2005 emissions levels.

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Table 5.7-2 September 2010 ARB SB 375 Reduction Goals

	By 2020 (percent)	By 2035 (percent)
San Francisco Bay Area	7	15
San Diego	7	13
Sacramento	7	16
Central Valley/San Joaquin	5	10
Los Angeles/Southern California	8	13

ARB = California Air Resources Board; SB = Senate Bill

The ARB will work with California's 18 metropolitan planning organizations to align their regional transportation, housing, and land use plans and prepare a "Sustainable Communities Strategy" within the Regional Transportation Plan to reduce the number of vehicle miles traveled in their respective regions and demonstrate the region's ability to attain its GHG reduction targets. If a Sustainable Communities Strategy is unable to achieve the GHG reduction target, a metropolitan planning organization must prepare an Alternative Planning Strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies. SB 375 provides incentives for streamlining State CEQA Guideline requirements by substantially reducing the requirements for "transit priority projects," as specified in SB 375, and eliminating the analysis of the impacts of certain residential projects on global warming and the growth-inducing impacts of those projects when the projects are consistent with the Sustainable Communities Strategy or Alternative Planning Strategy.

Senate Bill X1-2

On April 12, 2011, California Governor Jerry Brown signed SB X1-2. This bill supersedes the 33 percent by 2020 Renewable Portfolio Standard (RPS), created by EO S-14-08 that Governor Arnold Schwarzenegger previously signed. The RPS required that all retail suppliers of electricity in California serve 33 percent of their load with renewable energy by 2020. A number of significant changes are made in SB X1-2:

- SB X1-2 extends application of the RPS to all electric retailers in the State, including municipal and public-owned utilities, and community choice aggregators.
- SB X1-2 creates a three-stage compliance period for electricity providers to meet renewable energy goals: 20 percent of retail sales must be renewable energy products by 2013, 25 percent of retail sales must be renewable energy products by 2016, and 33 percent of retail sales must be renewable energy products by 2020. The 33 percent level must be maintained in the years that follow.
- This three-stage compliance period requires the RPS to be met increasingly with renewable energy that is supplied to the California grid and is located within or directly proximate to California. SB X1-2 mandates that renewables from this category make up:
 - At least 50 percent for the 2011–2013 compliance period
 - At least 65 percent for the 2014–2016 compliance period

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- At least 75 percent for 2016 and beyond
- SB X1-2 sets rules for the use of Renewable Energy Credits (RECs):
 - Establishes a cap of no more than 25 percent unbundled RECs going toward the RPS between 2011 and 2013, 15 percent from 2014 to 2016, and 10 percent thereafter
 - Does not allow for the grandfathering of Tradable REC contracts executed before 2010, unless the contract was (or is) approved by the CPUC
 - Allows banking of RECs for 3 years only
 - Allows Energy Service Providers, Community Choice Aggregators (CCAs), and Investor Owned Utilities (IOUs) with 60,000 or fewer customers to use 100 percent RECs to meet the RPS
- SB X1-2 also eliminates the Market Price Referent (MPR), which was a benchmark to assess the above-market costs of RPS contracts based on the long-term ownership, operating, and fixed price fuel costs for a new 500 megawatt (MW) natural gas-fired combined cycle gas turbine. Using the MPR, the CPUC would provide above-market funds to cover contract costs that exceeded the MPR, require the CPUC to establish a cost limit for each IOU, and authorize IOUs to stop procuring renewable energy beyond the cost limit. It also requires the CPUC to adopt a standard tariff for renewable projects up to 3 MW in size, with a 750 MW statewide cap on eligibility for the tariff.

Executive Order S-21-09

On September 15, 2009, Governor Schwarzenegger issued EO S-21-09. This EO directed ARB to adopt a regulation consistent with the goal of EO S-14-08 by July 31, 2010. On September 23, 2010, the ARB adopted the “Renewable Electricity Standard” (RES) to require a 33 percent by 2020 renewable energy procurement mandate for most retail sellers of electricity in California.

California Green Building Code

California Green Buildings Standards Code (Cal Green Code) (California Code of Regulations [CCR], Title 24, part 11) was adopted by the California Building Standards Commission in 2010 and became effective in January 2011. The Code applies to all new constructed residential, nonresidential, commercial, mixed-use, and State-owned facilities, as well as schools and hospitals. Cal Green Code consists of Mandatory Residential and Nonresidential Measures and more stringent Voluntary Measures (TIERs I and II).

Mandatory Measures are required to be implemented on all new construction projects and consist of a wide array of green measures concerning project site design, water use reduction, improvement of indoor air quality, and conservation of materials and resources. The Cal Green Code refers to Title 24, Part 6 compliance with respect to energy efficiency; however, it encourages 15 percent energy use reduction over that required in Part 6. Voluntary Measures are optional, more stringent measures that may be used by jurisdictions that strive to enhance their commitment toward green and sustainable design and achievement of AB 32 goals. Under TIERs I and II, all new construction projects are required to reduce energy

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consumption by 15 percent and 30 percent, respectively, below the baseline required under the CEC, as well as implement more stringent green measures than those required by mandatory code.

Regional

Western Riverside Council of Governments Subregional Climate Action Plan

The Western Riverside Council of Governments (WRCOG) developed their Subregional Climate Action Plan (CAP) in September 2014. WRCOG's subregional emissions reduction targets are 15 percent below 2010 levels by 2020, and 49 percent below 2010 levels by 2035. The CAP contains GHG reduction measures organized into four primary sectors: energy, transportation, solid waste, and water. If fully implemented, the CAP will exceed the 2020 goal by 2.1 percent, achieving an overall 17.1 percent reduction in GHG emissions by 2020.

5.7.1.2 EXISTING CONDITIONS

The project area is currently comprised of open and undeveloped land and is not a source of emissions.

5.7.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

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

South Coast Air Quality Management District

SCAQMD has adopted a significance threshold of 10,000 MTCO₂e per year for permitted (stationary) sources of GHG emissions for which SCAQMD is the designated lead agency. To provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents, SCAQMD has convened a GHG CEQA Significance Threshold Working Group (Working Group). Based on the last Working Group meeting (Meeting No. 15) in September 2010, SCAQMD is proposing to adopt a tiered approach for evaluating GHG emissions for development projects where SCAQMD is not the lead agency.

A proposed project would be evaluated against the tiers and a determination made as to which tier would be the most appropriate for the individual project. For example, if a project is exempt from CEQA, Tier 1 would be the most appropriate tier, the project's effects related to GHG emissions/ would be less than significant, and the analysis would be complete. If the project is not exempt and there is a local GHG reduction plan in place, Tier 2 would be the most appropriate tier. If the project is consistent with that plan, its effects related to GHG emissions/GCC would be less than significant and the analysis would be complete. If the project is

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not consistent with the plan, it would have a significant impact related to GHG emissions/GCC and the analysis would be complete.

If there is no local GHG reduction plan, Tier 3 is used to screen for smaller projects. If the project's emissions are less than the applicable numerical threshold (see below), its effects related to GHG emissions/GCC would be less than significant and the analysis would be complete. If the project exceeds the numerical threshold, it is analyzed using Tier 4. If the project's emissions are less than the applicable Tier 4 performance-based target, it would have less than significant impacts related to GHG emissions/GCC and the analysis would be complete. If the project exceeds both the screening Tier 3 and Tier 4 targets, it would have a significant impact related to GHG emissions/GCC and the analysis would be complete.

Tier 5, which is not a threshold, specifies that a project include all feasible onsite and offsite measures to reduce GHG emissions as well as financially supporting independent projects that have a net reduction in GHG emissions.

- **Tier 1.** Tier 1 consists of evaluating whether or not the project qualifies for any applicable exemption under CEQA. If the project qualifies for an exemption, no further action is required.
- **Tier 2.** Tier 2 consists of determining whether or not the project is consistent with a GHG reduction plan that may be part of a local general plan, for example. The concept embodied in this tier is equivalent to the existing consistency determination requirements in CEQA Guidelines Sections 15064(h)(3), 15125(d), or 15152(a). The GHG reduction plan must, at a minimum, comply with AB 32 GHG reduction goals; include an emissions inventory agreed upon by either the ARB or the SCAQMD, have been analyzed under CEQA and have a certified Final CEQA document, and have monitoring and enforcement components. If the proposed project is consistent with the qualifying local GHG reduction plan, it is not significant for GHG emissions.
- **Tier 3.** Does the project exceed the applicable GHG screening thresholds?
 - Industrial (when SCAQMD is the Lead Agency): 10,000 MTCO₂e/yr
 - Residential: 3,500 MTCO₂e/yr
 - Commercial: 1,400 MTCO₂e/yr
 - Mixed-use: 3,000 MTCO₂e/yr

If a project's GHG emissions exceed the GHG screening threshold, the project would be analyzed under Tier 4.

- **Tier 4.** Tier 4 establishes a decision tree approach that includes compliance options for projects that have incorporated design features into the project and/or implement GHG mitigation measures.
 - Efficiency Target (2020 Targets)
 - 4.8 MTCO₂e per Service Population (SP) for project level threshold (land use emissions only) and total residual emissions not to exceed 25,000 MMTCO₂e per year
 - 6.6 MT CO₂e per SP for plan level threshold (all sectors)

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- Efficiency Target (2035 Targets)²
 - 3.0 MT CO₂e per SP for project level threshold
 - 4.1 MT CO₂e per SP for plan level threshold

If the lead agency or project proponent cannot achieve the performance standards on any of the compliance options in Tier 4, the project-related GHG emissions would be considered significant.

- **Tier 5.** Tier 5 would require projects to implement on-site and off-site GHG mitigation to include financially supporting net GHG-reducing projects sufficient to reduce GHG emission impacts for the life of the project (30 years) to less than the applicable GHG screening threshold level.

For the purpose of this project, SCAQMD's project-level efficiency threshold is used because the plan-level thresholds are more applicable at a general plan level. If projects exceed this per capita efficiency target, GHG emissions would be considered potentially significant in the absence of mitigation measures.

5.7.3 Environmental Impacts

The following impact analysis addresses thresholds of significance for which the Initial Study disclosed potentially significant impacts. The applicable thresholds are identified in brackets after the impact statement.

Impact 5.6-1: Development of the proposed land uses within the Rancho San Gorgonio Specific Plan would result in a substantial increase of GHG emissions that would exceed the South Coast Air Quality Management District's proposed efficiency target of 4.8 MTCO₂e. [Threshold GHG-1]

Impact Analysis: A project does not generate enough GHG emissions on its own to influence global climate change; therefore, the GHG chapter measures a project's contribution to the cumulative environmental impact. The development contemplated by the proposed project would contribute to global climate change through direct emissions of GHG from onsite area sources and vehicle trips generated by the project, and indirectly through offsite energy production required for onsite activities, water use, and waste disposal.

Construction and operation of project development would generate GHG emissions, with the majority of energy consumption (and associated generation of GHG emissions) occurring during the project's operation (as opposed to its construction). Typically, more than 80 percent of the total energy consumption takes place during the use of buildings, and less than 20 percent is consumed during construction.

The proposed project would employ the following sustainability features that factor into the analysis of GHG emissions levels presented below.

² SCAQMD selected the 2035 target date to be consistent with the GHG reduction target date of SB 375. Overall, GHG reductions by the SB 375 target date of 2035 would be approximately 40 percent. This 40 percent reduction was applied to the 2020 targets, resulting in an efficiency threshold for plans of 4.1 MTCO₂e/yr and an efficiency threshold at the project level of 3.0 MTCO₂e/yr.

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- **Land Use:** Development of a mobility network that complements the topography of the site and provides numerous pathways for vehicular and non-vehicular travel through the use of an interconnected street system, pedestrian trails and pathways, and neighborhood electric vehicle travel ways. The proposed project would also work with site constraints by prohibiting development within floodplains and allowing these areas to serve as buffers and passive recreational areas. Areas suitable for development would be maximized by allowing for multigenerational, and/or secondary housing units, and mixed-use development.
- **Walkability/Mobility:** The proposed project would encourage walkability/mobility by providing wide pedestrian pathways and sidewalks, designing development to provide an attractive pedestrian environment (e.g., storefronts set back from street, façades with large windows fronting the street, street furniture, and orienting parking to the side or back of buildings), and allowing public uses to be within walking distance of residential neighborhoods. In addition, the proposed project would reduce transportation-related GHG emissions by integrating the proposed project with existing public transportation infrastructure, including bicycle paths and storage facilities to encourage nonvehicular modes of travel.
- **Solar Orientation:** The project would maximize the site layout to allow for the most advantageous solar orientation for all development. In addition, the Specific Plan would promote building orientation that would maximize exposure to daylight, shade south-facing windows to reduce heat gain into buildings, minimize east- and west-facing windows unless shaded, and place landscaping to provide shading and wind protection.
- **Energy Efficiency:** The proposed project would also encourage energy efficiency by designing development in accordance with United States Green Building Council (USGBC) LEED, GreenPoint Standards, installing energy-efficient LED lighting and incorporating of solar photovoltaic (PV) lighting fixtures in common areas of the site where feasible, installing energy efficient appliances, promoting green building techniques that increase building energy efficiency exceeding the minimum requirements of Title 24, using light colored materials, but not reflective, for paving and roofing materials, and require single-family residential builders to offer pre-wired homes for PV as an option.
- **Materials Efficiency:** The proposed project would encourage sustainability by utilizing renewable, recycled, locally sourced, sustainable materials, as well as materials with little to no VOCs. In addition, the proposed project would incorporate separation of solid wastes to achieve a goal of 75 percent diversion of construction solid wastes to landfills.
- **Water Efficiency:** The proposed project would encourage water efficiency and reduce potable water demand by utilizing recycled water for irrigation purposes, when available, installing high efficiency plumbing and appliances that meet or exceed the CALGreen Code and reduce the amount of irrigated turf. In addition, the proposed project would reduce water quality impacts by supporting the development of recycled water supplies in the City.

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- **Landscape Design/Low Impact Development:** Landscaping within Rancho San Gorgonio Specific Plan will complement the surrounding environment as well as provide areas for outdoor enjoyment and activity. The plant palette proposed for the Specific Plan identifies appropriate plant types that has low water requirements, reduce turf, and provide shade, and which reduces the urban heat island effect. In conjunction with the proposed landscape design, the project proposes the use of LID techniques to control storm water flows on site.

At present, there is a federal ban on chlorofluorocarbons (CFCs); therefore, it is assumed that the project would not generate emissions of CFCs. PFCs and sulfur hexafluoride are typically used in industrial applications, none of which would be used on the project site. Therefore, it is not anticipated that the project would contribute significant emissions of these additional GHGs.

Overall, the following activities associated with the proposed project could directly or indirectly contribute to the generation of GHG emissions.

- **Construction Activities:** During construction of the project, GHGs would be emitted through the operation of construction equipment and from worker and vendor vehicles, each of which typically uses fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO₂, CH₄, and N₂O. Furthermore, CH₄ is emitted during the fueling of heavy equipment.
- **Gas, Electric and Water Use:** Natural gas use results in the emissions of two GHGs: CH₄ from equipment/piping leakage (the major component of natural gas) and CO₂ from the combustion of natural gas. Electricity use can result in GHG production if the electricity is generated by combusting fossil fuel. California's water conveyance system is energy-intensive. Preliminary estimates indicate that the total energy used to pump and treat this water exceeds 6.5 percent of the total electricity used in the State per year.
- **Solid Waste Disposal:** Solid waste generated by the project could contribute to GHG emissions in a variety of ways. Landfilling and other methods of disposal use energy for transporting and managing the waste, and they produce additional GHGs to varying degrees. Landfilling, the most common waste management practice, results in the release of CH₄ from the anaerobic decomposition of organic materials. However, landfill CH₄ can also be a source of energy. In addition, many materials in landfills do not decompose fully, and the carbon that remains is sequestered in the landfill and not released into the atmosphere.
- **Motor Vehicle Use:** Transportation associated with the proposed project would result in GHG emissions from the combustion of fossil fuels in daily automobile and truck trips. Preliminary guidance from OPR and recent letters from the Attorney General critical of CEQA documents that have taken different approaches indicate that lead agencies should calculate, or estimate, emissions from vehicular traffic, energy consumption, water conveyance and treatment, waste generation, and construction activities. The calculation presented below includes construction emissions in terms of annual CO₂e emissions from increased energy consumption, water usage, solid waste disposal, and estimated GHG emissions from vehicular traffic that would result from implementation of the project.

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Using the same modeling results as reported above for construction emissions, Table 5.7-3 shows the total construction GHG emissions for each of the six construction phases. The SCAQMD treatment for construction-related GHG emissions is to have them amortized over the life of the project (30 years) and include them in the evaluation of operations phase emissions.

Table 5.7-3 Construction GHG Emissions by Phase

Phase	Emission Rates (MT/yr)			
	CO ₂	CH ₄ ¹	N ₂ O ¹	CO ₂ e
Phase 1 – 2017	910	0.16	0	910
Phase 2 – 2019	1,300	0.25	0	1,300
Phase 3 – 2022	3,100	0.44	0	3,100
Phase 4 – 2025	11,000	0.79	0	11,000
Phase 5 – 2029	2,700	0.29	0	2,700
Phase 6 – 2035	970	0.037	0	970
Total Construction	19,980	2.0	0	19,980
Total Construction Emissions amortized over 30 years (MT)	670	0.066	0	670

Source: LSA Associates, April 2016.

Note: The GHG emissions shown are for information purposes only. There are no adopted thresholds to which to compare these emissions. Numbers in table may appear to not add up correctly due to rounding of all numbers to two significant digits.

¹ The global warming potentials of CH₄ and N₂O are calculated using the Intergovernmental Panel on Climate Change Second Assessment Report: Climate Change, 1995.

CH₄ = methane

MT = metric tons

CO₂ = carbon dioxide

MT/yr = metric tons per year

CO₂e = carbon dioxide equivalent

N₂O = nitrous oxide

Long-term operation of the proposed project would generate GHG emissions from area and mobile sources and indirect emissions from stationary sources associated with energy consumption. Mobile-source emissions of GHGs would include project-generated vehicle trips associated with on-site residences. Area-source emissions would be associated with activities such as landscaping and maintenance of proposed land uses, natural gas for heating, and other sources. Increases in stationary-source emissions would also occur at off-site utility providers as a result of demand for electricity, natural gas, and water by the proposed uses.

The GHG emission estimates presented in Table 5.7-4 show the emissions associated with the level of development envisioned by the proposed project at the completion of Phases 1 through 6. As shown in Table 5.7-4, the total project would produce 46,000 MT CO₂e at the completion. Table 5.7-4 lists project-related GHG emissions pursuant to the OPR TA “CEQA and Climate Change: Addressing Climate Change through CEQA Review (2008),” stating that the emissions from projects must be disclosed even in the absence of thresholds of significance.

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Table 5.7-4 Construction and Long-Term Operational Greenhouse Gas Emissions

Source	Pollutant Emissions (MT/Year)					
	Bio-CO ₂	NBio-CO ₂	Total CO ₂	CH ₄ ¹	N ₂ O ¹	CO ₂ e
Total Project (All Phases)						
Construction Emissions Amortized over 30 Years	0	670	670	0.066	0	670
Total Project Operational Emissions						
Area Sources	0	810	810	0.065	0.014	810
Energy Sources	0	9,700	9,700	0.33	0.13	9,700
Mobile Sources	0	31,000	31,000	0.82	0	31,000
Waste Sources	540	0	540	32	0	1,200
Water Usage	65	2,000	2,100	6.8	0.18	2,300
Total Project Emissions	610	44,000	45,000	40	0.32	46,000

Source: LSA Associates, April 2016.

Note: The GHG emissions shown are for information purposes only. There are no adopted thresholds to which to compare these emissions. Numbers in table may appear to not add up correctly due to rounding of all numbers to two significant digits.

¹ The global warming potentials of CH₄ and N₂O are calculated using the Intergovernmental Panel on Climate Change Fifth Assessment Report: Climate Change (2013).
 Bio-CO₂ = biologically generated CO₂ MT = metric tons
 CH₄ = methane N₂O = nitrous oxide
 CO₂ = carbon dioxide NBio-CO₂ = Non-biologically generated CO₂
 CO₂e = carbon dioxide equivalent

The biologically generated CO₂ represents emissions generated by biological processes, primarily decomposition of waste in a landfill. The non-biologically generated CO₂ represents emissions generated by all other sources, primarily fossil fuel combustion, but also fugitive emissions from equipment leaks and other minor sources. At present, there is a Federal ban on CFCs; therefore, it is assumed the project would not generate emissions of CFCs. The CAA does not allow any refrigerant to be vented into the atmosphere during installation, service, or retirement of equipment. PFCs and SF₆ are typically used in industrial applications, none of which occur on the project site. Therefore, the project would not contribute measurable emissions of HFCs, PFCs, or SF₆.

In comparing the proposed project to the SCAQMD-tiered interim GHG significance criteria, it is not exempt as described in Tier 1, nor is there a GHG reduction plan in the Banning General Plan or any other GHG reduction plan applicable to the proposed project, per Tier 2. The Tier 3 screening significance threshold level for mixed-use projects is 3,000 tons per year (tpy) of CO₂e. The project exceeds this threshold. Exceeding Tier 3 screening means the project is evaluated using Tier 4.

Considering the Tier 4 screening significance threshold level, the project must be less than or equal to both the 2020 and 2035 efficiency thresholds in order to be considered less than significant. The 2020 threshold for project is 4.8 tpy per service population, and the 2035 threshold for projects is 3.0 tpy per service population. The total service population of the proposed project, which is the total of the residents and employees, is planned to be approximately 8,461. This translates to a 2020 threshold of $4.8 \times 8,461$, or 40,613, which Table 5.7-4 shows the total project would exceed. For the 2035 threshold, the result is $3.0 \times 8,461$, or 25,383, which Table 5.7-4 shows the total project would also exceed. Therefore, the project would exceed this Tier 4 threshold and the emissions of GHGs will be significant. Mitigation as specified in Tier 5 would be required.

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The CAT and ARB have developed several reports to achieve the Governor's GHG targets that rely on voluntary actions of California businesses, local government and community groups, and State incentive and regulatory programs. These include the CalEPA 2010 "Climate Action Team Report to Governor Schwarzenegger and the Legislature," the ARB's 2007 "Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California," and the ARB's "First Update to the Climate Change Scoping Plan: Building on the Framework Pursuant to AB 32, the California Global Warming Solutions Act of 2006."

These reports identify strategies to reduce California's emissions to the levels proposed in EO S-3-05 and AB 32 that are applicable to the proposed project. The Subregional Climate Action Plan is the most recent document, and the strategies included in the Subregional Climate Action Plan that apply to the project are described in Table 5.7-5, which also summarizes the extent to which the project would comply with the strategies to help California reach the emission reduction targets.

The strategies listed in Table 5.7-5 are either part of the Specific Plan or requirements under local or state regulations or ordinances. With implementation of these strategies/measures, the project's contribution to cumulative GHG emissions would be reduced.

Table 5.7-5 Project Compliance with Greenhouse Gas Emission Reduction Strategies

Strategy	Project Compliance
Mandatory Code California Green Building Code. The CALGreen Code prescribes a wide array of measures that would directly and indirectly result in reduction of GHG emissions from the Business as Usual Scenario (California Building Code). The mandatory measures that are applicable to projects include site selection, energy efficiency, water efficiency, materials conservation and resource efficiency, and environmental quality measures.	Compliant. The project would be required to adhere to the mandatory measures as required by the CALGreen Code, as described in the Energy Efficiency Sustainability Feature.
Energy Efficiency Measures Energy Efficiency. Maximize energy efficiency building and appliance standards, and pursue additional efficiency efforts including new technologies, and new policy and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California (including both investor-owned and publicly owned utilities). Renewables Portfolio Standard. Achieve a 33 percent renewable energy mix statewide. Green Building Strategy. Expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings.	Compliant. The proposed project would comply with the updated Title 24 standards, including the new 2013 California Building Code of Title 24, for building construction. In addition, the project would comply with the Energy Efficiency Sustainability Feature, including measures to incorporate energy efficient building design features.

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Table 5.7-5 Project Compliance with Greenhouse Gas Emission Reduction Strategies

Strategy	Project Compliance
Water Conservation and Efficiency Measures	
Water Use Efficiency. Continue efficiency programs and use cleaner energy sources to move and treat water. Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce GHG emissions.	Compliant. The project would be required to adhere to the mandatory measures as required by the CALGreen Code and Sustainability Features for water conservation.
Solid Waste Reduction Measures	
Increase Waste Diversion, Composting, and Commercial Recycling, and Move Toward Zero- Waste. Increase waste diversion from landfills beyond the 50 percent mandate to provide for additional recovery of recyclable materials. Composting and commercial recycling could have substantial GHG reduction benefits. In the long term, zero-waste policies that would require manufacturers to design products to be fully recyclable may be necessary.	Compliant. The proposed project would comply with the Materials Efficiency Sustainability Feature, including measures to increase solid waste diversion, composting, and recycling.
Transportation and Motor Vehicle Measures	
Vehicle Climate Change Standards. AB 1493 (Pavley) required the State to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of GHG emissions from passenger vehicles and light-duty trucks. Regulations were adopted by the ARB in September 2004.	Compliant. The project does not involve the manufacture of vehicles. However, vehicles that are purchased and used within the project site would comply with any vehicle and fuel standards that the ARB adopted at the time of manufacture.
Light-Duty Vehicle Efficiency Measures. Implement additional measures that could reduce light-duty GHG emissions. For example, measures to ensure that tires are properly inflated can both reduce GHG emissions and improve fuel efficiency.	
Adopt Heavy- and Medium-Duty Fuel and Engine Efficiency Measures. Regulations to require retrofits to improve the fuel efficiency of heavy-duty trucks that could include devices that reduce aerodynamic drag and rolling resistance. This measure could also include hybridization of and increased engine efficiency of vehicles.	
Low Carbon Fuel Standard. ARB identified this measure as a Discrete Early Action Measure. This measure would reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020.	
Regional Transportation-Related Greenhouse Gas Targets. Develop regional GHG emissions reduction targets for passenger vehicles. Local governments will play a significant role in the regional planning process to reach passenger vehicle GHG emissions reduction targets. Local governments have the ability to directly influence both the siting and design of new residential and commercial developments in a way that reduces GHGs associated with vehicle travel.	Compliant. The proposed project would apply Land Use Sustainability Features, which provide for non-vehicular modes of transportation; prioritize parking for electric, hybrid, and alternative fuel vehicles; and limit delivery truck idling and non-GHG-emitting public and individual transportation alternatives.
Measures to Reduce High Global Warming Potential (GWP) Gases. ARB has identified Discrete Early Action measures to reduce	Compliant. New products used or serviced on the project site would

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Table 5.7-5 Project Compliance with Greenhouse Gas Emission Reduction Strategies

Strategy	Project Compliance
GHG emissions from the refrigerants used in car air conditioners, semiconductor manufacturing, and consumer products. ARB has also identified potential reduction opportunities for future commercial and industrial refrigeration, changing the refrigerants used in auto air-conditioning systems, and ensuring that existing car air-conditioning systems do not leak.	comply with future ARB rules and regulations.

Source: LSA Associates, April 2016.

Impact 5.6-2: The proposed project would not conflict with plans adopted for the purpose of reducing GHG emissions. [Threshold GHG-2]

Impact Analysis: Applicable plans adopted for the purpose of reducing GHG emissions include ARB's Scoping Plan and SCAG's 2016 RTP/SCS. A consistency analysis with these plans is presented below:

ARB Scoping Plan

In accordance with AB 32, ARB developed the Scoping Plan to outline the state's strategy to achieve 1990 level emissions by year 2020. To estimate the reductions necessary, ARB projected statewide 2020 BAU GHG emissions and identified that the state as a whole would be required to reduce GHG emissions by 28.5 percent from year 2020 BAU to achieve the targets of AB 32 (CARB 2008). Since release of the 2008 Scoping Plan, ARB has updated the 2020 GHG BAU forecast to reflect GHG emissions in light of the economic downturn and measures not previously considered in the 2008 Scoping Plan baseline inventory. The revised BAU 2020 forecast shows that the state would have to reduce GHG emissions by 21.6 percent from BAU without Pavley and the 33 percent RPS, or 15.7 percent from the adjusted baseline (i.e., with Pavley and 33 percent RPS) (ARB 2012).

Since adoption of the 2008 Scoping Plan, state agencies have adopted programs identified in the plan, and the legislature has passed additional legislation to achieve the GHG reduction targets. Statewide strategies to reduce GHG emissions include the Low Carbon Fuel Standard, California Appliance Energy Efficiency regulations, California Building Standards (i.e., CALGreen and the 2013 Building and Energy Efficiency Standards), 33 percent RPS, and changes in the corporate average fuel economy standards (e.g., Pavley I and California Advanced Clean Cars [Pavley II]). The proposed project would comply with these state GHG emissions reduction measures as they are mandated statewide strategies. The project GHG emissions in Table 5.7-4 include reductions associated with statewide strategies that have been adopted since AB 32. Therefore, the proposed program would be consistent with the ARB Scoping Plan.

SCAG's 2016 Regional Transportation Plan/Sustainable Communities Strategy

SCAG's 2016 RTP/SCS was adopted April 7, 2016. The 2016 RTP/SCS identifies multimodal transportation investments, including bus rapid transit, light rail transit, heavy rail transit, commuter rail, high-speed rail, active transportation strategies (e.g., bike ways and sidewalks), transportation demand management strategies, transportation systems management, highway improvements (interchange improvements, high-occupancy

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vehicle lanes, high-occupancy toll lanes), arterial improvements, goods movement strategies, aviation and airport ground access improvements, and operations and maintenance to the existing multimodal transportation system.

SCAG's RTP/SCS identifies that land use strategies that focus on new housing and job growth in areas served by high quality transit and other opportunity areas would be consistent with a land use development pattern that supports and complements the proposed transportation network. The overarching strategy in the 2016 RTP/SCS is to provide for a plan that allows the southern California region to grow in more compact communities in existing urban areas, provide neighborhoods with efficient and plentiful public transit, abundant and safe opportunities to walk, bike and pursue other forms of active transportation, and preserve more of the region's remaining natural lands (SCAG 2016). The 2016 RTP/SCS contains transportation projects to help more efficiently distribute population, housing, and employment growth, as well as a forecasted development that is generally consistent with regional-level general plan data. The projected regional development pattern when integrated with the proposed regional transportation network identified in the RTP/SCS, would reduce per capita vehicular travel-related GHG emissions and achieve the GHG reduction per capita targets for the SCAG region. The RTP/SCS does not require that local general plans, specific plans, or zoning be consistent with the RTP/SCS, but provides incentives for consistency for governments and developers.

A consistency analysis of the proposed project with SCAG's 2016 RTP/SCS is detailed in Table 5.7-6, *Consistency with SCAG's 2016 Regional Transportation Plan/Sustainable Communities Strategy Goals*. As identified in the table, the proposed project would be consistent with the overall intent of the SCS to reduce VMT. Therefore, the project would not conflict with the 2016 RTP/SCS.

Table 5.7-6 Consistency with SCAG's 2016-2040 RTP/SCS Goals

RTP/SCS Goal	Project Compliance with Goal
RTP/SCS G1: Align the plan investments and policies with improving regional economic development and competitiveness.	Not Applicable: This is not a project-specific goal and is therefore not applicable.
RTP/SCS G2: Maximize mobility and accessibility for all people and goods in the region.	Consistent: The proposed project would maximize mobility, accessibility, travel safety, and reliability for people and goods. The proposed vehicular circulation plan includes arterial and collector roadways, and the nonvehicular circulation plan includes multipurpose trails and bikeways (see Figures 3-6, <i>Vehicular Circulation Plan</i> , and 3-7, <i>Nonvehicular Circulation Plan</i>). More specifically, the nonvehicular circulation system includes multipurpose trails throughout the majority of the project site, pedestrian sidewalk and bikeways along all major roadways, equestrian trails along Pershing and Smith Creeks, and an urban trail along Westward Avenue. The proposed trails, sidewalks, and bikeways enhance the project's transportation system by facilitating more methods of transportation than motor vehicles. This circulation plan is more sustainable, accessible, and productive and offers access to more users, including motorists, bicyclists, pedestrians, equestrians, etc.
RTP/SCS G3: Ensure travel safety and reliability for all people and goods in the region.	
RTP/SCS G4: Preserve and ensure a sustainable regional transportation system.	
RTP/SCS G5: Maximize the productivity of our transportation system.	The proposed project would help ensure a sustainable transportation system and maximize its productivity. As shown in Figures 3-6 and 3-7, the proposed system of streets and trails would provide convenient, efficient, and safe access to uses within the proposed project as well as to offsite destinations. Four roundabouts (traffic circles) would be installed to highlight key intersections and help facilitate vehicular and pedestrian traffic (see Figure 3-6). Roundabouts offer substantial benefits to

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Table 5.7-6 Consistency with SCAG's 2016-2040 RTP/SCS Goals

RTP/SCS Goal	Project Compliance with Goal
	<p>intersection safety and traffic operations. For example, roundabouts allow motorists to continue smoothly and efficiently through intersections while slowing down traffic speeds to increase safety for bicyclists and pedestrians walking nearby.</p>
	<p>In addition, all modes of public transit within the project area would be required to follow safety standards set by state, regional, and local regulatory documents. For example, pedestrian walkways and bikeways must follow safety precautions and standards established by local (e.g., City of Banning, County of Riverside) and regional (e.g., SCAG, Caltrans) agencies. Additionally, new roadways for motorists and roadway improvements must follow safety standards established in local and regional plans.</p>
	<p>All new roadway developments and improvements to the existing transportation networks within the Specific Plan area must also be assessed with some level of traffic analysis (e.g., traffic assessments, traffic impact studies) to determine how individual development projects would impact existing multimodal traffic capacities and to determine the needs for improving future multimodal traffic capacities. A transportation impact analysis was prepared for the proposed project by Kunzman & Associates and is included in its entirety in Appendix N of this DEIR. The findings, conclusions, and recommendations of the analysis are provided in Section 5.15, <i>Transportation and Traffic</i>.</p>
RTP/SCS G6: Protect the environment and health of our residents by improving air quality and encouraging active transportation (e.g., bicycling and walking).	<p>Consistent: The CEQA process ensures that plans at all levels of government consider all environmental impacts. Various sections of this DEIR appropriately address the potential environmental impacts related to development of the proposed project and outline mitigation measures and regulatory requirements to reduce any impacts, as applicable and feasible.</p> <p>The proposed project also includes a number of sustainable community design strategies detailed in Section 3, <i>Design Guidelines</i>, of the proposed Specific Plan. The following sustainability areas are integrated into the overall project: site planning/neighborhood design (including circulation and mobility), energy efficiency, water efficiency, materials efficiency, healthy living environment, sustainable landscape design, and sustainable stormwater management/stormwater quality.</p> <p>For example, the proposed land use pattern consists of numerous pathways for nonvehicular travel through the use of pedestrian trails and pathways, creek way parks, and paseos. The project does not propose any development or grading activities on the natural creek beds and integrates appropriate buffers and setbacks to protect the onsite creeks. Only passive recreational activities would be permitted along the creeks.</p> <p>The Specific Plan also promotes walkability throughout the project site. For example, sidewalks are required to be at least 5 feet wide along major roadways and at least 4 feet wide within residential areas to promote walkable streets. Public and common use spaces (i.e., parks, trails, open spaces) are all accessible within a quarter- to one-half mile walking distance from any residential neighborhood in the project area. Bicycle storage facilities and equestrian riding trails and staging facilities are also available in the proposed circulation network.</p> <p>The reduction of energy use, improvement of air quality, and promotion of more environmentally sustainable development would be encouraged throughout the Specific Plan area. Future developments would be required to install energy efficient LED lighting and incorporate solar photovoltaic lighting fixtures in common areas</p>

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Table 5.7-6 Consistency with SCAG's 2016-2040 RTP/SCS Goals

RTP/SCS Goal	Project Compliance with Goal
	where feasible; install energy efficient appliances and high efficiency HVAC systems; and reduce potable water demand by utilizing appropriate landscaping, recycled water, and high efficiency plumbing fixtures. Overall, the proposed project integrates a number of sustainable development guidelines associated with the enhancement of alternative transportation and air quality within the City of Banning.
RTP/SCS G7: Actively encourage and create incentives for energy efficiency, where possible.	Consistent: See response to RTP/SCS G6 above. The proposed Specific Plan provides Sustainable Community Design Strategies in Section 3.5, including the incorporation of features and options that reduce energy demand and promote use of alternative energy sources and nonmotorized transportation. As an example, the strategies in Section 3.5.3 require future developments to install photovoltaic panels on a minimum of 25% of the units within the development. The panels shall be capable of generating 25% of the projected electricity demand of each proposed housing unit at a minimum. For nonresidential projects, photovoltaic panels shall be installed which are required to provide a minimum of 25% of the electrical demand of the non-residential building.
RTP/SCS G8: Encourage land use and growth patterns that facilitate transit and active transportation.	Consistent: The proposed land use plan integrates site planning strategies that contribute to facilitating transit and nonmotorized transportation. For example, the land use plan includes a community park, confluence park, neighborhood park, paseos, open space, and linear creek parks that are accessible and planned primarily for bicyclists, equestrians, and pedestrians. Streets within the project area are also proposed to be at least 5 feet wide along major roadways and at least 4 feet wide within residential areas. Bicycle storage facilities and equestrian riding trails are also available in the proposed circulation network. The proposed circulation system would also be integrated into the existing public transportation infrastructure (i.e., transit stops and routes) that connects the project site to other developed areas of the City and Pass, including the Pass Transit bus routes.
RTP/SCS G9: Maximize the security of our transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies.	Not Applicable: This is not a project-specific goal and is therefore not applicable.

Source: SCAG 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy.

5.7.4 Cumulative Impacts

The proposed project emphasizes energy efficiency and water conservation, and would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. However, the proposed project would generate GHG emissions that exceed SCAQMD's Tier 4 performance targets. As a result, the proposed project's climate change impacts with regard to GHG emissions would be considered cumulatively significant.

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5.7.5 Existing Regulations

State

- AB 1493: Pavley Fuel Efficiency Standards
- SB 1078: Renewable Portfolio Standards
- Executive Order S-3-05: Greenhouse Gas Emission Reduction Targets
- AB 32: California Global Warming Solutions Act
- SB 1368: Statewide Retail Provider Emissions Performance Standards
- SB 375: Sustainable Communities and Climate Protection Act of 2008
- SB X1-2
- Executive Order S-21-09: Renewable Electricity Standard
- Title 24 California Code of Regulations, Part 11 (California Green Building Code)
- Title 24 California Code of Regulations, Part 6 (Building and Energy Efficiency Standards)
- Title 20 California Code of Regulations (Appliance Energy Efficiency Standards)
- Title 17 California Code of Regulations (Low Carbon Fuel Standard)
- California Water Conservation in Landscaping Act of 2006 (AB 1881)

5.7.6 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, the following impacts would be less than significant: 5.7-2.

Without mitigation, the following impact would be **potentially significant**:

- **Impact 5.7-1** Development in accordance with the proposed project would generate GHG emissions in exceedance of SCAQMD's Tier 4 performance targets.

5.7.7 Mitigation Measures

Mitigation Measures

Impact 5.7-1

7-1 **Energy Efficient Street Lights and Traffic Signals.** The City shall identify energy-efficient streetlights, which are currently available and which, when installed, will provide a 10 percent reduction beyond the 2010 baseline energy use for this infrastructure, and shall require the use of this technology in all new development. All new traffic lights installed within the project shall use LED technology.

7-2 **Construction Waste Management Plan.** Prior to issuance of a building permit, the applicant shall submit a Construction Waste Management Plan to the City for review and

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approval. The plan shall include procedures to recycle and/or salvage at least 50 percent of nonhazardous construction and demolition debris and shall identify materials to be diverted from disposal and whether the materials will be stored on site or commingled. Excavated soil and land-clearing debris do not contribute to this credit. Calculation can be done by weight or by volume but must be documented.

7-3

Vehicle Idling Limits. All commercial and retail development shall be required to post signs and limit idling time for commercial vehicles, including delivery trucks, to no more than 5 minutes of “non-essential” idling in compliance with the Diesel-Fueled Commercial Motor Vehicle Idling Airborne Toxic Control Measure (ATCM). This condition shall be included on future site development plans for review and approval by the City Development Services Director.

Project Design Features

Additionally, the following project design features (PDF) would reduce criteria air pollutant and GHG emissions.

PDF 7-1

Site Planning/Neighborhood Design. Sustainable site planning approaches relate to site, landscape, and building design, including optimizing building orientation; reducing potable water use for landscaping irrigation; implementing shade strategies; encouraging alternative modes of transportation; and promoting use of photovoltaic arrays on building roofs or parking lot shade structures. Sustainable Community Design Strategies for Site Planning within Rancho San Gorgonio include:

- Land Use Pattern:
 - Development of a mobility network that complements the topography of the site and provides numerous pathways for vehicular and non-vehicular travel through the use of an interconnected street system, pedestrian trails and pathways, and neighborhood electric vehicle travel ways.
 - Prohibition of development within the significant creek areas and floodplains on site and integrate appropriate setbacks/buffers and passive recreational amenities within these areas into the land use plan.
 - Allow for multi-generational housing within appropriate residential areas of the plan.
 - Develop land uses that provide opportunities for a variety of building types, uses, and densities that accommodate a variety of populations and generations within the City and region.
- Walkability/Mobility:

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- Promote walkable streets through the use of sidewalks at least 5 feet wide along the major roadways and at 4 least feet wide within residential areas.
- Provide access to public and common use spaces (parks, trails, and open spaces) within $\frac{1}{4}$ to $\frac{1}{2}$ mile walking distance to the residential neighborhoods within the Specific Plan through project-wide trail and paseo systems.
- Prioritize pedestrian mobility as a primary transportation mode, which will reduce transportation-related GHG emissions.
- Integrate final development plans for the project with existing and proposed public transportation infrastructure (transit stops/routes) that connect the Specific Plan area to other developed areas of the City and Pass area. Provide transit stop locations within the project that are conveniently accessed and able to support a large proportion of the residents of the development.
- Include bicycle storage facilities into new multifamily residential, commercial, and community uses, and integrate bicycle paths/trails into the circulation network.
- Integrate travel ways for low speed and neighborhood electric vehicles into the circulation system.
- Integrate equestrian riding trails and staging facilities into the circulation network, public use areas, and the very low density residential areas.
- Improve physical and mental health and social capital by providing a variety of recreational facilities to facilitate physical activity and social networking.
- Allow for the use of roundabouts at the local street level as an alternative to the 4-way stop-controlled intersections for pedestrian safety.

■ Solar Orientation:

- At the Planning Area level, develop ultimate site layouts to accommodate solar orientation.
- Promote building orientation that considers the following:
 - Use of northern and southern building exposure for daylighting purposes;
 - Ensure south-facing windows are properly shaded to reduce heat gain into building interiors;
 - Minimize east- and west-facing windows unless shaded; and
 - Place landscaping within appropriate locations to provide adequate shading and wind protection (depending on prevailing wind conditions and solar orientation).

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including strategies and techniques that are at least equal to the California Green Building Standards (CALGreen Code) and California Energy Code of Title 24. New electric, natural gas, and communication lines will be constructed to all of the most recent applicable codes and requirements, providing appropriate services to serve the new community. As part of the electrical system, the planning areas within the Rancho San Gorgonio Specific Plan will be designed to use and generate renewable energy on site to the extent feasible through a commitment to the use of solar/photovoltaic (PV) systems as discussed below. Sustainable Community Design Strategies for Energy Efficiency within Rancho San Gorgonio include the following elements:

- Design to USGBC Leadership in Energy and Environmental Design (LEED), GreenPoint Rated standards, or better is a requirement for all new buildings constructed within the Rancho San Gorgonio Specific Plan, and exceeding the most current Title 24 energy efficiency and CALGreen building standards; Installation of energy-efficient LED lighting and incorporation of solar photovoltaic lighting fixtures in common areas of the site where feasible;
- Installation of energy-efficient appliances (Energy Star or equivalent) and high-efficiency HVAC systems within residences and businesses of the proposed development;
- Promote green building techniques that increase building energy efficiency exceeding the minimum requirements of Title 24;
- Utilize light-colored materials, but not reflective, for paving and roofing materials; and
- Require single-family residential builders to offer pre-wired homes for PV as an option. Builders of attached housing shall provide PV systems to offset a portion of the common area energy demand of any attached housing type proposed for construction in the Rancho San Gorgonio Specific Plan.

PDF 7-3

Water Efficiency. The Rancho San Gorgonio Specific Plan proposes the efficient use of potable water through mandated building and site design requirements. In addition, Specific Plan proposes an on-site recycled water distribution system and can accommodate a water reclamation treatment facility if necessary, to create non-potable water supplies. Sustainable Community Design Strategies for Water Efficiency within Rancho San Gorgonio include:

- Reduce potable water demand throughout the Rancho San Gorgonio Specific Plan by utilizing appropriate landscaping, non-potable recycled water for large common area irrigation purposes (when available), and high efficiency plumbing fixtures and appliances;
- Utilize high-efficiency plumbing and fixtures that meet or exceed the CALGreen code (most current adopted version);

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- Utilize efficient irrigation controls to reduce water demand on landscaped areas throughout the project;
- Reduce the amount of irrigated turf in parks to those uses dependent upon turf areas;
- Design for efficient outdoor water use within common area landscaping through plant selection and efficient irrigation systems; and
- Support the development of recycled water supplies in the City of Banning and the Rancho San Gorgonio Specific Plan, which will achieve the goal of reducing the overall consumption of potable water from the municipal supply.

PDF 7-4

Materials Efficiency. A sustainable approach to materials selection typically includes the use of recycled or reused, and locally-produced or harvested materials. Although there are no existing structures on site that may be reused, the Specific Plan encourages the use of locally sourced materials for any construction that Design Strategies for Materials Efficiency within Rancho San Gorgonio include:

- Materials used for buildings, landscape, and infrastructure will be chosen with a preference for the following characteristics:
 - Rapidly renewable;
 - Increased recycled content (50% or greater);
 - Locally sourced materials (within South Coast Air Basin);
 - Utilization of sustainable harvesting practices; and
 - Materials with low or no volatile organic compounds (VOCs) or offgassing.
- New building construction practices will incorporate on-site and/or off-site separation of solid wastes, recyclable paper, plastic, glass and metal objects, and compostable organic materials, which will be compatible with municipal recycling services and are designed to achieve the statewide goal of 75 percent diversion of solid waste from landfills.

PDF 7-5

Sustainable Landscape Design. Landscaping within Rancho San Gorgonio Specific Plan will complement the surrounding environment as well as provide areas for outdoor enjoyment and activity. The plant palette proposed for the Specific Plan identifies appropriate plant types that have low water requirements, reduce turf, and provide shade, and which reduces the urban heat island effect. In conjunction with the proposed landscape design, the Rancho San Gorgonio Specific Plan proposes the use of Low Impact Development (LID) techniques to control storm water flows on site as listed below. LID is an ecologically friendly approach to site development and storm water management that aims to mitigate development impacts to land, water, and air. The approach emphasizes the integration of site design and planning techniques that conserve natural systems and

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hydrologic functions on a site. Sustainable Community Design Strategies for Landscape Design within Rancho San Gorgonio include:

- Utilize native plant choices to the greatest extent possible throughout the development that complement the existing natural flora and fauna found in the area.
- Develop a plant palette that focuses on shading within the developed portions of the site and in those areas of pedestrian activity. An increase in shading within the development will promote greater walkability and reduce the urban heat island effect. Both of these will assist in the reduction of GHG emissions associated with the proposed development.
- Promote the development of tree-lined streets to encourage walking, biking, and transit use, and reduce urban heat island effects.
- Eliminate turf throughout the development to the greatest extent possible. Utilizing artificial turf and/or xeriscaping where practical to reduce water demand and be responsive to existing climatic conditions within the project area.
- Reduce the heat island effect through the minimization of impervious surfaces and incorporation of landscaping within the development that provides adequate shading of developed areas within five years of occupancy.
- Use Sustainable Community Design Strategies for LID within Rancho San Gorgonio, including:
 - Preserve open space and minimize land disturbance within the main creek areas of the Specific Plan, which reduces impacts to local terrestrial plants and animals and preserves the integrity of the ecological and biological systems within these areas.
 - Incorporate natural site elements e.g., (significant creeks, drainage corridors, and rock outcroppings in southeast corner of site) as design features; and protect natural systems and processes (e.g., drainage ways, vegetation, and soils) in these areas.
 - Reduce municipal infrastructure and utility maintenance costs (e.g., streets, curbs, gutters, sidewalks, and storm sewer) by reexamining the use and sizing of traditional site infrastructure (e.g., lots, streets, curbs, gutters, and sidewalks) and customizing infrastructure design to each planning area.
 - Incorporate decentralized and micromanaged storm water and/or water quality facilities close to the source within each planning area, protecting site and regional water quality by reducing sediment and nutrient loads to water bodies on site and downstream. Construct water quality swales for drainage purposes within private development areas and street rights-of-way where grades permit.

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- Mimic the predevelopment site hydrology by using site design techniques that store, infiltrate, evaporate, and retain runoff to reduce off-site runoff and facilitate groundwater recharge (where practical).
- Ensure that receiving waters experience fewer negative impacts in the volume, frequency, and quality of runoff, by maintaining base flows and more closely approximating redevelopment runoff conditions.

5.7.8 Level of Significance After Mitigation

Impact 5.7-1

Implementation of Mitigation Measures 7-1 through 7-3 would further reduce GHG emissions from stationary and mobile sources to the extent feasible. Additionally, Mitigation Measures 3-1 through 3-6 detailed in Section 5.3, *Air Quality*, would also encourage and accommodate use of alternative-fueled vehicles, multimodal transportation, and energy efficient technology that would help reduce VMT and GHG emissions. However, due to the magnitude of GHG emissions associated with the proposed project, Impact 5.7-1 would remain significant and unavoidable.

5.7.9 References

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