

2.7 Greenhouse Gas Emissions

This section describes the current state of climate change in California and globally; summarizes applicable laws, regulations, policies and plans; quantifies project-generated greenhouse gas (GHG) emissions; and, evaluates the significance of the project's potential contribution to the cumulative global climate change impacts. The section relatedly analyzes the significance of the project's GHG emissions prior to consideration of mitigation measures, and identifies feasible mitigation to reduce the project's potentially significant GHG impacts to a level below significant. The analysis is based on the Greenhouse Gas Emissions Technical Report prepared for the project (Appendix K). The project's GHG emissions estimates presented in this section were calculated using the California Emissions Estimator Model (CalEEMod) (version 2016.3.1). CalEEMod provides a platform to calculate both construction and operational emissions from land use development projects. The model was developed for the California Air Pollution Control Officers Association (CAPCOA) in collaboration with multiple air districts across the State of California, including the San Diego Air Pollution Control District (SDAPCD). Numerous lead agencies in the State, including the County of San Diego, utilize CalEEMod to estimate GHG emissions in accordance with CEQA Guidelines Section 15064.4(a)(1).

Comments received in response to the Notice of Preparation (NOP) raised concerns regarding GHG emissions resulting from project-generated trips. These concerns are addressed and summarized in this section. A copy of the NOP and comment letters received in response to the NOP is included in Appendix A of this EIR.

As shown below, the project applicant has committed to offset 100 percent of the project's GHG emissions through implementation of the identified mitigation measures. This commitment, enforceable through the project's Mitigation Monitoring and Reporting Program (MMRP), will make the project the first large-scale planned community in San Diego County to achieve a 100 percent reduction in the project's construction and operational GHG emissions.

2.7.1 Existing Conditions

Climate Change Overview

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, lasting for an extended period of time (decades or longer). The Earth's temperature depends on the balance between energy entering and leaving the planet's system. Many factors, both natural and human, can cause changes in Earth's energy balance, including variations in the sun's energy reaching Earth, changes in the reflectivity of Earth's atmosphere and surface, and changes in the "greenhouse effect," which affects the amount of heat retained by Earth's atmosphere (EPA 2017).

The “greenhouse effect” is the trapping and build-up of heat in the atmosphere (troposphere) near the Earth’s surface. The greenhouse effect traps heat in the troposphere through a threefold process as follows: Short-wave radiation emitted by the Sun is absorbed by the Earth; the Earth emits a portion of this energy in the form of long-wave radiation; and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and toward the Earth. The greenhouse effect is a natural process that contributes to regulating the Earth’s temperature and creates a pleasant, livable environment on the Earth. Human activities that emit additional GHGs to the atmosphere increase the amount of infrared radiation that gets absorbed before escaping into space, thus enhancing the greenhouse effect and causing the Earth’s surface temperature to rise.

The scientific record of the Earth’s climate shows that the climate system varies naturally over a wide range of time scales and that, in general, climate changes prior to the Industrial Revolution in the 1700s can be explained by natural causes, such as changes in solar energy, volcanic eruptions, and natural changes in GHG concentrations. Recent climate changes, in particular the warming observed over the past century, however, cannot be explained by natural causes alone. Rather, it is extremely likely that human activities have been the dominant cause of that warming since the mid-20th century and is the most significant driver of observed climate change (EPA 2017; IPCC 2013). Human influence on the climate system is evident from the increasing GHG concentrations in the atmosphere, positive radiative forcing, observed warming, and improved understanding of the climate system (IPCC 2013). The atmospheric concentrations of GHGs have increased to levels unprecedented in the last 800,000 years, primarily from fossil fuel emissions and secondarily from emissions associated with land use changes (IPCC 2013). Continued emissions of GHGs will cause further warming and changes in all components of the climate system, which is discussed further in “Potential Effects of Climate Change” below.

Greenhouse Gases

GHGs include, but are not limited to, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), ozone (O₃), water vapor, hydrofluorocarbons (HFCs), hydrochlorofluorocarbons (HCFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆).¹ Some GHGs, such as CO₂, CH₄, and N₂O, occur naturally and are emitted to the atmosphere through natural processes and human activities. Of these gases, CO₂ and CH₄ are emitted in the greatest quantities from human activities. As illustrated in Table 2.7-1, California’s GHG emissions sources include: transportation (36 percent), industrial (21 percent), electricity generation (20 percent), residential and commercial uses (9 percent), agriculture (8 percent), high global-warming potential substances (4 percent), and recycling and waste (2 percent).

¹ California Health and Safety Code Section 38505 identifies seven GHGs that CARB monitors and regulates to reduce emissions: CO₂, CH₄, N₂O, SF₆, HFCs, PFCs, and NF₃. For purposes of CEQA analysis for land use development projects, CalEEMod estimates emissions of CO₂, CH₄, and N₂O.

Manufactured GHGs, which have a much greater heat-absorption potential than CO₂, include fluorinated gases, such as HFCs, HCFCs, PFCs, and SF₆, and are associated with certain industrial products and processes. A summary of the most common GHGs and their sources is included in the following text.²

Carbon Dioxide. CO₂ is a naturally occurring gas and a by-product of human activities, and is the principal anthropogenic GHG that affects the Earth's radiative balance. Natural sources of CO₂ include respiration of bacteria, plants, animals, and fungus; evaporation from oceans; volcanic out-gassing; and decomposition of dead organic matter. Human activities that generate CO₂ are the combustion of coal, oil, natural gas, and wood.

Methane. CH₄ is a flammable gas and is the main component of natural gas. Methane is produced through anaerobic (without oxygen) decomposition of waste in landfills, flooded rice fields, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.

Nitrous Oxide. Sources of N₂O include soil cultivation practices (microbial processes in soil and water), especially the use of commercial and organic fertilizers, manure management, industrial processes (such as in nitric acid production, nylon production, and fossil-fuel-fired power plants), vehicle emissions, and the use of N₂O as a propellant (such as in rockets, racecars, aerosol sprays).

Fluorinated Gases. Fluorinated gases are synthetic, powerful GHGs that are emitted from a variety of industrial processes. Several prevalent fluorinated gases include the following:

- **Hydrofluorocarbons:** HFCs are compounds containing only hydrogen, fluorine, and carbon atoms. HFCs are synthetic chemicals that are used as alternatives to ozone-depleting substances in serving many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are used in manufacturing.
- **Perfluorocarbons:** PFCs are a group of human-made chemicals composed of carbon and fluorine only. These chemicals were introduced as alternatives, along with HFCs, to the ozone depleting substances. The two main sources of PFCs are primarily aluminum production and semiconductor manufacturing. Since PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere, these chemicals have long lifetimes, ranging between 10,000 and 50,000 years.

² The descriptions of these GHGs are summarized from the Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report (1995), IPCC Fourth Assessment Report (2007), CARB's Glossary of Terms Used in GHG Inventories (2015), and EPA's Glossary of Climate Change Terms (2016d).

- **Sulfur Hexafluoride:** SF₆ is a colorless gas that is soluble in alcohol and ether and slightly soluble in water. SF₆ is used for insulation in electric power transmission and distribution equipment, semiconductor manufacturing, the magnesium industry, and as a tracer gas for leak detection.
- **Nitrogen trifluoride:** NF₃ is used in the manufacture of a variety of electronics, including semiconductors and flat panel displays.

Black Carbon. Black carbon is a component of fine particulate matter, which has been identified as a leading environmental risk factor for premature death. It is produced from the incomplete combustion of fossil fuels and biomass burning, particularly from older diesel engines and forest fires. Black carbon warms the atmosphere by absorbing solar radiation, influences cloud formation, and darkens the surface of snow and ice, which accelerates heat absorption and melting. Black carbon is a short-lived species that varies spatially, which makes it difficult to quantify the global warming potential. Diesel particulate matter emissions are a major source of black carbon and are also toxic air contaminants (TACs) that have been regulated and controlled in California for several decades to protect public health. In relation to declining diesel particulate matter from the California Air Resources Board's (CARB) regulations pertaining to diesel engines, diesel fuels, and burning activities, CARB estimates that annual black carbon emissions in California have reduced by 70 percent between 1990 and 2010, with 95 percent control expected by 2020 (CARB 2014). (Please see Section 2.3, Air Quality, of this EIR for additional information regarding diesel particulate matter.)

Water Vapor. The primary source of water vapor is evaporation from the ocean, with additional vapor generated by sublimation (change from solid to gas) from ice and snow, evaporation from other water bodies, and transpiration from plant leaves. Water vapor is the most important, abundant, and variable GHG in the atmosphere and maintains a climate necessary for life.

Ozone. Tropospheric O₃, which is created by photochemical reactions involving gases both from natural sources and from human activities, acts as a GHG. Stratospheric O₃, which is created by the interaction between solar ultraviolet radiation and molecular oxygen (O₂), plays a decisive role in the stratospheric radiative balance. Depletion of stratospheric O₃, due to chemical reactions that may be enhanced by climate change, results in an increased ground-level flux of ultraviolet-B radiation.

Aerosols. Aerosols are suspensions of particulate matter in a gas emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light.

Chlorofluorocarbons. CFCs are synthetic chemicals that have been used as cleaning solvents, refrigerants, and aerosol propellants. CFCs are chemically unreactive in the lower atmosphere (troposphere) and the production of CFCs was prohibited in 1987 due to the chemical destruction of stratospheric O₃.

Hydrochlorofluorocarbons. HCFCs are a large group of compounds, whose structure is very close to that of CFCs—containing hydrogen, fluorine, chlorine, and carbon atoms—but including one or more hydrogen atoms. Like HFCs, HCFCs are used in refrigerants and propellants. HCFCs were also used in place of CFCs for some applications; however, their use in general is being phased out.

Global Warming Potential

Gases in the atmosphere can contribute to climate change both directly and indirectly. Direct effects occur when the gas itself absorbs radiation. Indirect radiative forcing occurs when chemical transformations of the substance produce other GHGs, when a gas influences the atmospheric lifetimes of other gases, and/or when a gas affects atmospheric processes that alter the radiative balance of the Earth (e.g., affect cloud formation or albedo) (EPA 2016).

The Intergovernmental Panel on Climate Change (IPCC) developed the global warming potential (GWP) concept to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP of a GHG is defined as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram of a trace substance relative to that of 1 kilogram of a reference gas (IPCC 2014). The reference gas used is CO₂; therefore, GWP-weighted emissions are measured in metric tons of CO₂ equivalent (MT CO₂E).

The current version of CalEEMod (version 2016.3.1) used in this analysis assumes that the GWP for CH₄ is 25 (so emissions of 1 MT of CH₄ are equivalent to emissions of 25 MT of CO₂), and the GWP for N₂O is 298, based on the IPCC's Fourth Assessment Report (IPCC 2007). The GWP values identified in CalEEMod were applied to the project.

Sources of Greenhouse Gas Emissions

Per the U.S. Environmental Protection Agency's (EPA) *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2014* (2016e), total United States GHG emissions were approximately 6,870.5 million metric tons (MMT) CO₂E in 2014. The primary GHG emitted by human activities in the United States was CO₂, which represented approximately 80.9 percent of total GHG emissions (5,556.0 MMT CO₂E). The largest source of CO₂, and of overall GHG emissions, was fossil-fuel combustion, which accounted for approximately 93.7 percent of CO₂ emissions in 2014 (5,208.2 MMT CO₂E). Total United States GHG emissions have increased by 7.4 percent from 1990 to 2014, and emissions increased from 2013 to 2014 by 1.0 percent (70.5 MMT CO₂E). Since 1990, United States GHG emissions have increased at an average annual rate of 0.3 percent; however, overall, net emissions in 2014 were 8.6 percent below 2005 levels (EPA 2016).

According to California's 2000–2014 GHG emissions inventory (2016 edition), California emitted 441.5 MMT CO₂E in 2014, including emissions resulting from out-of-state electrical generation (CARB 2016a). The sources of GHG emissions in California include transportation, industry, electric power production from both in-state and out-of-state sources, residential and commercial activities, agriculture, high global-warming potential substances, and recycling and waste. The California GHG emission source categories and their relative contributions in 2014 are presented in Table 2.7-1.

During the 2000 to 2014 period, per capita GHG emissions in California have dropped from a peak in 2001 of 13.9 metric tons (MT) per person to 11.4 MT per person in 2014, representing an 18 percent decrease. In addition, total GHG emissions in 2014 were 2.8 MMT CO₂E less than 2013 emissions. The declining trend in GHG emissions, coupled with programs that will continue to provide additional GHG reductions going forward, demonstrates that California is on track to meet the statewide 2020 target of 431 MMT CO₂E established by Assembly Bill (AB) 32, discussed below (CARB 2016a).

Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. The 2014 *Intergovernmental Panel on Climate Change Synthesis Report* indicated that warming of the climate system is unequivocal and, since the 1950s, many of the observed changes are unprecedented over decades to millennia. Signs that global climate change has occurred include warming of the atmosphere and ocean, diminished amounts of snow and ice, and rising sea levels (IPCC 2014).

In California, climate change impacts have the potential to affect sea level rise, agriculture, snowpack and water supply, forestry, wildfire risk, public health, and electricity demand and supply (CCCC 2006). The primary effect of global climate change has been a 0.2°C rise in average global tropospheric temperature per decade, determined from meteorological measurements worldwide between 1990 and 2005. Scientific modeling predicts that continued emissions of GHGs at or above current rates would induce more extreme climate changes during the twenty-first century than were observed during the twentieth century. A warming of about 0.2°C (0.36°F) per decade is projected, and there are identifiable signs that global warming could be taking place.

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California. The average temperatures in California have increased, leading to more extreme hot days and fewer cold nights; shifts in the water cycle have been observed, with less winter precipitation falling as snow, and both snowmelt and rainwater running off earlier in the year; sea levels have risen; and wildland fires are becoming more frequent and intense due to dry seasons that start earlier and end later (CAT 2010).

An increase in annual average temperature is a reasonably foreseeable effect of climate change. Observed changes over the last several decades across the western United States reveal clear signals of climate change. Statewide average temperatures increased by about 1.7°F from 1895 to 2011, and warming has been greatest in the Sierra Nevada (CCCC 2012). By 2050, California is projected to warm by approximately 2.7°F above 2000 averages, a threefold increase in the rate of warming over the last century. By 2100, average temperatures could increase by 4.1 to 8.6°F, depending on emissions levels. Springtime warming—a critical influence on snowmelt—will be particularly pronounced. Summer temperatures will rise more than winter temperatures, and the increases will be greater in inland California, compared to the coast. Heat waves will be more frequent, hotter, and longer. There will be fewer extremely cold nights (CCCC 2012). A decline of Sierra snowpack, which accounts for approximately half of the surface water storage in California and much of the State’s water supply, by 30 percent to as much as 90 percent is predicted over the next 100 years (CAT 2006).

Model projections for precipitation over California continue to show the Mediterranean pattern of wet winters and dry summers with seasonal, year-to-year, and decade-to-decade variability. For the first time, however, several of the improved climate models shift toward drier conditions by the mid-to-late 21st century in Central and, most notably, Southern California. By late-century, all projections show drying, and half of them suggest 30-year average precipitation will decline by more than 10 percent below the historical average (CCCC 2012).

Wildfire risk in California will increase as a result of climate change. Earlier snowmelt, higher temperatures and longer dry periods over a longer fire season will directly increase wildfire risk. Indirectly, wildfire risk will also be influenced by potential climate-related changes in vegetation and ignition potential from lightning. However, human activities will continue to be the biggest factor in ignition risk. It is estimated that the long-term increase in fire occurrence associated with a higher emissions scenario is substantial, with increases in the number of large fires statewide ranging from 58 percent to 128 percent above historical levels by 2085. Under the same emissions scenario, estimated burned area will increase by 57 percent to 169 percent, depending on location (CCCC 2012).

Reduction in the suitability of agricultural lands in the state for traditional crop types may occur. While effects may occur, adaptation could allow farmers and ranchers to minimize potential negative effects on agricultural outcomes through adjusting timing of plantings or harvesting and changing crop types.

Public health-related effects of increased temperatures and prolonged temperature extremes, including heat stroke, heat exhaustion, and exacerbation of existing medical conditions, could be particular problems for the elderly, infants, and those who lack access to air conditioning or cooled spaces (CNRA 2009).

A summary of current and future climate change impacts to resource areas in California, as discussed in the *Safeguarding California: Reducing Climate Risk* (CNRA 2014), is provided below.

Agriculture. The impacts of climate change on the agricultural sector are far more severe than the typical variability in weather and precipitation patterns that occur year to year. Some of the specific challenges faced by the agricultural sector and farmers include more drastic and unpredictable precipitation and weather patterns; extreme weather events that range from severe flooding to extreme drought, to destructive storm events; significant shifts in water availability and water quality; changes in pollinator lifecycles; temperature fluctuations, including extreme heat stress and decreased chill hours; increased risks from invasive species and weeds, agricultural pests and plant diseases; and disruptions to the transportation and energy infrastructure supporting agricultural production. These challenges and associated short-term and long-term impacts can have both positive and negative effects on agricultural production. For example, changes in weather patterns can foster longer growing periods for certain crops, but simultaneously increase the likelihood of pests. It is predicted that current crop and livestock production will suffer long-term negative effects resulting in a substantial decrease in the agricultural sector if not managed or mitigated (CNRA 2014).

Biodiversity and Habitat. The state's extensive biodiversity stems from its varied climate and assorted landscapes, which have resulted in numerous habitats where species have evolved and adapted over time. The preservation of California's unique biological heritage is of ever-increasing importance given the forecasted impacts associated with climate change.

Similar to the agricultural sector, there are a number of climate change challenges the biodiversity sector must contend with, on top of the ever-increasing pressures of habitat loss and fragmentation, population growth, pollution, plant and animal diseases, and other human-induced impacts. Specific climate change challenges to biodiversity and habitat include species migration in response to climatic changes, range shift and novel combinations of species; pathogens, parasites and disease; invasive species; extinction risks; changes in the timing of seasonal life-cycle events; food web disruptions; threshold effects (i.e., a change in the ecosystem that results in a "tipping point" beyond which irreversible damage or loss has occurs).

Habitat restoration, conservation, and resource management across California and through collaborative efforts amongst public, private and nonprofit agencies has assisted in the effort to fight climate change impacts on biodiversity and habitat. One of the key measures in these efforts is ensuring species' ability to relocate as temperature and water availability fluctuate as a result of climate change, based on geographic region. As such, it is critical to ensure habitat corridors, linkages and connectivity are established to allow species the mobility to move from place to place as resources change over time. Continued collaborative efforts are required across agencies to ensure the health of existing habitat, wildlife, and the geographic extent of their existence required to support biodiversity (CNRA 2014).

Emergency Management. “Emergency management includes actions to prepare for, mitigate against, respond to and recover from emergencies and disasters that impact our communities, critical infrastructure and resources by lessening the likelihood, severity and duration of the consequences of the incident” (CNRA 2014). “Hazard mitigation is any action taken to reduce or eliminate the long-term risk to human life and property from natural or man-made hazards” (CNRA 2014). In California, preparing, mitigating, and responding to and/or recovering from a natural disaster usually is done in the context of an earthquake, wildfire or severe flood event.

Energy. The energy sector provides California residents with a supply of reliable and affordable energy through a complex integrated system. Specific climate change challenges for the energy sector include temperature, fluctuating precipitation patterns, increasing extreme weather events and sea level rise. Increasing temperatures and reduced snowpack negatively impact the availability of a steady flow of snowmelt to hydroelectric reservoirs. Higher temperatures also reduce the capacity of thermal power plants since power plant cooling is less efficient at higher ambient temperatures. Natural gas infrastructure in coastal California is threatened by sea level rise and extreme storm events (CNRA 2014).

Forestry. Forests occupy approximately 33 percent of California’s 100 million acres and provide key benefits such as wildlife habitat, absorption of carbon dioxide, renewable energy and building materials. The most significant climate change related risk to forests is accelerated risk of wildfire and more frequent and severe droughts. Droughts have resulted in more large scale mortalities and combined with increasing temperatures have led to an overall increase in wildfire risks. Increased wildfire intensity subsequently increases public safety risks, property damage, fire suppression and emergency response costs, watershed and water quality impacts and vegetation conversions. These factors contribute to decreased forest growth, geographic shifts in tree distribution, loss of fish and wildlife habitat and decreased carbon absorption. These losses can also negatively impact the timber industry as well as recreation opportunities. Climate change may result in increased establishment of non-native species, particularly in rangelands where invasive species are already a problem. Invasive species may be able to exploit temperature or precipitation changes, or quickly occupy areas denuded by fire, insect mortality or other climate change effects on vegetation (CNRA 2014).

Ocean and Coastal Ecosystems and Resources. Sea level rise, changing ocean conditions and other climate change stressors are likely to exacerbate long-standing challenges related to ocean and coastal ecosystems in addition to threatening people and infrastructure located along the California coastline and in coastal communities. Sea level rise in addition to more frequent and severe coastal storms and erosion are threatening vital infrastructure such as roads, bridges, power plants, ports and airports, gasoline pipes, and emergency facilities as well as negatively impacting the coastal recreational assets such as beaches and tidal wetlands. Water quality and ocean acidification threaten the abundance of seafood and other plant and wildlife habitats throughout California and globally (CNRA 2014).

Public Health. Climate change can impact public health through various environmental changes and is the largest threat to human health in the twenty-first Century. Changes in precipitation patterns affect public health primarily through potential for altered water supplies, and extreme events such as heat, floods, droughts, and wildfires. Increased frequency, intensity and duration of extreme heat and heat waves is likely to increase the risk of mortality due to heat related illness as well as exacerbate existing chronic health conditions. Other extreme weather events are likely to negatively impact air quality and increase or intensify respiratory illness such as asthma and allergies. Additional health impacts that may be impacted by climate change include cardiovascular disease, vector-borne diseases, mental health impacts, and malnutrition injuries. Increased frequency of these ailments is likely to subsequently increase the direct risk of injury and/or mortality (CNRA 2014).

Transportation. Residents of California rely on airports, seaports, public transportation and an extensive roadway network to gain access to destinations, goods and services. While the transportation industry is a source of GHG emissions it is also vulnerable to climate change risks. Particularly, sea level rise and erosion threaten many coastal California roadways, airports, seaports, transit systems, bridge supports and energy and fueling infrastructure. Increasing temperatures and extended periods of extreme heat threaten the integrity of the roadways and rail lines. High temperatures cause the road surfaces to expand which leads to increased pressure and pavement buckling. High temperatures can also cause rail breakages which could lead to train derailment. Other forms of extreme weather events, such as extreme storm events, can negatively impact infrastructure which can impair movement of peoples and goods, or potentially block evacuation routes and emergency access roads. Increased wildfires, flooding, erosion risks, landslides, mudslides and rockslides can all profoundly impact the transportation system and pose a serious risk to public safety (CNRA 2014).

Water. Water resources in California support residences, plants, wildlife, farmland, landscapes and ecosystems and bring trillions of dollars in economic activity. Climate change could seriously impact the timing, form, amount of precipitation, runoff patterns, and frequency and severity of precipitation events. Higher temperatures reduce the amount of snowpack and lead to earlier snowmelt, which can impact water supply availability, natural ecosystems and winter recreation. Water supply availability during the intense dry summer months is heavily dependent on the snowpack accumulated during the winter time. Increased risk of flooding has a variety of public health concerns including water quality, public safety, property damage, displacement and post-disaster mental health problems. Prolonged and intensified droughts can also negatively affect groundwater reserves and result in increased overdraft and subsidence. Droughts can also negatively impact agriculture and farmland throughout the state. The higher risk of wildfires can lead to increased erosion, which can negatively impact watersheds and result in poor water quality. Water temperatures are also prone to increase, which can negatively impact wildlife that rely on a specific range of temperatures for suitable habitat (CNRA 2014).

Additionally, in March 2016, CNRA released *Safeguarding California: Implementation Action Plans*, a document that shows how California is acting to convert the recommendations contained in the 2014 *Safeguarding California* plan into action. The 2016 *Implementation Plans* report is divided by ten sectors (i.e., agriculture, biodiversity and habitat, emergency management, energy, forestry, land use and community development, oceans and coastal resources and ecosystems, public health, transportation, and water), and shows the path forward by presenting the risks posed by climate change, the adaptation efforts underway, and the actions that will be taken to safeguard residents, property, communities, and natural systems (CRNA 2016).

The existing project Site is generally comprised of currently undeveloped, vacant land with dirt access roads, but no active land uses. Thus, for purposes of this EIR's GHG analysis, the on-site existing conditions GHG emissions inventory is estimated at zero.

2.7.2 Regulatory Setting

Federal Activities

Massachusetts v. EPA. On April 2, 2007, in *Massachusetts v. EPA*, the Supreme Court directed the EPA Administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the EPA Administrator is required to follow the language of Section 202(a) of the federal Clean Air Act.

On December 7, 2009, the Administrator signed a final rule with two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act:

- The Administrator found that elevated concentrations of GHGs—CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆—in the atmosphere threaten the public health and welfare of current and future generations. This is referred to as the “endangerment finding.”
- The Administrator further found the combined emissions of GHGs—CO₂, CH₄, N₂O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is referred to as the “cause or contribute finding.”

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the Clean Air Act.

Energy Independence and Security Act.

On December 19, 2007, President George W. Bush signed the Energy Independence and Security Act of 2007. Among other key measures, the Act requires the following, which aid in the reduction of national GHG emissions:

- Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.
- Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020 and direct the National Highway Traffic Safety Administration to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.
- Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

Federal Vehicle Standards. In response to the U.S. Supreme Court ruling discussed above, the Bush Administration issued Executive Order (EO) 13432 in 2007 directing the EPA, the Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the National Highway Traffic Safety Administration (NHTSA) issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011; and, in 2010, the EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016.

In 2010, President Obama issued a memorandum directing the Department of Transportation, Department of Energy, EPA, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the EPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017–2025 light-duty vehicles. The proposed standards projected to achieve 163 grams/mile of CO₂ in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017–2021, and NHTSA intends to set standards for model years 2022–2025 in a future rulemaking.

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011, the EPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018. The standards for CO₂ emissions and fuel consumption are tailored to

three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the EPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6 percent to 23 percent over the 2010 baselines.

In August 2016, the EPA and NHTSA announced the adoption of the phase two program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program will apply to vehicles with model year 2018 through 2027 for certain trailers, and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans and all types of sizes of buses and work trucks. The final standards are expected to lower carbon dioxide emissions by approximately 1.1 billion MT and reduce oil consumption by up to 2 billion barrels over the lifetime of the vehicles sold under the program (EPA and NHTSA 2016).

U.N. Framework Convention on Climate Change Pledge. On March 31, 2015, the State Department submitted the U.S. target to cut net GHG emissions to the United Nations Framework Convention on Climate Change. The submission, referred to as an Intended Nationally Determined Contribution, is a formal statement of the U.S. target, announced in China last year, to reduce our emissions by 26 percent to 28 percent below 2005 levels by 2025, and to make best efforts to reduce by 28 percent (U.S. State Department 2015).

The target reflects a planning process that examined opportunities under existing regulatory authorities to reduce emissions in 2025 of all GHGs from all sources in every economic sector. Several U.S. laws, as well as existing and proposed regulations thereunder, are relevant to the implementation of the U.S. target, including the Clean Air Act (42 U.S.C. 7401 et seq.), the Energy Policy Act (42 U.S.C. 13201 et seq.), and the Energy Independence and Security Act (42 U.S.C. 17001 et seq.).

Clean Power Plan and New Source Performance Standards for Electric Generating Units. On October 23, 2015, EPA published a final rule (effective December 22, 2015) establishing the Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units (80 FR 64510–64660), also known as the Clean Power Plan. These guidelines prescribe how states must develop plans to reduce GHG emissions from existing fossil-fuel-fired electric generating units. The guidelines establish CO₂ emission performance rates representing the best system of emission reduction for two subcategories of existing fossil-fuel-fired electric generating units: (1) fossil-fuel-fired electric utility steam-generating units, and (2) stationary combustion turbines. Concurrently, EPA published a final rule (effective October 23, 2015) establishing Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units (80 FR 64661–65120). The rule prescribes CO₂ emission standards for newly constructed, modified, and reconstructed affected fossil-fuel-fired electric utility generating units. Implementation of the Clean Power Plan has been stayed by the U.S. Supreme Court pending resolution of several lawsuits. Additionally, in March 2017, President Trump directed the EPA Administrator to review the

Clean Power Plan in order to determine whether it is consistent with current executive policies concerning GHG emissions, climate change and energy.

State of California

State Climate Change Targets

Executive Order S-3-05. Executive Order (EO) S-3-05 (June 2005) established the following statewide goals: 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.

AB 32 and CARB's Climate Change Scoping Plan. In furtherance of the goals established in EO S-3-05, the Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020.

Under AB 32, CARB is responsible for and is recognized as having the expertise to carry out and develop the programs and requirements necessary to achieve the GHG emissions reduction mandate of AB 32. Under AB 32, CARB must adopt regulations requiring the reporting and verification of statewide GHG emissions from specified sources. This program is used to monitor and enforce compliance with established standards. CARB also is required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 relatedly authorized CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted.

In 2007, CARB approved a limit on the statewide GHG emissions level for year 2020 consistent with the determined 1990 baseline (427 MMT CO₂E). CARB's adoption of this limit is in accordance with Health and Safety Code Section 38550.

Further, in 2008, CARB adopted the *Climate Change Scoping Plan: A Framework for Change (Scoping Plan)* in accordance with Health and Safety Code Section 38561. The *Scoping Plan* establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions for various emission sources/sectors to 1990 levels by 2020. The *Scoping Plan* evaluates opportunities for sector-specific reductions, integrates all CARB and Climate Action Team early actions and additional GHG reduction features by both entities, identifies additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program. The key elements of the *Scoping Plan* include the following (CARB 2008):

1. Expanding and strengthening existing energy efficiency programs as well as building and appliance standards

2. Achieving a statewide renewable energy mix of 33 percent
3. Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85 percent of California's GHG emissions
4. Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets
5. Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard
6. Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation

In the *Scoping Plan*, CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of approximately 28.5 percent from the otherwise projected 2020 emissions level; i.e., those emissions that would occur in 2020, absent GHG-reducing laws and regulations (referred to as "Business-As-Usual" [BAU]). For purposes of calculating this percent reduction, CARB assumed that all new electricity generation would be supplied by natural gas plants, no further regulatory action would impact vehicle fuel efficiency, and building energy efficiency codes would be held at 2005 standards.

In the 2011 Final Supplement to the *Scoping Plan's* Functional Equivalent Document, CARB revised its estimates of the projected 2020 emissions level in light of the economic recession and the availability of updated information about GHG reduction regulations. Based on the new economic data, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of 21.7 percent (down from 28.5 percent) from the BAU conditions. When the 2020 emissions level projection also was updated to account for newly implemented regulatory measures, including Pavley I (model years 2009–2016) and the Renewable Portfolio Standard (12 percent to 20 percent), CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of 16 percent (down from 28.5 percent) from the BAU conditions.

More recently, in 2014, CARB adopted the *First Update to the Climate Change Scoping Plan: Building on the Framework (First Update)*. The stated purpose of the *First Update* is to "highlight California's success to date in reducing its GHG emissions and lay the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050." The *First Update* found that California is on track to meet the 2020 emissions reduction mandate established by AB 32, and noted that California

could reduce emissions further by 2030 to levels squarely in line with those needed to stay on track to reduce emissions to 80 percent below 1990 levels by 2050 if the state realizes the expected benefits of existing policy goals.

In conjunction with the *First Update*, CARB identified “six key focus areas comprising major components of the state’s economy to evaluate and describe the larger transformative actions that will be needed to meet the state’s more expansive emission reduction needs by 2050.” Those six areas are: (1) energy; (2) transportation (vehicles/equipment, sustainable communities, housing, fuels, and infrastructure); (3) agriculture; (4) water; (5) waste management; and, (6) natural and working lands. The *First Update* identifies key recommended actions for each sector that will facilitate achievement of EO S-3-05’s 2050 reduction goal.

Based on CARB’s research efforts presented in the *First Update*, it has a “strong sense of the mix of technologies needed to reduce emissions through 2050.” Those technologies include energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings and industrial machinery; decarbonizing electricity and fuel supplies; and, the rapid market penetration of efficient and clean energy technologies.

As part of the *First Update*, CARB recalculated the state’s 1990 emissions level using more recent global warming potentials identified by the IPCC. Using the recalculated 1990 emissions level (431 MMT CO₂E) and the revised 2020 emissions level projection identified in the 2011 Final Supplement, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of approximately 15 percent (instead of 28.5 percent or 16 percent) from the BAU conditions.

On January 20, 2017, CARB released *The 2017 Climate Change Scoping Plan Update (Second Update)* for public review and comment (CARB 2017). The Second Update was approved by CARB’s Governing Board on December 14, 2017. This update proposes CARB’s strategy for achieving the state’s 2030 GHG target as established in Senate Bill (SB) 32 (discussed below), including continuing the Cap-and-Trade Program through 2030, ~~and includes a new approach to reduce GHGs from refineries by 20 percent.~~ The *Second Update* incorporates approaches to cutting short-lived climate pollutants (SLCPs) under the *Short-Lived Climate Pollutant Reduction Strategy* (a planning document that was adopted by CARB in March 2017), and acknowledges the need for reducing emissions in agriculture and highlights the work underway to ensure that California’s natural and working lands increasingly sequester carbon. During development of the *Second Update*, CARB held a number of public workshops in the Natural and Working Lands, Agriculture, Energy and Transportation sectors to inform development of the 2030 Scoping Plan Update (CARB 2016a). When discussing project-level GHG emissions reduction actions and thresholds, the *Second Update* states “achieving no net additional increase in GHG emissions, resulting in no contribution to GHG impacts, is an appropriate overall

objective for new development.” CARB also recognized, however, that achievement of such an objective “may not be feasible or appropriate for every project” and “the inability of a project to mitigate its GHG emissions to net zero does not imply the project results in a substantial contribution to the cumulatively significant environmental impact of climate change under CEQA.” “achieving no net increase in GHG emissions is the correct overall objective, but it may not be appropriate or feasible for every development project. An inability to mitigate a project’s GHG emissions to zero does not necessarily imply a substantial contribution to the cumulatively significant environmental impact of climate change under CEQA.” It is expected that the *Second Update* will be considered by CARB’s Governing Board in late June 2017.

EO B-30-15. EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under S-3-05 and AB 32. EO B-30-15 set an interim target goal of reducing statewide GHG emissions to 40 percent below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing statewide GHG emissions to 80 percent below 1990 levels by 2050 as set forth in S-3-05. To facilitate achievement of this goal, EO B-30-15 calls for an update to CARB’s *Scoping Plan* to express the 2030 target in terms of MMT CO₂E. The EO also calls for state agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets. Sector-specific agencies in transportation, energy, water, and forestry were required to prepare GHG reduction plans by September 2015, followed by a report on action taken in relation to these plans in June 2016. EO B-30-15 does not require local agencies to take any action to meet the new interim GHG reduction target.

SB 32 and AB 197. SB 32 and AB 197 (enacted in 2016) are companion bills that set a new statewide GHG reduction target; make changes to CARB’s membership, and increase legislative oversight of CARB’s climate change-based activities; and expand dissemination of GHG and other air quality-related emissions data to enhance transparency and accountability. More specifically, SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40 percent below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the Senate and three members of the Assembly, in order to provide ongoing oversight over implementation of the state’s climate policies. AB 197 also added two members of the Legislature to CARB as nonvoting members; requires CARB to make available and update (at least annually via its website) emissions data for GHGs, criteria air pollutants, and TACs from reporting facilities; and, requires CARB to identify specific information for GHG emissions reduction measures when updating the scoping plan.

SB 605 and SB 1383. SB 605 (2014) requires CARB to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants in the state; and, SB 1383 (2016) requires CARB to approve and implement that strategy by January 1, 2018. SB 1383 also establishes specific targets

for the reduction of SLCPs (40 percent below 2013 levels by 2030 for methane and HFCs, and 50 percent below 2013 levels by 2030 for anthropogenic black carbon), and provides direction for reductions from dairy and livestock operations and landfills. Accordingly, and as mentioned above, CARB adopted its *Short-Lived Climate Pollutant Reduction Strategy (SLCP Reduction Strategy)* in March 2017. The *SLCP Reduction Strategy* establishes a framework for the statewide reduction of emissions of black carbon, methane and fluorinated gases (CARB 2017x?).

Building Energy

Title 24, Part 6. Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically establishes Building Energy Efficiency Standards that are designed to ensure new and existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. The California Energy Commission (CEC) is required by law to adopt standards every 3 years that are cost effective for homeowners over the 30-year lifespan of a building. These standards are updated to consider and incorporate new energy efficient technologies and construction methods. As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment.

The 2013 Title 24 standards became effective on July 1, 2014. Buildings constructed in accordance with the 2013 standards were estimated to use 25 percent less energy for lighting, heating, cooling, ventilation, and water heating than the 2008 standards (CEC 2012).

The 2016 Title 24 standards are the currently applicable building energy efficiency standards, and became effective on January 1, 2017. The 2016 Title 24 standards will further reduce energy used and associated GHG emissions. In general, single-family homes built to the 2016 standards are anticipated to use about 28 percent less energy for lighting, heating, cooling, ventilation, and water heating than those built to the 2013 standards, and nonresidential buildings built to the 2016 standards will use an estimated 5 percent less energy than those built to the 2013 standards (CEC 2015a).

The project would be required to comply with 2016 Title 24 standards because its building construction phase would commence after January 1, 2017. This EIR analysis does not quantify the increased energy efficiency and corresponding GHG emissions savings associated with the more stringent 2016 Title 24 standards, which results in a conservative assessment of GHG emission savings because the 2016 Title 24 standards have been documented to reduce energy usage (e.g., for lighting, heating, cooling, ventilation, and water heating) and associated GHG emissions. Instead, the project's GHG emissions estimates conservatively are in accordance with CalEEMod's default assumption that the

2013 Title 24 standards are the operative standards. This “pool” of required 2016 Title 24 GHG savings while not quantified for the project, nonetheless will occur and represent GHG reductions above and beyond those required by the EIR’s mitigation measures.

Title 24, Part 11. In addition to the CEC’s efforts, in 2008, the California Building Standards Commission adopted the nation’s first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as CALGreen, and establishes minimum mandatory standards as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential and state-owned buildings and schools and hospitals. The CALGreen 2016 standards became effective on January 1, 2017. The mandatory standards require the following (24 CCR Part 11):

- Mandatory reduction in indoor water use through compliance with specified flow rates for plumbing fixtures and fittings
- Mandatory reduction in outdoor water use through compliance with a local water efficient landscaping ordinance or the California Department of Water Resources’ Model Water Efficient Landscape Ordinance
- Sixty five (65) percent of construction and demolition waste must be diverted from landfills
- Mandatory inspections of energy systems to ensure optimal working efficiency
- Inclusion of electric vehicle charging stations or designated spaces capable of supporting future charging stations
- Low-pollutant emitting exterior and interior finish materials, such as paints, carpets, vinyl flooring, and particle boards

The CALGreen standards also include voluntary efficiency measures that are provided at two separate tiers and implemented at the discretion of local agencies and applicants. CALGreen’s Tier 1 standards call for a 15 percent improvement in energy requirements; stricter water conservation, 65 percent diversion of construction and demolition waste, 10 percent recycled content in building materials, 20 percent permeable paving, 20 percent cement reduction, and cool/solar-reflective roofs. CALGreen’s more rigorous Tier 2 standards call for a 30 percent improvement in energy requirements, stricter water conservation, 75 percent diversion of construction and demolition waste, 15 percent recycled content in building materials, 30 percent permeable paving, 25 percent cement reduction, and cool/solar-reflective roofs.

The California Public Utilities Commission, CEC, and CARB also have a shared, established goal of achieving zero net energy for new construction in California. The key policy timelines include: (1) all new residential construction in California will be zero net energy by 2020, and (2) all new commercial construction in California will be zero net energy by 2030.³ As most recently defined by the CEC in its 2015 *Integrated Energy Policy Report*, a zero net energy code building is “one where the value of the energy produced by on-site renewable energy resources is equal to the value of the energy consumed annually by the building” using the CEC’s Time Dependent Valuation metric.

Title 20. Title 20 of the California Code of Regulations requires manufacturers of appliances to meet state and federal standards for energy and water efficiency. Performance of appliances must be certified through the CEC to demonstrate compliance with standards. New appliances regulated under Title 20 include: refrigerators, refrigerator-freezers and freezers; room air conditioners and room air-conditioning heat pumps; central air conditioners; spot air conditioners; vented gas space heaters; gas pool heaters; plumbing fittings and plumbing fixtures; fluorescent lamp ballasts; lamps; emergency lighting; traffic signal modules; dishwashers; clothes washers and dryers; cooking products; electric motors; low voltage dry-type distribution transformers; power supplies; televisions and consumer audio and video equipment; and battery charger systems. Title 20 presents protocols for testing for each type of appliance covered under the regulations and appliances must meet the standards for energy performance, energy design, water performance and water design. Title 20 contains three types of standards for appliances: federal and state standards for federally regulated appliances, state standards for federally regulated appliances, and state standards for non-federally regulated appliances.

SB 1. SB 1 (2006) established a \$3 billion rebate program to support the goal of the state to install rooftop solar energy systems with a generation capacity of 3,000 megawatts through 2016. SB 1 added sections to the Public Resources Code, including Chapter 8.8 (California Solar Initiative), that require building projects applying for ratepayer-funded incentives for photovoltaic systems to meet minimum energy efficiency levels and performance requirements. Section 25780 established that it is a goal of the state to establish a self-sufficient solar industry in which solar energy systems are a viable mainstream option for both homes and businesses within 10 years of adoption, and to place solar energy systems on 50 percent of new homes within 13 years of adoption. SB 1, also termed “GoSolarCalifornia,” was previously titled “Million Solar Roofs”.

AB 1470. This bill established the Solar Water Heating and Efficiency Act of 2007. The bill makes findings and declarations of the Legislature relating to the promotion of solar water

³ See, e.g., CPUC, California’s Zero Net Energy Policies and Initiatives, Sept. 18, 2013, accessed at <http://www.cpuc.ca.gov/NR/rdonlyres/C27FC108-A1FD-4D67-AA59-7EA82011B257/0/3.pdf>. It is expected that achievement of the zero net energy goal will occur via revisions to the Title 24 standards.

heating systems and other technologies that reduce natural gas demand. The bill defines several terms for purposes of the act. The bill requires the commission to evaluate the data available from a specified pilot program, and, if it makes a specified determination, to design and implement a program of incentives for the installation of 200,000 solar water heating systems in homes and businesses throughout the state by 2017.

AB 1109. Enacted in 2007, AB 1109 required the CEC to adopt minimum energy efficiency standards for general purpose lighting, to reduce electricity consumption 50 percent for indoor residential lighting and 25 percent for indoor commercial lighting.

Mobile Sources

AB 1493. In a response to the transportation sector accounting for more than half of California's CO₂ emissions, AB 1493 was enacted in July 2002. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the state board to be vehicles that are primarily used for noncommercial personal transportation in the state. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. When fully phased in, the near-term (2009–2012) standards will result in a reduction of about 22 percent in GHG emissions compared to the emissions from the 2002 fleet, while the mid-term (2013–2016) standards will result in a reduction of about 30 percent.

EO S-1-07. Issued on January 18, 2007, EO S-1-07 sets a declining Low Carbon Fuel Standard for GHG emissions measured in CO₂E grams per unit of fuel energy sold in California. The target of the Low Carbon Fuel Standard is to reduce the carbon intensity of California passenger vehicle fuels by at least 10 percent by 2020. The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered. CARB 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.

SB 375. SB 375 (2008) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. SB 375 required CARB to adopt regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035. Regional metropolitan planning organizations (MPOs) are then responsible for preparing a Sustainable Communities Strategy within their Regional Transportation Plan. The goal of the Sustainable Communities Strategy is to establish a forecasted development pattern for the region that, after considering transportation measures and policies, will achieve, if feasible, the GHG reduction targets. If a Sustainable Communities Strategy is unable to achieve the GHG reduction target, an MPO 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.

Pursuant to Government Code Section 65080(b)(2)(K), a Sustainable Communities Strategy does not: (i) regulate the use of land; (ii) supersede the land use authority of cities and counties; or (iii) require that a city's or county's land use policies and regulations, including those in a general plan, be consistent with it. Nonetheless, SB 375 makes regional and local planning agencies responsible for developing those strategies as part of the federally required metropolitan transportation planning process and the state-mandated housing element process.

In 2010, CARB adopted the SB 375 targets for the regional metropolitan planning organizations. The targets for SANDAG are a 7 percent reduction in emissions per capita by 2020 and a 13 percent reduction by 2035.

SANDAG completed and adopted its *2050 Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS) in October 2011. In November 2011, CARB, by resolution, accepted SANDAG's GHG emissions quantification analysis and determination that, if implemented, the SCS would achieve CARB's 2020 and 2035 GHG emissions reduction targets for the region.

After SANDAG's 2050 RTP/SCS was adopted, a lawsuit was filed by the Cleveland National Forest Foundation and others. ~~The matter currently is pending before the~~ In Cleveland National Forest Foundation v. San Diego Association of Governments (2017) 3 Cal. 5th 397, the California Supreme Court (Case No. S223603) for determination of whether held that SANDAG's ~~an EIR for its~~ a regional transportation plan was not required to must include an analysis of the plan's consistency with the GHG reduction goals reflected in Executive Order No. S-3-05 as its significance threshold to comply with CEQA. The Court noted that the plan's consistency with Executive Order No. S-3-05 was explained in the EIR and supported by substantial evidence even though it was not used as the significance threshold. T.

~~Although the EIR for SANDAG's 2050 RTP/SCS is pending before the California Supreme Court, in~~

In 2015, while California Supreme Court review was pending, SANDAG adopted the next iteration of its RTP/SCS in accordance with statutorily mandated timelines and no subsequent litigation challenge was filed. More specifically, in October 2015, SANDAG adopted *San Diego Forward: The Regional Plan*. Like the 2050 RTP/SCS, this planning document meets CARB's 2020 and 2035 reduction targets for the region (SANDAG 2015). In December 2015, CARB, by resolution, accepted SANDAG's GHG emissions quantification analysis and determination that,

if implemented, the SCS would achieve CARB's 2020 and 2035 GHG emissions reduction targets for the region.

Advanced Clean Cars Program. In January 2012, CARB approved the Advanced Clean Cars program, a new emissions-control program for model years 2015 through 2025. The program combines the control of smog- and soot-causing pollutants and GHG emissions into a single coordinated package. The package includes elements to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars (CARB 2011). To improve air quality, CARB has implemented new emission standards to reduce smog-forming emissions beginning with 2015 model year vehicles. It is estimated that in 2025 cars will emit 75 percent less smog-forming pollution than the average new car sold today. To reduce GHG emissions, CARB, in conjunction with the EPA and the NHTSA, has adopted new GHG standards for model year 2017 to 2025 vehicles; the new standards are estimated to reduce GHG emissions by 34 percent in 2025. The Zero Emissions Vehicle (ZEV) program will act as the focused technology of the Advanced Clean Cars program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid electric vehicles in the 2018 to 2025 model years. The Clean Fuels Outlet regulation will ensure that fuels such as electricity and hydrogen are available to meet the fueling needs of the new advanced technology vehicles as they come to the market.

EO B-16-12. EO B-16-12 (March 2012) directs state entities under the Governor's direction and control to support and facilitate development and distribution of ZEVs. This EO also sets a long-term target of reaching 1.5 million zero-emission vehicles on California's roadways by 2025. On a statewide basis, EO B-16-12 also establishes a GHG emissions reduction target from the transportation sector equaling 80 percent less than 1990 levels by 2050. In furtherance of this EO, the Governor convened an Interagency Working Group on Zero-Emission Vehicles that has published multiple reports regarding the progress made on the penetration of ZEVs in the statewide vehicle fleet.

AB 1236. AB 1236 (2015), as enacted in California's Planning and Zoning Law, requires local land use jurisdictions to approve applications for the installation of electric vehicle charging stations, as defined, through the issuance of specified permits unless there is substantial evidence in the record that the proposed installation would have a specific, adverse impact upon the public health or safety, and there is no feasible method to satisfactorily mitigate or avoid the specific, adverse impact. The bill provides for appeal of that decision to the planning commission, as specified. The bill requires local land use jurisdictions with a population of 200,000 or more residents to adopt an ordinance, by September 30, 2016, that creates an expedited and streamlined permitting process for electric vehicle charging stations, as specified. Prior to this statutory deadline, in August 2016, the County Board of Supervisors adopted Ordinance No.

10437 (N.S.) adding a section to its County Code related to the expedited processing of electric vehicle charging stations permits consistent with AB 1236.

SB 350. In 2015, SB 350 – the Clean Energy and Pollution Reduction Act – was enacted into law. As one of its elements, SB 350 establishes a statewide policy for widespread electrification of the transportation sector, recognizing that such electrification is required for achievement of the state’s 2030 and 2050 reduction targets (see Public Utilities Code section 740.12).

Renewable Energy and Energy Procurement

Senate Bill (SB) 1078. SB 1078 (2002) established the Renewable Portfolio Standard (RPS) program, which requires an annual increase in renewable generation by the utilities equivalent to at least 1 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.

SB 1368. SB 1368 (2006) requires the CEC to develop and adopt regulations for GHG emission 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 California Public Utilities Commission (CPUC). This effort will help 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 by requiring that the standards be developed and adopted in a public process.

SB X1 2. SB X1 2 (2011) expanded the RPS by establishing that 20 percent of the total electricity sold to retail customers in California per year by December 31, 2013, and 33 percent by December 31, 2020, and in subsequent years be secured from qualifying renewable energy sources. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation of 30 megawatts or less, digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current, and that meets other specified requirements with respect to its location. In addition to the retail sellers previously covered by the RPS, SB X1 2 added local, publicly owned electric utilities to the RPS.

SB 350. SB 350 (2015) further expanded the RPS by establishing that 50 percent of the total electricity sold to retail customers in California per year by December 31, 2030 be secured from qualifying renewable energy sources. In addition, SB 350 includes the goal to double the energy efficiency savings in electricity and natural gas final end uses (such as heating, cooling, lighting, or class of energy uses on which an energy-efficiency program is focused) of retail customers through

energy conservation and efficiency. The bill also requires the CPUC, in consultation with the CEC, to establish efficiency targets for electrical and gas corporations consistent with this goal.

Water

EO B-29-15. In response to the ongoing drought in California, EO B-29-15 (April 2015) set a goal of achieving a statewide reduction in potable urban water usage of 25 percent relative to water use in 2013. The term of the EO extended through February 28, 2016, although many of the directives have since become permanent water-efficiency standards and requirements. The EO includes specific directives that set strict limits on water usage in the state. In response to EO B-29-15, the California Department of Water Resources has modified and adopted a revised version of the Model Water Efficient Landscape Ordinance that, among other changes, significantly increases the requirements for landscape water use efficiency and broadens its applicability to include new development projects with smaller landscape areas.

Solid Waste

AB 939 and AB 341. In 1989, AB 939, known as the Integrated Waste Management Act (Public Resources Code Sections 40000 et seq.), was passed because of the increase in waste stream and the decrease in landfill capacity. The statute established the California Integrated Waste Management Board, which oversees a disposal reporting system. AB 939 mandated a reduction of waste being disposed where jurisdictions were required to meet diversion goals of all solid waste through source reduction, recycling, and composting activities of 25 percent by 1995 and 50 percent by the year 2000.

AB 341 (2011) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the state that not less than 75 percent of solid waste generated be source-reduced, recycled, or composted by the year 2020, and annually thereafter. In addition, AB 341 required the California Department of Resources Recycling and Recovery (CalRecycle) to develop strategies to achieve the state's policy goal. CalRecycle has conducted multiple workshops and published documents that identify priority strategies that CalRecycle believes would assist the state in reaching the 75 percent goal by 2020.

Increasing the amount of commercial solid waste that is recycled, reused, or composted will reduce GHG emissions primarily by 1) reducing the energy requirements associated with the extraction, harvest, and processing of raw materials and 2) using recyclable materials that require less energy than raw materials to manufacture finished products (CalRecycle 2015). Increased diversion of organic materials (green and food waste) will also reduce GHG emissions (CO₂ and CH₄) resulting from decomposition in landfills by redirecting this material to processes that use the solid waste material to produce vehicle fuels, heat, electricity, or compost.

Other State Regulations and Goals

EO S-13-08. EO Order S-13-08 (November 2008) is intended to hasten California's response to the impacts of global climate change, particularly sea-level rise. Therefore, the EO directs state agencies to take specified actions to assess and plan for such impacts. The final *2009 California Climate Adaptation Strategy* report was issued in December 2009 (CNRA 2009), and an update, *Safeguarding California: Reducing Climate Risk*, followed in July 2014 (CNRA 2014). To assess the state's vulnerability, the report summarizes key climate change impacts to the state for the following areas: Agriculture, Biodiversity and Habitat, Emergency Management, Energy, Forestry, Ocean and Coastal Ecosystems and Resources, Public Health, Transportation, and Water.

2015 State of the State Address. In January 2015, Governor Brown in his inaugural address and annual report to the Legislature established supplementary goals which would further reduce GHG emissions over the next 15 years. These goals include an increase in California's renewable energy portfolio from 33 percent to 50 percent, a reduction in vehicle petroleum use for cars and trucks by up to 50 percent, measures to double the efficiency of existing buildings, and decreasing emissions associated with heating fuels.

2016 State of the State Address. In his January 2016 address, Governor Brown established a statewide goal to bring per capita GHG emission down to 2 tons per person, which reflects the goal of the Global Climate Leadership Memorandum of Understanding (Under 2 MOU) to limit global warming to less than 2°C by 2050. The Under 2 MOU agreement pursues emission reductions of 80 to 95 percent below 1990 levels by 2050 and/or reach a per capita annual emissions goal of less than 2 metric tons by 2050. A total of 135 jurisdictions representing 32 countries and six continents, including California, have signed or endorsed the Under 2 MOU (Under 2 2016).

Local Regulations

County of San Diego Climate Action Plan

The County of San Diego (County) Board of Supervisors ~~is in the process of developing~~ adopted the Climate Action Plan (CAP) on February 14, 2018 that ~~will~~ serves as a comprehensive strategy guide to reduce GHG emissions in the unincorporated communities of San Diego County. The Climate Action Plan ~~will~~ outlines specific reduction methods residents and businesses can implement to reduce GHG emissions and aid the County meeting state-mandated GHG reduction targets.

The adopted CAP includes six chapters: (1) Introduction; (2) Greenhouse Gas Emissions Inventory, Projections, and Reduction Targets; (3) Greenhouse Gas Reduction Strategies and Measures; (4) Climate Change Vulnerability, Resiliency, and Adaptation; (5) Implementation

and Monitoring; and, (6) Public Outreach and Engagement. The CAP sets the following County-specific GHG reduction targets: by 2020, a 2 percent reduction from 2014 levels; by 2030, a 40 percent reduction from 2014 levels; and, by 2050, a 77 percent reduction from 2014 levels. The CAP is designed to achieve those targets through the implementation of multiple strategies and measures applicable to five general categories of GHG emission sources: (1) Built Environment and Transportation; (2) Energy; (3) Solid Waste; (4) Water and Wastewater; and, (5) Agriculture and Conservation.

The CAP is intended to afford project applicants the opportunity to use CEQA streamlining tools, as established by CEQA Guidelines Section 15183.5. Therefore, in conjunction with its adoption of the CAP, the County's Board also adopted CEQA implementation tools, including the *Guidelines for Determining Significance: Climate Change* and *Appendix A: Final Climate Action Plan Consistency Review Checklist (CAP Consistency Checklist)*. As provided therein, the County set forth the following threshold of significance:

"A proposed project would have a less than significant cumulatively considerable contribution to climate change impacts if it is found to be consistent with the County's Climate Action Plan; and, would normally have a cumulatively considerable contribution to climate change impacts if it is found to be inconsistent with the County's Climate Action Plan."

The County utilizes the *CAP Consistency Checklist* to determine whether discretionary projects subject to CEQA review will have a significant impact; that document sets forth a two-step process for determining significance.

Step 1 (Land Use Consistency) assesses a project's consistency with the growth projections and land use assumptions made in the CAP. If a project is consistent with the projections in the CAP, its associated growth (in terms of GHG emissions) was accounted for in the CAP's emissions projections and would not increase emissions beyond what is anticipated in the CAP or inhibit the County from reaching its reduction targets. If a project is consistent with the existing General Plan land use designation(s), it can be determined to be consistent with the CAP projections and can move forward to Step 2 (CAP Measures Consistency) of the *CAP Consistency Checklist*. Also, a project that is inconsistent with existing General Plan or zoning designations but which would propose an equivalent or less GHG-intensive project than that allowed by existing designations can move to Step 2.

If an amendment is needed to the existing land use and/or zoning designation, and if that land use and/or zoning designation amendment results in a more GHG-intensive project, the project is required to undertake a more detailed, project-level GHG analysis. The project also is required to demonstrate that each of the CAP measures identified in the *CAP Consistency Checklist* has been

complied with to mitigate cumulative GHG emission impacts. Additionally, the project is required to demonstrate either that it results in “no net increase” in GHG emissions from additional density or intensity above that identified in the County’s 2011 General Plan Update or results in “no net increase over baseline conditions (carbon neutrality).” In doing so, the project must first demonstrate compliance with relevant CAP measures and then achieve any additional needed reductions through on-site design features and mitigation measures, followed by off-site mitigation. The County Climate Action Plan is anticipated to be completed by winter 2018.

County of San Diego General Plan

The County’s General Plan (County of San Diego 2011) includes smart growth and land use planning principles designed to reduce vehicle miles traveled (VMT) and result in a reduction in GHG emissions. As discussed in the General Plan, climate change and GHG reduction policies are addressed in plans and programs in multiple elements of the General Plan.

The strategies for reduction of GHG emissions in the General Plan are as follows:

- Strategy A-1: Reduce vehicle trips generated, gasoline/energy consumption, and GHG emissions.
- Strategy A-2: Reduce non-renewable electrical and natural gas energy consumption and generation (energy efficiency).
- Strategy A-3: Increase generation and use of renewable energy sources.
- Strategy A-4: Reduce water consumption.
- Strategy A-5: Reduce and maximize reuse of solid wastes.
- Strategy A-6: Promote carbon dioxide consuming landscapes.
- Strategy A-7: Maximize preservation of open spaces, natural areas, and agricultural lands.

The General Plan also includes climate adaptation strategies to deal with potential adverse effects of climate change. The climate adaptation strategies include the following:

- Strategy B-1: Reduce risk from wildfire, flooding, and other hazards resulting from climate change.
- Strategy B-2: Conserve and improve water supply due to shortages from climate change.
- Strategy B-3: Promote agricultural lands for local food production.
- Strategy B-4: Provide education and leadership.

The County has also implemented a number of outreach programs such as the Green Building Program, lawn mower trade-in program, and reduction of solid waste by recycling to reduce air quality impacts as well as GHG emissions.

The County General Plan's Conservation and Open Space Element includes goals and policies that are designed to reduce the emissions of criteria air pollutants, emissions of GHGs, and energy use in buildings and infrastructure, while promoting the use of renewable energy sources, conservation, and other methods of efficiency.

- **Goal COS-14, Sustainable Land Development.** Land use development techniques and patterns that reduce emissions of criteria pollutants and GHGs through minimized transportation and energy demands, while protecting public health and contributing to a more sustainable environment.
 - **Policy COS-14.1 Land Use Development Form.** Require that development be located and designed to reduce vehicular trips (and associated air pollution) by utilizing compact regional and community-level development patterns while maintaining community character.
 - **Policy COS-14.2 Villages and Rural Villages.** Incorporate a mixture of uses within Villages and Rural Villages that encourage people to walk, bicycle, or use public transit to reduce air pollution and GHG emissions.
 - **Policy COS-14.3 Sustainable Development.** Require design of residential subdivisions and nonresidential development through “green” and sustainable land development practices to conserve energy, water, open space, and natural resources.
 - **Policy COS-14.4 Sustainable Technology and Projects.** Require technologies and projects that contribute to the conservation of resources in a sustainable manner, that are compatible with community character, and that increase the self-sufficiency of individual communities, residents, and businesses.
 - **Policy COS-14.5 Building Siting and Orientation in Subdivisions.** Require that buildings be located and oriented in new subdivisions and multi-structure non-residential projects to maximize passive solar heating during cool seasons, minimize heat gains during hot periods, enhance natural ventilation, and promote the effective use of daylight.
 - **Policy COS-14.6 Solar Access for Infill Development.** Require that property setbacks and building massing of new construction located within existing developed areas maintain an envelope that maximizes solar access to the extent feasible.
 - **Policy COS-14.7 Alternative Energy Sources for Development Projects.** Encourage development projects that use energy recovery, photovoltaic, and wind energy.

- **Policy COS-14.8 Minimize Air Pollution.** Minimize land use conflicts that expose people to significant amounts of air pollutants.
- **Policy COS-14.9 Significant Producers of Air Pollutants.** Require projects that generate potentially significant levels of air pollutants and/or GHGs such as quarries, landfill operations, or large land development projects to incorporate renewable energy, and the best available control technologies and practices into the project design.
- **Policy COS-14.10 Low-Emission Construction Vehicles and Equipment.** Require County contractors and encourage other developers to use low-emission construction vehicles and equipment to improve air quality and reduce GHG emissions.
- **Policy COS-14.11 Native Vegetation.** Require development to minimize the vegetation management of native vegetation while ensuring sufficient clearing is provided for fire control.
- **Policy COS-14.12 Heat Island Effect.** Require that development be located and designed to minimize the “heat island” effect as appropriate to the location and density of development, incorporating such elements as cool roofs, cool pavements, and strategically placed shade trees.
- **Policy COS-14.13 Incentives for Sustainable and Low GHG Development.** Provide incentives such as expedited project review and entitlement processing for developers that maximize use of sustainable and low GHG land development practices in exceedance of State and local standards.
- **Goal COS-15, Sustainable Architecture and Buildings.** Building design and construction techniques that reduce emissions of criteria pollutants and GHGs, while protecting public health and contributing to a more sustainable environment.
 - **Policy COS-15.1 Design and Construction of New Buildings.** Require that new buildings be designed and constructed in accordance with “green building” programs that incorporate techniques and materials that maximize energy efficiency, incorporate the use of sustainable resources and recycled materials, and reduce emissions of GHGs and toxic air contaminants.
 - **Policy COS-15.2 Upgrade of Existing Buildings.** Promote and, as appropriate, develop standards for the retrofit of existing buildings to incorporate design elements, heating and cooling, water, energy, and other elements that improve their environmental sustainability and reduce GHG.
 - **Policy COS-15.3 Green Building Programs.** Require all new County facilities and the renovation and expansion of existing County buildings to meet identified “green

- building” programs that demonstrate energy efficiency, energy conservation, and renewable technologies.
- **Policy COS-15.4 Title 24 Energy Standards.** Require development to minimize energy impacts from new buildings in accordance with or exceeding Title 24 energy standards.
 - **Policy COS-15.5 Energy Efficiency Audits.** Encourage energy conservation and efficiency in existing development through energy efficiency audits and adoption of energy saving measures resulting from the audits.
 - **Policy COS-15.6 Design and Construction Methods.** Require development design and construction methods to minimize impacts to air quality.
 - **Goal COS-16, Sustainable Mobility.** Transportation and mobility systems that contribute to environmental and human sustainability and minimize GHG and other air pollutant emissions.
 - **Policy COS-16.1 Alternative Transportation Modes.** Work with SANDAG and local transportation agencies to expand opportunities for transit use. Support the development of alternative transportation modes, as provided by Mobility Element policies.
 - **Policy COS-16.2 Single-Occupancy Vehicles.** Support transportation management programs that reduce the use of single-occupancy vehicles.
 - **Policy COS-16.3 Low-Emissions Vehicles and Equipment.** Require County operations and encourage private development to provide incentives (such as priority parking) for the use of low- and zero-emission vehicles and equipment to improve air quality and reduce GHG emissions.
 - **Policy COS-16.4 Alternative Fuel Sources.** Explore the potential of developing alternative fuel stations at maintenance yards and other County facilities for the municipal fleet and general public.
 - **Policy COS-16.5 Transit-Center Development.** Encourage compact development patterns along major transit routes.
 - **Goal COS-17, Sustainable Solid Waste Management.** Perform solid waste management in a manner that protects natural resources from pollutants while providing sufficient, long term capacity through vigorous reduction, reuse, recycling, and composting programs.
 - **Policy COS-17.1 Reduction of Solid Waste Materials.** Reduce greenhouse gas emissions and future landfill capacity needs through reduction, reuse, or recycling of all types of solid waste that is generated. Divert solid waste from landfills in compliance with State law.

- **Policy COS-17.2 Construction and Demolition Waste.** Require recycling, reduction and reuse of construction and demolition debris.
- **Policy COS-17.3 Landfill Waste Management.** Require landfills to use waste management and disposal techniques and practices to meet all applicable environmental standards.
- **Policy COS-17.4 Composting.** Encourage composting throughout the County and minimize the amount of organic materials disposed at landfills.
- **Policy COS-17.5 Methane Recapture.** Promote efficient methods for methane recapture in landfills and the use of composting facilities and anaerobic digesters and other sustainable strategies to reduce the release of GHG emissions from waste disposal or management sites and to generate additional energy such as electricity.
- **Policy COS-17.6 Recycling Containers.** Require that all new land development projects include space for recycling containers.
- **Policy COS-17.7 Material Recovery Program.** Improve the County's rate of recycling by expanding solid waste recycling programs for residential and non-residential uses.
- **Policy COS-17.8 Education.** Continue programs to educate industry and the public regarding the need and methods for waste reduction, recycling, and reuse.
- **Goal COS-18, Sustainable Energy.** Energy systems that reduce consumption of non-renewable resources and reduce GHG and other air pollutant emissions while minimizing impacts to natural resources and communities.
 - **Policy COS-18.1 Alternate Energy Systems Design.** Work with San Diego Gas and Electric and non-utility developers to facilitate the development of alternative energy systems that are located and designed to maintain the character of their setting.
 - **Policy COS-18.2 Energy Generation from Waste.** Encourage use of methane sequestration and other sustainable strategies to produce energy and/or reduce GHG emissions from waste disposal or management sites.
 - **Policy COS-18.3 Alternate Energy Systems Impacts.** Require alternative energy system operators to properly design and maintain these systems to minimize adverse impacts to the environment.
- **Goal COS-19, Sustainable Water Supply.** Conservation of limited water supply supporting all uses including urban, rural, commercial, industrial, and agricultural uses.

- **Policy COS-19.1 Sustainable Development Practices.** Require land development, building design, landscaping, and operational practices that minimize water consumption.
- **Policy COS-19.2 Recycled Water in New Development.** Require the use of recycled water in development wherever feasible. Restrict the use of recycled water when it increases salt loading in reservoirs.
- **Goal COS-20, Governance and Administration.** Reduction of local GHG emissions contributing to climate change that meet or exceed requirements of the *Global Warming Solutions Act of 2006*.
 - **Policy COS-20.1 Climate Change Action Plan.** Prepare, maintain, and implement a climate change action plan with a baseline inventory of GHG emissions from all sources; GHG emissions reduction targets and deadlines, and enforceable GHG emissions reduction measures.
 - **Policy COS-20.2 GHG Monitoring and Implementation.** Establish and maintain a program to monitor GHG emissions attributable to development, transportation, infrastructure, and municipal operations and periodically review the effectiveness of and revise existing programs as necessary to achieve GHG emission reduction objectives.
 - **Policy COS-20.3 Regional Collaboration.** Coordinate air quality planning efforts with federal and State agencies, SANDAG, and other jurisdictions.
 - **Policy COS-20.4 Public Education.** Continue to provide materials and programs that educate and provide technical assistance to the public, development professionals, schools, and other parties regarding the importance and approaches for sustainable development and reduction of GHG emissions.

The project's consistency with the General Plan strategies, goals, and policies enumerated above is evaluated below, as well as in Section 3.3, Land Use and Planning, of this EIR.

2.7.3 Analysis of Project Effects and Determination as to Significance

Guidelines for the Determination of Significance

SB 97, enacted in 2007, expressly recognized the need to analyze GHG emissions as a part of the CEQA process. SB 97 required the Governor's Office of Planning and Research (OPR) to develop, and the Natural Resources Agency to adopt, amendments to the CEQA Guidelines to address the analysis and mitigation of GHG emissions. (Pub. Resources Code section 21083.05.) In 2010, a series of CEQA Guidelines amendments were adopted to fulfill SB 97 requirements, including revisions to Appendix G of the CEQA Guidelines. The revisions

included two questions related to GHG emissions, which were intended to satisfy the Legislative directive in Public Resources Code section 21083.05 that the effects of GHG emissions be analyzed under CEQA.

Section 15064.4 of the CEQA Guidelines was added as one of the amendments addressing GHG emissions. Section 15064.4 states that the “determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project...”⁴ Section 15064.4(b)(1)-(3) further states that, “a lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment: (1) the extent to which a project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting; (2) whether project emissions exceed a threshold of significance that the lead agency determines applies to the project; and, (3) the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions....”

Recognizing that GHG emissions contribute to the cumulative impact condition of global climate change, section 15064(h)(1) of the CEQA Guidelines is also applicable. Section 15064(h)(1) states that “the lead agency shall consider whether the cumulative impact is significant and whether the effects of the project are cumulatively considerable.” A cumulative impact may be significant when the project’s incremental effect, though individually limited, is cumulatively considerable. “Cumulatively considerable” means that the incremental effects of an individual project are significant when viewed in connection with the effects of other past, current, and reasonably foreseeable probable future projects. As discussed in Section 2.7.1, Existing Conditions, above, climate change is the product of incremental contributions of GHG emissions on a global scale.

Finally, Section 15064(h)(3) of the CEQA Guidelines is pertinent. Section 15064(h)(3) states that: “[a] lead agency may determine that a project’s incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program...that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located.”

⁴ Section 15064 of the CEQA Guidelines provides the foundational guidance for determinations of significant effect on the environment. As noted in subsection (b) of section 15064, “[a]n ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting.”

Appendix G of the CEQA Guidelines

According to Appendix G of the CEQA Guidelines, a project would have a significant environmental impact if it would:

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

2.7.3.1 Generate Greenhouse Gas Emissions, Either Directly or Indirectly, that May Have a Significant Impact on the Environment

Subsections 2.7.3.1 and 2.7.3.2 address the significance criteria in Appendix G of the CEQA Guidelines related to GHG emissions. Section 2.7.3.1 evaluates the project's GHG emissions resulting from both the project's construction/vegetation and operational changes in emissions. Section 2.7.3.2 assesses whether the project conflicts with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions.

Construction and Vegetation Change GHG Emissions

Emissions from the construction phase of the proposed project were estimated using CalEEMod, version 2016.3.1, available online (<http://www.caleemod.com>), and EPA's *Compilation of Air Pollutant Emission Factors* (AP-42).

Construction is anticipated to commence in January 2018⁵ and would require approximately 10 years to complete. Phase 1 would include roadway improvements, installation of on-site water tanks, and construction of the following neighborhoods: Hillside, Mesa, Lower Knolls, Valley, and Terraces. The Phase 1 analysis includes and addresses the GHG emissions impacts and incorporates construction of the I-15 interchange improvements, which constitutes an off-site mitigation measure improvement of the project. The Construction Phasing and Equipment List (Table 2.3-7) conservatively accounts for the construction equipment needed to implement these improvements based on an estimated construction equipment mix, and the overall emissions estimates for the proposed project includes emissions from these pieces of equipment.

⁵ This analysis assumes a construction start date of January 2018, which represents the earliest date construction activities would commence. Assuming the earliest start date for construction provides a worst-case assessment for GHG emissions because equipment and vehicle emissions factors for later years would be slightly less due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in subsequent years.

Phase 2 would include development of Camino Mayor and the following neighborhoods: Summit, Upper Knolls, and the Town Center. Project-specific equipment fleet, construction worker trips, vendor trips, and haul truck trips were provided by Fuscoe for each phase and subphase of the project (Fuscoe 2016a). Additional details of the construction schedule, including hours of operation and duration for heavy construction equipment; worker, vendor (delivery), and hauling trips; and equipment mix, are included in Appendix B and Appendix C of the Greenhouse Gas Emissions Technical Report (EIR Appendix K).

The equipment mix anticipated for construction was based on information provided by the applicant's representatives and best engineering judgment. The equipment mix is meant to represent a reasonably conservative estimate of construction activity. Default values for horsepower and load factor as provided in CalEEMod were used for the majority of construction equipment; however, due to the large size of several off-highway trucks anticipated for the project during earthmoving activities (Volvo A40 and CAT 777), unit-specific horsepower was assigned to off-highway trucks for grading and earthmoving. It was assumed that all equipment used during each subphase would be operating 8 hours per day, 6 days per week.

All cut-and-fill quantities would be balanced within the boundaries of the project Site and the improvements to Deer Springs Road and Sarver Lane immediately off-site, and no soil export would be required. Approximately 9.4 million cubic yards of cut and fill would occur during Phase 1, and approximately 1.3 million cubic yards of cut and fill would occur during Phase 2. A portion of this cut and fill material would be relocated on the project. Approximately 2,320,570 cubic yards of soil would be relocated on the project during Phase 1, and approximately 103,140 cubic yards of soil would be relocated on the project during Phase 2 (Fuscoe 2016b) (see Table 2.7-2, Construction Grading Estimates). To estimate emissions from trucks hauling excavated rock and soil to various portions of the project, daily haul truck quantities were estimated using the default hauling capacity of 16 cubic yards as designated in CalEEMod. Average travel distances were provided by Fuscoe based on internal site movement of soil for grading of individual neighborhoods.

Excavated rock would be crushed and screened to produce capping material ("6 inch minus") to be used in the construction of the project. Much of this rock may be produced in the field using special attachments installed on off-road equipment used to excavate the rock. However, rock-crushing equipment may be installed to process the excavated rock.

The rock-crushing equipment would process 2,000 to 2,500 cubic yards per day (Kruer 2015). A maximum daily throughput of 2,500 cubic yards (approximately 5,650 tons) per day was assumed as a conservative estimate of the potential throughput.

The rock-crushing equipment would be powered by a diesel engine generator. It is assumed that each generator would be approximately 1,000 horsepower. Each generator would operate up to 8 hours per day. Emissions from the diesel engine generator were estimated using the off-road

engine load factor and emissions factors from the CalEEMod user's guide for a typical generator operating in 2018 (CAPCOA 2016).

The annual number of days was estimated by dividing the total cubic yards of capping material required, as shown in Table 2.7-3, Rock Crushing Characteristics, by 7,500 cubic yards per day (Phase 1) or 5,000 cubic yards per day (Phase 2).

Table 2.7-4, Estimated Construction and Vegetation GHG Emissions, shows the estimated annual GHG construction and vegetation GHG emissions associated with the project by year (2018-2027). The project's total estimated construction GHG emissions from 2018-2027 are 76,034 MT CO₂E (without accounting for vegetation removal).

Additionally, the one-time sequestration loss (i.e., vegetation removal) on the project site has been calculated at 17,289 MT CO₂E, as illustrated on Table 2.7-4. The project would result in approximately 776 acres of vegetation removal on the project site, including chaparral and other existing vegetation cover. Combined, the project's total estimated construction and vegetation removal GHG emissions would be 93,323 MT CO₂E. Therefore, the project would generate greenhouse gas emissions that may have a significant impact on the environment, and impacts related to GHG construction emissions would therefore be **potentially significant (Impact GHG-1)**.

The project would also include approximately 4,492 tree plantings throughout the project site, including shade street trees and landscaping trees, and the preservation of oaks throughout the site (Schmidt 2017). CalEEMod was used to estimate emissions from vegetation removal and tree plantings. For purposes of this analysis, the one-time sequestration loss on the project site was calculated and included in the construction emissions estimates, and no credit was taken for the anticipated increase in sequestration capacity following project implementation as a result of tree plantings. However, the estimated increase in sequestration capacity (approximately 3,297 MT CO₂E) due to new tree plantings is provided for disclosure. This "pool" of sequestration savings (3,297 MT CO₂E), even though no credit is taken, nonetheless represents GHG reductions above and beyond those required by the EIR's mitigation measures.

Operational GHG Emissions

The following summarizes the different sources of operational GHG emissions. These include emissions associated with mobile sources (i.e., – vehicles), energy usage (electricity and natural gas), area sources (hearths and landscape maintenance equipment), water usage, and solid waste. No operational emissions are anticipated as a result of the construction of off-site mitigation improvements at the I-15/Deer Springs Road interchange because the interchange improvements do not generate operational emissions; instead, such improvements are intended to improve local

traffic circulation and regional traffic operations; improve multimodal access, connectivity, and operation; and improve overall safety of the Caltrans facility.

Emission Sources

Vehicle (Mobile) Emissions

The project would generate vehicular traffic. According to the project's traffic report prepared by Linscott, Law and Greenspan (see Appendix R to this EIR), total project-generated VMT would be 294,804 daily miles traveled, with 28,862 average daily trips generated. Therefore, the average trip length for each trip generated by the project would be approximately 10.21 miles (294,804 VMT / 28,862 trips).

Additionally, the VMT reduction that would be achieved through implementation of the project's Travel Demand Management (TDM) Program was evaluated by Fehr and Peers (see Appendix D of the Greenhouse Gas Emissions Technical Report (EIR Appendix K)). Each element of the proposed TDM Program was evaluated to determine the VMT reduction attributable to its implementation. As a result of this evaluation, it was determined the project would achieve an 11.1 percent reduction in overall VMT. This 11.1 percent reduction in VMT was directly applied to reduce the project's mobile emissions.

Project-related traffic was assumed to include a mixture of vehicles in accordance with the model's default outputs fleet mix for traffic for the year 2021. Utilization of emissions factors and fleet mix inputs specific to year 2021 is conservative, as the emissions factors and fleet mix are anticipated to beneficially improve (and, therefore, reduce GHG emissions) by the project's 2028 buildout year.

EMFAC2014 is the model upon which CalEEMod version 2016.3.1 is based relative to mobile emissions. EMFAC2014 takes into account mobile emissions regulations and advancements in motor vehicle technology and their effect on emissions in future years up to 2050. For example, EMFAC2014 accounts for reductions due to the Advanced Clean Car Program and the Truck and Bus Regulation, which requires heavy-duty vehicles to be retrofit with "diesel particulate filters or replaced with trucks having 2007 or 2010 standard engines" (CARB 2015b). The model also accounts for the effectiveness of selective catalytic reduction systems on applicable vehicle classes and years (CARB 2015b). Although EMFAC2014 accounts for some of these emissions reductions for mobile sources, it is reasonable to assume that additional regulations developed to reduce transportation-related GHG emissions would be implemented in the future in response to new regulations developed to meet the state's 2030 and 2050 reduction targets, similar to the Pavley standards and the Low Carbon Fuel Standard, as well as an expansion of alternative transportation systems.

In summary, the emissions estimation tools available at the time this analysis was conducted are limited. Specific information on future regulatory updates that would have a direct effect on GHG emissions in the future are unknown at this time. Thus, the GHG emission estimates provided in EIR Table 2.7-4 are considered a conservative estimate.

Additionally, mobile emissions prior to implementation of project-specific GHG reduction features under the “Project Without GHG Reduction Features” condition account for Pavley I and the Advanced Clean Car Program. Under the “Proposed Project” analysis, vehicle emissions account for these same regulatory compliance measures, as well as implementation of the project’s TDM Program, which is estimated to achieve an 11.1 percent reduction in VMT (Fehr and Peers 2016). (see “Operational ‘Proposed Project’ GHG Emissions” for details regarding VMT reduction features). See also EIR Table 2.7-5 and Table 2.7-7 for a list of regulatory compliance measures and project GHG reduction features, respectively.

Energy Use Emissions

CalEEMod was used to estimate emissions from the project’s energy use, which includes electricity and natural gas consumption. The estimation of operational energy emissions was based, in part, on CalEEMod defaults and the total area (i.e., square footage) of the project’s land uses. The energy use from residential land uses was calculated in CalEEMod based on the Residential Appliance Saturation Study. For nonresidential buildings, CalEEMod energy intensity value (electricity or natural gas usage per square foot per year) assumptions were based on the California Commercial End-Use Survey database. Emissions were calculated by multiplying the energy use by the utility’s carbon intensity (pounds of GHGs per megawatt-hour (lb/MWh) for electricity or 1,000 British thermal units for natural gas) for CO₂ and other GHGs. Annual natural gas (non-hearth) and electricity emissions were estimated in CalEEMod using the emissions factors for SDG&E, which would be the energy source provider for the project.

As discussed in Section 2.7.2 under “State of California,” the project would be required to comply with the 2016 California Building Energy Efficiency Standards (Title 24, Part 6, of the California Code of Regulations) because its building construction phase would commence after 2017. However, this analysis does not reflect implementation of the 2016 Title 24 standards due to the unavailability of comprehensive data from the CEC that could be incorporated into CalEEMod to quantify the energy savings and GHG emissions reductions of those standards. Therefore, this analysis conservatively assumes that the project would only meet the 2013 Title 24 standards. CalEEMod version 2016.3.1’s default values for Title 24 emission factors reflect the 2013 Title 24 standards.

Electricity

The generation of electricity through combustion of fossil fuels typically results in emissions of CO₂ and, to a smaller extent, CH₄ and N₂O. The default energy input ratios for Title 24 and non-Title 24 electricity consumption as provided in CalEEMod were used. As stated previously, CalEEMod version 2016.3.1's default values for Title 24 emission factors reflect the 2013 Title 24 standards, even though the project would be required to comply with the 2016 California Building Energy Efficiency Standards.

To reflect the “Project Without GHG Reduction Features” condition and the “Proposed Project” condition for electricity emissions, emissions intensity factors were adjusted to reflect achievement of the RPS goals by SDG&E. Adjusted intensity factors for the 33 percent RPS benchmark by the year 2020 for CO₂, CH₄, and N₂O are 536.36 pounds per megawatt-hour (lbs/MWh), 0.022 lbs/MWh, and 0.0046 lbs/MWh, respectively (see Appendix E of Appendix K for details). Utilization of the 2020 RPS value of 33 percent in CalEEMod is conservative for purposes of estimating the project's GHG emissions because, at the project's buildout year of 2028, a more restrictive RPS value will apply to the project's electricity provider.

To accurately estimate the “Proposed Project” condition, CalEEMod's emissions outputs were modified to reflect the provision of solar photovoltaic panels for all single-family and multi-family residential development sufficient to offset 100 percent of the residential structural electricity demand. Conservatively, electricity demand reductions achieved through on-site solar installations were not applied to the project's water-related electricity demand or proposed Community facilities.

In addition, electric vehicle (EV) charging equipment would be provided in the garages of all single-family residential units, and EV charging stations would be installed in 3 percent of the Town Center's commercial core parking spaces. The applicant would also encourage the installation of EV charging stations in 3 percent of the park-and-ride parking spaces. Should installation of EV charging stations at the park-and-ride facilities be deemed acceptable by Caltrans (the owner of the existing park-and-ride facility), the applicant would fully fund these improvements. To be conservative, no emissions reduction credit was taken in this analysis for the provision of Community-wide EV charging equipment.

Natural Gas

CalEEMod was used to estimate emissions from natural gas combustion, using the default energy input ratios for Title 24 and non-Title 24 natural gas consumption.

Area Source Emissions

CalEEMod was used to estimate operational GHG emissions from area sources, including emissions from hearths and landscape maintenance equipment. Refer to Appendix C of Appendix K for additional information.

Area source emissions were calculated using the default hearth mix (wood-burning, natural gas and no fireplace) in CalEEMod for both the “Project Without GHG Reduction Features” condition and the “Proposed Project” condition. However, for the “Proposed Project” condition, default wood-burning fireplace units were converted to the natural gas units to reflect that all units with hearths would be natural-gas-fired. No wood-burning fireplaces were assumed in the “Proposed Project” condition because wood-burning fireplaces are restricted. Default CalEEMod values for landscape maintenance equipment were retained for both analysis methodologies.

Water Use Emissions

The supply, conveyance, treatment, and distribution of water would indirectly result in GHG emissions through the use of electricity. Similarly, wastewater generated by the proposed project would require use of electricity for conveyance and treatment. Water consumption estimates for the proposed land uses were obtained from the proposed project’s Water Conservation Demand Study prepared by GSI Water Solutions, Inc. (see Appendix T of this EIR).

Consistent with the assumptions for electricity use, the “Project Without GHG Reduction Features” condition and the “Proposed Project” condition were based on 2013 Title 24, Part 6, and a 33 percent RPS in 2021 as they relate to water use and energy intensity. See Section 2.7.3, “Operational GHG Emissions – Energy Use Emissions”, for details regarding electricity intensity factor adjustments.

To further reduce water consumption, the project would comply with 2016 CALGreen standards, which require low-flow plumbing fixtures for all new development (CALGreen 2016a). Furthermore, the project may pre-plumb residential units for grey water systems that could repurpose home water use. The project also is designed not to include front lawn installations in single-family residential units, thereby reducing overall turf acreage throughout the project to further reduce outdoor water use. No numeric reductions were taken relative to water conservation because the water demand estimates provided by GSI include all applicable reductions from state and local laws, codes, and standards. Table 6 of the Project’s Water Conservation Demand Study includes a comprehensive list of state and local laws, codes, and standards that were accounted for in the project’s water demand estimates (see Appendix T of this EIR).

Solid Waste Disposal Emissions

The project would generate solid waste and, therefore, would result in CO₂E emissions associated with landfill off-gassing. Solid waste generation was derived from the CalEEMod default rates for the various proposed land uses. The “Project Without GHG Reduction Features” condition and the “Proposed Project” condition both assumed a 25 percent reduction in solid waste per the requirements of AB 341 (i.e., no additional reduction in GHG emissions was assumed in the “Proposed Project” condition relative to waste diversion). AB 341 requires a 75 percent diversion rate of solid waste from landfills to recycling facilities, or a 25 percent diversion increase beyond the requirements delineated in the Integrated Waste Management Act of 1989.

Operational GHG Emissions Analysis

Two conditions were modeled to disclose the proposed project’s operational emissions: the “Project Without GHG Reduction Features” condition and the “Proposed Project” condition. Generally, the “Project Without GHG Reduction Features” condition represents project emissions with the reduction benefits of existing regulatory compliance measures. The “Proposed Project” condition couples the reduction benefits of existing regulatory compliance measures with project-specific GHG reduction features.

Project Without GHG Reduction Features

Table 2.7-5, Regulatory Compliance Measures that Reduce GHG Emissions, summarizes the regulatory measures that would be implemented to reduce the project’s operational GHG emissions. As provided in Table 2.7-5, the emission reduction benefits of regulatory compliance measures are not always readily quantifiable. As such, the emissions inventory estimates presented in this analysis provide a conservative projection of project emissions.

Table 2.7-6 presents the proposed project’s long-term operational GHG emissions as calculated using the assumptions described in the “Project Without GHG Reduction Features” condition. Final build-out of the entire project would occur in 2028; however, for the purposes of a conservative analysis, a build-out operational year of 2021 was used in estimating operational emissions because the first residential units would be operational in the year 2021. Therefore, emissions estimates provided in Table 2.7-6 are conservative. It should be noted that the “Project Without GHG Reduction Features” emissions are provided for comparative and information purposes only.

Operational “Proposed Project” GHG Emissions

Table 2.7-7 identifies the project-specific GHG reduction features the project would implement to further reduce GHG emissions during operations.

As illustrated in Table 2.7-7, the project's TDM Program would achieve VMT reductions of approximately 11.1 percent (see Appendix D of the Greenhouse Gas Emissions Technical Report (EIR, Appendix K, for details). This 11.1 percent reduction in VMT would result in a direct 11.1 percent reduction in the project's mobile emissions, or approximately 4,722 MT CO₂E per year.

Additionally, installation of solar technology on all single-family and multi-family housing units would reduce overall GHG emissions generated from electricity by 3,453 MT CO₂E per year.

Final build-out of the entire project would occur in 2028; however, for the purposes of a conservative analysis, a build-out operational year of 2021 again was used in estimating operational emissions because the first residential units would be operational in the year 2021. Therefore, emissions estimates provided in Table 2.7-8 are conservative.

Table 2.7-9 through Table 2.7-14 presents the proposed project emissions by individual land use following implementation of project-specific GHG reduction features.

The emissions presented in Table 2.7-9 through Table 2.7-14 are conservative because the project's GHG emissions are expected to decrease beyond the estimates presented here due – in part – to reasonably foreseeable improvements in fuel efficiency, fleet turnover, and other technological improvements related to transportation and energy. It also is anticipated that CARB, the CEC and other state, regional and local agencies will enact new or enhanced regulations prior to the project's build-out year to reduce GHG emissions in furtherance of the State's GHG reduction policy goals. For example, the CEC is expected to mandate the construction of zero net energy homes by 2020. The first building permits for the project likely would be issued in 2021 or 2022, such that the residences would be required, by law, to demonstrate compliance with the CEC's zero net energy standards. The full extent of all such reductions cannot be quantified or estimated at this time due to the uncertainties regarding the precise technological and regulatory advancements, and the corresponding modeling limitations.

As shown in Table 2.7-8, with implementation of GHG regulatory compliance measures and project-specific GHG reduction features, the proposed project would result in 43,498 MT CO₂E per year for the operational year 2021. As such, the project could generate GHG emissions that may have a significant impact on the environment, and impacts could be considered **potentially significant (Impact GHG-2)**.

2.7.3.2 Conflict with an Applicable Plan, Policy, or Regulation Adopted for the Purpose of Reducing the Emissions of Greenhouse Gases

The State, and by extension regional and local, climate change policy is founded in achieving emission levels below the reference year of 1990 and is based on levels established by scientific evidence to avoid or minimize significant climate change impacts. Thus, applicable plans,

policies, and regulations such as CARB's Scoping Plans, Metropolitan Planning Organization's regional transportation plans/sustainable communities strategies, and local climate action plans all establish non-zero targets (i.e., some level of positive net GHG emissions above existing conditions for land development projects to accommodate planned and future growth) to achieve future GHG emissions targets. The following provides discussion of plans, policies, and regulations adopted for the purpose of reducing GHG emissions and the determination of whether the project does or does not conflict with such plans, policies, or regulations.

Consistency with County of San Diego Climate Action Plan

Regarding consistency with the County's CAP, because it requires General Plan amendments pertaining to the density and intensity of site development, the project is not eligible for CEQA streamlining under the CAP (see CEQA Guidelines §15183.5). Nonetheless, using the two-step process set forth in the CAP Consistency Checklist, the project would not conflict with the County's CAP because the project would implement all applicable CAP measures and would achieve no net increase in GHG emissions over baseline conditions with implementation of the recommended mitigation measures. In order to achieve net zero GHG emissions, the project would utilize a suite of feasible on-site project design features and on-site mitigation measures, as well as off-site mitigation that includes the purchase and retirement of carbon offsets. As to the project's use of carbon offsets, the recommended framework for their use accords to Mitigation Measure GHG-1 from the County's Supplemental EIR (SCH No. 2016101055) for its CAP.

Consistency with SANDAG'S 2050 RTP/SCS

Regarding consistency with SANDAG's RTP/SCS, the project would include site design elements and project design features developed to support the policy objectives of the RTP and SB 375, including features that would be implemented as part of the project's TDM Program. The project's TDM Program would work to reduce the project's VMT through three primary strategies: (1) land use and design measures that would create an environment that promotes alternative mode choice (e.g., land use diversity and pedestrian/bicycle networks); (2) commute/travel services for residents that would reduce out-going single occupant vehicle trips (e.g., electric bike-share program, local shuttle service); and (3) commute services for employees of the project's commercial center that would reduce incoming single occupant vehicle trips (e.g., transit fare subsidies for employees).

To achieve strategy 1, the project would be designed as a planned community located near job centers and existing land uses, and would contain a balanced mix of uses, including resident-serving general commercial uses, parks, a school site, and a range of residential product types.

The proposed project's mix of land uses would allow the project to reduce VMT by offering these land uses internally.

In support of strategy 2, the project's mix of land uses, including residential in conjunction with the retail, parks, and a school, would combine with an integrated pathway and trail plan, and internal streets and roads that promote a pedestrian experience for the project's residents and visitors and facilitate non-vehicular travel, consistent with SB 375 and SANDAG's RTP/SCS. The project would also implement an extensive bike and pedestrian trail system throughout the project site, internal bicycle infrastructure, and an electric bike program that would be free to all project residents. An electric bike-share program would be designed to further link the neighborhoods to one another and to reduce motorized-vehicle trips. The bike share program would involve placement of a kiosk within each of the seven planning areas, and electric bikes could be taken from one kiosk and left at another to foster sustainable transportation between planning areas. At this time, it is anticipated that each kiosk would contain approximately 10 to 20 electric bikes.

Strategy 2 would also include a carshare program and a local shuttle service. The carshare program would provide residents with access to a shared vehicle that can be used to drive themselves and other residents to their employment destination or a regional transit center. The local shuttle service would be provided through coordination with the local transit operator or private contractor that would provide service to transit hubs, commercial centers, and residential areas. The service would provide access to the park-and-ride lots and the Escondido Transit Center. The shuttle service would be available to all residents in the project Site and be an on-demand/flex system or a circulator system that provides regular service (Fehr and Peers 2016).

All of these project elements would support the goals and policies outlined in SANDAG's RTP/SCS and implementation of the project's TDM Program and associated measures would achieve an 11.1 percent reduction in the project-related VMT.

As shown in Table 2.7-15, the proposed project also is consistent with all applicable goals and policies of *San Diego Forward: The Regional Plan* (SANDAG 2015).

In addition to project-specific design features that would support the goals of SB 375 as demonstrated in Table 2.7-16, a VMT analysis was conducted using the SANDAG Regional Travel Demand model.

Under the "No Project/General Plan" assessment, projected VMT in 2035 was analyzed using the land uses identified in the Mobility Element of the County of San Diego General Plan. Under the "Proposed Project" assessment, projected VMT in 2035 was analyzed using the land uses

identified for the proposed project (Appendix R). Table 2.7-16 shows projected VMT under the “No Project/General Plan” and “Proposed Project” assessments.

As shown in Table 2.7-16, although the total VMT would be higher under the “Proposed Project” assessment, when compared to the “No Project/General Plan” assessment, the overall VMT in the region and at the project level with implementation of the project would be within 4.5 percent of SANDAG-forecasted VMT for the region. Thus, the project would be generally consistent with the planned uses and VMT under the No Project (General Plan) condition (Appendix R). As a planned community located near job centers and existing land uses, the proposed project itself also contains a balanced mix of uses, including resident-serving general commercial uses, parks, a school site, and a range of residential product types. The proposed project’s mix of uses allows for the project to reduce VMT by offering resident-serving land uses internally. Further, the project’s mix of land uses, including residential in conjunction with the retail, parks, and school, would combine with an integrated pathway and trail plan and dense, internal streets and roads that promote a pedestrian experience for the project’s residents and visitors and facilitate non-vehicular travel, consistent with SB 375 and SANDAG’s Regional Plan. As shown in Table 2.7-15, the project would be consistent with policy objectives of SANDAG’s Regional Plan.

As such, implementation of the project would be considered consistent with planned land uses and associated VMT projections for the project Site accounted for in SANDAG’s Regional Plan, and thus, the project would be consistent with the goals of SB 375. Impacts would be **less than significant**.

Consistency with the County of San Diego General Plan

The proposed project would be consistent with the policies set forth in the Conservation and Open Space Element of the County’s General Plan that are designed to reduce the emissions of GHGs; reduce energy use in buildings and infrastructure; and promote the use of renewable energy sources, conservation, and other methods of efficiency. Table 2.7-17 outlines the proposed project’s consistency with applicable policies; as illustrated therein, the project’s consistency with such policies evidences that impacts would be **less than significant**.

Consistency with SB 32 and S-3-05

As discussed above:

- **EO S-3-05** establishes the following goals: GHG emissions should be reduced to 2000 levels by 2010, to 1990 levels by 2020, and to 80 percent below 1990 levels by 2050.
- **SB 32** establishes a reduction target to reduce statewide GHG emissions to at least 40 percent below 1990 levels by 2030.

This section evaluates whether the GHG emissions trajectory after project completion would impede the attainment of the 2030 and 2050 GHG reduction goals identified in EOs B-30-15 and S-3-05.

To begin, CARB has addressed the progress with regard to both the 2030 and 2050 goals. It states in the *First Update* to the *Scoping Plan* that “California is on track to meet the near-term 2020 GHG emissions limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32” (CARB 2014b, p. ES2). With regard to the 2050 target for reducing GHG emissions to 80 percent below 1990 levels, the *First Update* states the following:

This level of reduction is achievable in California. In fact, if California realizes the expected benefits of existing policy goals (such as 12,000 megawatts of renewable distributed generation by 2020, net zero energy homes after 2020, existing building retrofits under AB 758, and others) it could reduce emissions by 2030 to levels squarely in line with those needed in the developed world and to stay on track to reduce emissions to 80 percent below 1990 levels by 2050. Additional measures, including locally driven measures and those necessary to meet federal air quality standards in 2032, could lead to even greater emission reductions (CARB 2014b, p.34)

In other words, CARB believes that the state is on a trajectory to meet the 2030 and 2050 GHG reduction targets set forth in AB 32, EO B-30-15, and EO S-3-05. This is confirmed in the *Second Update*, which states:

The Proposed Plan builds upon the successful framework established by the Initial Scoping Plan and First Update, while also identifying new, technologically feasibility and cost-effective strategies to ensure that California meets its GHG reduction targets in a way that promotes and rewards innovation, continues to foster economic growth, and delivers improvements to the environment and public health, including in disadvantaged communities. The Proposed Plan is developed to be consistent with requirements set forth in AB 32, SB 32, and AB 197 (CARB 2017, p. 7).

The project’s estimated GHG emissions prior to implementation of project-specific GHG reduction features in the buildout year would be 52,986 MT CO₂E per year. Following implementation of the project-specific GHG reduction features, the project’s estimated GHG emissions in the buildout year would be 43,498 MT CO₂E per year. Therefore, the project (without mitigation) would generate GHG emissions which may interfere with the implementation of GHG reduction goals for 2030 or 2050 and; therefore, would potentially conflict with plans, policies, or regulations adopted for the purpose of reducing GHG emissions (**Impact GHG-3**).

2.7.4 Cumulative Impact Analysis

Due to the global nature of the assessment of GHG emissions and the effects of global climate change, impacts can currently only be analyzed from a cumulative impact context; therefore, this EIR's analysis includes the assessment of both project and cumulative impacts.

2.7.5 Significance of Impacts Prior to Mitigation

Project-to-Ground

The project would convert a currently vacant project site to a developed/open space condition. However, because climate change is occurring on a global scale, it is not possible to determine the incremental change in climate from a single project's emissions. There currently is no scientific or regulatory consensus regarding what particular quantity of GHG emissions is considered significant. Furthermore, the global scale of climate change makes it difficult to assess the significance of a single project, particularly one designed to accommodate anticipated population growth (CEQ 2014).

Buildout Year Condition

CEQA Guidelines Appendix G

Combined, the project's total estimated construction and vegetation removal GHG emissions would be 93,323 MT CO₂E. Therefore, the project would generate greenhouse gas emissions that may have a significant impact on the environment, and impacts related to GHG construction emissions would therefore be **potentially significant (Impact GHG-1)**.

The project's estimated GHG emissions prior to implementation of project-specific GHG reduction features in the buildout year would be 52,986 MT CO₂E per year. Following implementation of the project-specific GHG reduction features, the project's estimated GHG emissions in the buildout year would be 43,498 MT CO₂E per year. Therefore, the project (without mitigation) would generate GHG emissions that may have a significant impact on the environment, and impacts related to GHG emissions would be **potentially significant (GHG-2)**.

Consistency with Applicable Plans, Policies, and Regulations

The proposed project would be consistent with SANDAG's RTP/SCS and the County of San Diego General Plan; however, the project (without mitigation) would generate GHG emissions which may interfere with the implementation of GHG reduction goals for 2030 or 2050 and therefore would potentially conflict with plans, policies, or regulations adopted for the purpose of reducing GHG emissions (SB 32 and S-3-05); therefore, impacts would be **potentially significant (GHG-3)**.

2.7.6 Mitigation Measures

CARB recommends that “lead agencies prioritize on-site design features and direct investments in GHG reductions in the vicinity of the project” (CARB 2016c). CARB also recognizes that “[w]here further project design or regional investments are infeasible or not proved to be effective, it may be appropriate and feasible to mitigate project emissions through purchasing and retiring carbon credits issued by a recognized and reputable accredited carbon registry” (CARB 2016c). Examples of off-site mitigation include, among other mechanisms, the purchase of verifiable carbon “offsets” from a reputable carbon registry that will undertake mitigation.

For purposes of this analysis, Table 2.7-7, Project Design Features to Reduce GHG Emissions, lists the proposed project’s on-site features and measures to reduce GHG emissions. Based on the emissions inventory data presented in Tables 2.7-6 and 2.7-8, the project will reduce its emissions by approximately 18 percent through the implementation of on-site features and measures ($52,986 - 43,498 \text{ MT CO}_2\text{E} = 9,488 \text{ MT CO}_2\text{E}$; $9,488 \text{ MT CO}_2\text{E} \div 52,986 \text{ MT CO}_2\text{E} = 17.9\%$). Note that this calculation under-represents the percentage of GHG emissions reductions that will be achieved through on-site features and measures because, as provided in Table 2.7-7, many of the features and measures conservatively were not assigned quantitative emissions reductions values. In accordance with CEQA Guidelines Section 15126.4(c) and other pertinent guidance, the County has determined that additional off-site mitigation can further reduce impacts from GHG emissions to a less-than-significant level through the purchase of carbon offsets.

As such, mitigation measures M-GHG-1 and M-GHG-2 are provided, which would require the project to offset 100 percent of its annual GHG emissions, for a 30-year period, in order to achieve carbon neutrality (i.e., net zero emissions level). The utilization of carbon offsets to mitigate GHG emissions is expressly authorized by CEQA Guidelines sections 15126.4(c)(3)–(c)(4), and would reduce impacts associated with GHG emissions to a **less-than-significant level**. Additionally, **M-GHG-3** ensures the project design features will be implemented to further reduce potential GHG emissions.

M-GHG-1 The project applicant shall purchase and retire carbon offsets in a quantity sufficient to offset 100 percent of the project’s construction emissions (including sequestration loss from vegetation removal) consistent with the performance standards and requirements set forth below.

First, “carbon offset” shall mean an instrument issued by any of the following: (i) the Climate Action Reserve, the American Carbon Registry, and ~~the Verra~~ (previously, Verified Carbon Standard), (ii) any registry approved by CARB to act as a registry under the State’s cap-and-trade program, or (iii) if no registry is in existence as identified in options (i) and (ii), above, then any other reputable registry or entity that issues carbon offsets that is

acceptable to the Director of the Planning & Development Services Department. Prior to use of option (iii), it shall be demonstrated that the other reputable registry or entity follows accounting, quantification and monitoring protocols, as well as eligibility and procedural performance standards, that are comparable to those used by the registries identified in option (i).

Second, any carbon offset utilized to reduce the project's GHG emissions shall be a carbon offset that represents the past reduction or sequestration of one metric tonne of carbon dioxide equivalent that is "not otherwise required" (CEQA Guidelines section 15126.4(c)(3)).

Third, "project applicant" shall mean Newland Sierra LLC or its designee.

Fourth, as to construction and vegetation removal GHG emissions, prior to the County's issuance of the project's first grading permit, the project applicant shall provide evidence to the satisfaction of the Director of the Planning & Development Services Department (PDS) that the project applicant has purchased and retired carbon offsets in a quantity sufficient to offset 100 percent of the construction and vegetation removal GHG emissions generated by the project, which total 93,323 MT CO₂E.

Fifth, the purchased carbon offsets used to reduce construction and vegetation removal GHG emissions shall achieve real, permanent, quantifiable, verifiable, and enforceable reductions (Cal. Health & Saf. Code section 38562(d)(1)).

Sixth, ~~the project applicant or its designee shall demonstrate the County of San Diego Planning & Development Services Department will consider, to the satisfaction of the Development Services Director, that the following geographic priorities for GHG reduction features, and GHG reduction projects and programs carbon offsets have been met: 1) project design features/on-site reduction measures; 2) off-site within the unincorporated areas of the County of San Diego; 3) off-site within the County of San Diego; 4) off-site within the State of California; 5) off-site within the United States; and 6) off-site internationally.~~ As listed, geographic priorities would focus first on local reduction features (including projects and programs that would reduce GHG emissions) to ensure that reduction efforts achieved locally would provide cross-over benefits related to air quality criteria pollutant reductions within the San Diego Air Basin, and to aid in San Diego County jurisdictions' efforts to meet their GHG reduction goals. The project applicant or its designee shall first pursue offset projects and programs locally within

unincorporated areas of the County of San Diego to the extent such offset projects and programs are financially competitive in the global offset market. The project applicant or its designee shall submit proof to the County that offsets are unavailable in a higher priority category before seeking offsets from the next lower priority category.

M-GHG-2

As to operational GHG emissions, to effectuate a total offset of 1,304,940 MT CO₂E over the 30-year life of the project consistent with this measure, prior to the County's issuance of building permits for each implementing Site Plan ("D" Designator), the project applicant shall purchase and retire carbon offsets for the incremental portion of the project within the Site Plan in a quantity sufficient to offset, for a 30-year period, the operational GHG emissions from that incremental amount of development to net zero, consistent with the performance standards and requirements set forth below.

First, "carbon offset" shall have the same meaning as set forth in M-GHG-1.

Second, any carbon offset utilized to reduce the project's GHG emissions shall be a carbon offset that represents the past reduction or sequestration of one metric tonne of carbon dioxide equivalent that is "not otherwise required" (CEQA Guidelines section 15126.4(c)(3)).

Third, "project applicant" shall have the same meaning as set forth in M-GHG-1.

Fourth, as to operational emissions, prior to the County's issuance of building permits for each implementing Site Plan ("D" Designator), the project applicant shall provide evidence to the satisfaction of the Director of PDS that it has purchased and retired carbon offsets for the incremental portion of the project within the Site Plan in a quantity sufficient to offset, for a 30-year period, the operational GHG emissions from the incremental amount of development to net zero. The "project life" is 30 years. This methodology is consistent with the 30-year project life time frame used by the South Coast Air Quality Management District's GHG guidance (SCAQMD 2008).

Fifth, the purchased carbon offsets used to reduce operational GHG emissions shall achieve real, permanent, quantifiable, verifiable, and enforceable reductions (Cal. Health & Saf. Code section 38562(d)(1)).

Sixth, the amount of carbon offsets required for each implementing Site Plan shall be based on the GHG emissions with the implementing Site Plan, and

shall include operational GHG emissions as identified in the approved Greenhouse Gas Emissions Report (EIR Appendix K)).

Seventh, each implementing Site Plan shall include a tabulation that identifies the overall carbon offsets required to mitigate the entire project's GHG emissions, and shall identify the amount of carbon offsets purchased to date as well as the remaining carbon offsets required to reduce the project's emissions to net zero. Such tabulation and tracking shall be to the satisfaction of the Director of PDS.

For clarity, the following example is provided as to the project's operational GHG emissions purchase and retirement strategy. If 100 single-family residential units and one park are developed and become operational in the year 2023, GHG emissions for those land uses would be calculated and carbon offsets for those emissions would be secured for a 30-year period; however, to be conservative, an operational year of 2021 has been applied to all land uses. Thus, the 100 single family-residential units would be multiplied by the MT CO₂E/dwelling unit provided in EIR Table 2.7-9 (single-family residential), and the park would be multiplied by the MT CO₂E/acre provided in EIR Table 2.7-14 (parks). These values would then be multiplied by 30, to calculate the total carbon offsets required for that phase of development (e.g., 100 single-family residential units × 16 MT CO₂E/du × 30).

Eighth, this EIR acknowledges that the project's GHG emissions estimates are conservative because the project's GHG emissions are expected to decrease beyond the estimates presented in the EIR's analysis, in part, due to reasonably foreseeable improvements in fuel efficiency, vehicle fleet turnover, technological improvements related to transportation and energy, and updates to emissions models and methodologies. Thus, subject to County oversight, and the processes described below, the operational emission estimates that govern implementation of this project are subject to a "true up" at the election of the project applicant (as defined above) and subject to the satisfaction approval of the County's Board of Supervisors, as considered pursuant to a noticed public hearing process that accords with applicable legal requirements, including those set forth in CEQA for the post-approval modification of mitigation implementation parametersDirector of PDS.

Specifically, if ~~new technological advancements, regulatory updates, or model and methodology updates occur at a future date result in greater GHG efficiencies and less impacts from project operations than the information~~

~~projected in the certified Final EIR for the project and the project applicant elects to process a “true-up” exercise is undertaken subsequent to the County’s certification of the Final EIR and approval of the project, the project applicant shall provide an updated operational GHG emissions inventory of for the project’s operational emissions for the “true up” operational conditions, including emissions from mobile sources, energy, area sources, water consumption, and solid waste. If updated GHG emission calculations are conducted for the “true-up” exercise at the project applicant’s election, sSubject to the satisfaction of the County’s Board of Supervisors~~ Director of PDS, these calculations shall be conducted using a County-approved model and/or methodology and must validate the continuing adequacy of modeling inputs used in the EIR that are not proposed to be altered as part of the “true-up” exercise. The inclusion of the validation requirement ensures that any updated operational GHG emissions inventories for the project fully account for then-existing information that is relevant to the emissions modeling. Alternatively, the project applicant may purchase all carbon offset credits to reduce operational GHG emissions at issuance of the first building permit.

The “true up” operational GHG emissions inventory, if conducted, will be provided in the form of a project-specific Updated Emissions Inventory and Offset Report to the County’s ~~Board of Supervisors~~ Director of PDS (or its designee) prior to the issuance of building permits for the next buildout phase. The subject technical documentation shall be prepared by a County-approved, qualified air quality and greenhouse gas technical specialist.

~~If the Director of PDS (or its designee) determines that the technical documentation demonstrates that the quantity of project related greenhouse gas emissions would be lower than the quantity identified in the certified Final EIR for the project, and finds that the technical documentation is supported by substantial evidence, such Planning Director may authorize a reduction in the total carbon offsets value required for the project. In all instances, substantial evidence must confirm that any reduction to the total carbon offsets value as identified in the certified Final EIR for the project is consistent with the project commitment to achieve and maintain carbon neutrality (i.e., net zero emissions) for the 30-year life of the project.~~

~~Ninth, the County of San Diego Planning & Development Services Department will consider, the project applicant or its designee shall demonstrate, to the satisfaction of the Development Services Director, that the following geographic priorities for GHG reduction features, and GHG~~

~~reduction projects and programs~~ carbon offsets have been met: ~~1) project design features/on-site reduction measures;~~ ~~21)~~ off-site within the unincorporated areas of the County of San Diego; ~~32)~~ off-site within the County of San Diego; ~~43)~~ off-site within the State of California; ~~54)~~ off-site within the United States; and ~~65)~~ off-site internationally. As listed, geographic priorities would focus first on local reduction features (including projects and programs that would reduce GHG emissions) to ensure that reduction efforts achieved locally would provide cross-over benefits related to air quality criteria pollutant reductions within the San Diego Air Basin, and to aid in San Diego County jurisdictions' efforts to meet their GHG reduction goals. The project applicant or its designee shall first pursue offset projects and programs locally within unincorporated areas of the County of San Diego to the extent such offset projects and programs are financially competitive in the global offset market. The project applicant or its designee shall submit proof to the County that offsets are unavailable in a higher priority category before seeking offsets from the next lower priority category.

M-GHG-3 To reduce GHG emissions, the project applicant (as defined above) shall implement the project design features listed in EIR Table 2.7-7.

Implementation of mitigation measures M-GHG-1 through M-GHG-3, above, would ensure that the project would not increase GHG emissions

2.7.7 Conclusion

As previously noted, CARB's *Second Update* states that "achieving no net additional increase in GHG emissions ... is an appropriate ~~the correct~~ overall objective" for project-level CEQA analysis, but also recognizes that such a standard may not be appropriate or feasible for every development project. As such, the *Second Update* states that an "inability of a project to mitigate its a project's GHG emissions to net zero does not ~~necessarily~~ imply the project results in a substantial contribution to the cumulatively significant environmental impact of climate change under CEQA." Further, the California Supreme Court, in *Center for Biological Diversity v. California Department of Fish and Wildlife* (2015) 62 Cal.4th 204, has recognized that there are multiple pathways to compliance under CEQA for a lead agency to analyze the significance of a project's GHG emissions.

In this case, the project feasibly can achieve no net increase in GHG emissions through implementation of mitigation measures **M-GHG-1** through **M-GHG-3**. Therefore, the project would reduce all potentially significant impacts associated with GHG construction and operational emissions to a **less than significant** as compared to the existing environmental setting (see CEQA

Guidelines section 15064.4(b)(1)). And, mitigation measures **M-GHG-1** through **M-GHG-3**, above, have been incorporated into the project's Mitigation Monitoring and Reporting Program to ensure implementation and enforcement..

With implementation of mitigation measures **M-GHG-1** through **M-GHG-3**, the project achieves carbon neutrality (i.e., a net zero emissions level) thereby resulting in *no* net increase in GHG emissions relative to existing environmental conditions. Accordingly, the project would not interfere with implementation of any of the above-described GHG reduction goals for 2030 or 2050 ~~because~~. Further, the project emissions estimates presented in Table 2.7-8 through Table 2.7-14 are a conservative representation of project emissions due to the reasonably foreseeable and anticipated technological and regulatory advancements that will continue to advance the state's GHG policies. Therefore, the project would not conflict with any local or state plans, policies, or regulations adopted for the purpose of reducing GHG emissions and impacts would be **less than significant**.

Table 2.7-1
GHG Emissions Sources in California

Source Category	Annual GHG Emissions (MMT CO ₂ E)	Percent of Total ^a
Transportation	159.53	36%
Industrial uses	93.32	21%
Electricity generation ^b	88.24	20%
Residential and commercial uses	38.34	9%
Agriculture	36.11	8%
High global-warming potential substances	17.15	4%
Recycling and waste	8.85	2%
Totals	441.54	100%

Source: CARB 2016a.

Notes: Emissions reflect the 2014 California GHG inventory.

MMT CO₂E = million metric tons of carbon dioxide equivalent per year

^a Percentage of total has been rounded, and total may not sum due to rounding.

^b Includes emissions associated with imported electricity, which account for 36.51 MMT CO₂E annually.

Table 2.7-2
Construction Grading Estimates

Activity	Phase 1	Phase 2
Total Grading (acres)	565	11.2
On-Site Soil Movement (cubic yards) ¹	2,320,570	103,140
Total Haul-Truck Trips (one way) ²	290,071	12,892
Average On-Site Haul Distance	0.4 mile (average)	0.8 mile (average)

¹ Fuscoe 2016b.

² Based on model default hauling capacity of 16 cubic yards per truck. See Appendix K.

Table 2.7-3
Rock Crushing Characteristics

Activity	Phase 1	Phase 2
Capping Material (cubic yards)	1,542,071	564,775
Processing Rate (cubic yards per day)	7,500	5,000
Operating Days	206	113

Source: Kruer 2015.

Table 2.7-4
Estimated Construction and Vegetation Removal GHG Emissions

Emissions Year	Annual Emissions (Metric Tons per Year)			
	CO ₂	CH ₄	N ₂ O	CO ₂ E
2018	8,627	1.88	0.00	8,674
2019	9,384	2.37	0.00	9,444
2020	12,864	2.74	0.00	12,933
2021	11,328	2.02	0.00	11,378
2022	10,225	1.89	0.00	10,273
2023	6,692	0.93	0.00	6,715
2024	5,452	0.72	0.00	5,470
2025	3,631	0.37	0.00	3,640
2026	3,929	0.32	0.00	3,937
2027	3,564	0.29	0.00	3,571
<i>Total GHG Emissions over the Project Construction Period (Metric Tons)</i>				
Subtotal Construction GHG Emissions	75,696	13.52	0	76,034
Vegetation Removal	17,289	0.00	0.00	17,289
Total Emissions	92,985	13.52	0.00	93,323

Notes: See Appendix K for complete results.

Table 2.7-5
Regulatory Compliance Measures that Reduce GHG Emissions

REG No.	Strategy to Reduce GHG Emissions	Description	Emissions Reduction	Basis for Emissions Reduction
<i>Transportation</i>				
REG-GHG-1	Low Carbon Fuel Standard	LCFS is anticipated to achieve a 10% reduction in emissions from transportation fuels.	Conservatively, no reduction was taken for this regulation. Although the LCFS would reduce emissions from transportation fuels, EMFAC2014 – which forms the platform for CalEEMod version 2016.3.1's mobile source emissions estimates – does not account for it.	CalEEMod version 2016.3.1

**Table 2.7-5
Regulatory Compliance Measures that Reduce GHG Emissions**

REG No.	Strategy to Reduce GHG Emissions	Description	Emissions Reduction	Basis for Emissions Reduction
REG-GHG-2	Advanced Clean Cars	The Advanced Clean Car standards would result in approximately 3% more reductions from passenger vehicles than the Pavley standards by 2020, 12% by 2025, 19.5% by 2030, and 33% by 2050.	Accounted for in EMFAC2014 emissions factors for year 2021 as part of CalEEMod version 2016.3.1.	CalEEMod version 2016.3.1
<i>Water Conservation</i>				
REG-GHG-3	Low-Flow Fixtures	Indoor residential plumbing products would comply with the 2016 CALGreen Code, including future updates to CALGreen as these updates apply to homes in the project built under the updated code.	Reductions accounted for in water demand study (GSI 2016). No further reductions were assumed in emissions estimates.	CALGreen 2016a
REG-GHG-4	Reduction in Indoor Water Use	The project would comply with EO B-29-15, which calls for a 25% reduction in total water use below 2013 levels. Vallecitos Water District has adopted a 24% reduction in water use and the San Diego County Water Authority has adopted a 15% reduction.	Reductions accounted for in water demand study (GSI 2016). No further reductions were assumed in emissions estimates. ⁶	CALGreen 2016a

⁶ The proposed project would achieve a 52% reduction in water use over the County's General Plan planned land uses for the site, which is a 28% reduction in water use over the Vallecitos Water District and a 37% reduction over the San Diego County Water Authority.

Table 2.7-5
Regulatory Compliance Measures that Reduce GHG Emissions

REG No.	Strategy to Reduce GHG Emissions	Description	Emissions Reduction	Basis for Emissions Reduction
REG-GHG-5	Reduction in Outdoor Water Use	The project would comply with EO B-29-15, which calls for a 25% reduction in total water use below 2013 levels. To achieve this reduction, the project would employ drought-tolerant landscaping and recycled water for irrigation, and may offer plumbing for grey water systems, if feasible. In addition, through the project's Site plan process, and, in the case of individual homeowners, the project's CCandRs, the project would be required to comply with the County of San Diego's Landscape Ordinance and Water Efficient Landscape Design Manual for all outdoor landscapes, including common areas, public spaces, parkways, medians, parking lots, parks, and all builder- and homeowner-installed private frontyard and backyard landscaping.	Reductions accounted for in water demand study (GSI 2016). No further reductions were assumed in emissions estimates.	EO B-29-15 County of San Diego's Landscape Ordinance and Water Efficient Landscape Design Manual (County of San Diego 2010)
<i>Building and Site Design</i>				
REG-GHG-6	California 2013 Title 24 Building Energy Efficiency Standards	Buildings would be designed to meet the California 2016 Title 24 Building Energy Efficiency Standards.	Accounted for as part of CalEEMod version 2016.3.1.	CalEEMod version 2016.3.1
REG-GHG-7	California 2016 Title 24 Building Energy Efficiency Standards	All buildings would be designed to meet the California 2016 Title 24 Building Energy Efficiency Standards.	Conservatively, no reduction was taken for this regulation.	n/a
REG-GHG-8	Curbside Recycling	Project-wide curbside recycling for single-family, multi-family, school, commercial, and retail establishments would be required in accordance with the California Integrated Waste Management Act (AB 939) and AB 341.	Measure would contribute toward 75% diversion rate as required by AB 939 and AB 341.	n/a

Table 2.7-5
Regulatory Compliance Measures that Reduce GHG Emissions

REG No.	Strategy to Reduce GHG Emissions	Description	Emissions Reduction	Basis for Emissions Reduction
REG-GHG-9	Pre-Wiring for Electric Vehicle Charging Equipment	Per CALGreen, pre-wiring for the installation of electric vehicle (EV) charging equipment in the garages of all single-family residential units, in the Town Center's commercial core and at the park-&-ride facilities would be implemented (CALGreen 2016b and 2016c).	Conservatively, no reduction was taken for this regulation.	n/a
REG-GHG-10	Solar-Ready Units	Per CEC's <i>2016 Residential Compliance Manual</i> (CEC 2015b), all single-family homes constructed as part of the proposed project would be designed with pre-plumbing for solar water heaters and solar and/or wind renewable energy systems.	No reduction assumed.	n/a
<i>Renewable Energy</i>				
REG-GHG-11	Renewable Portfolio Standards (RPS)	Implementation of the 20% RPS mandate by 2010 would reduce GHG emissions in the near-term. Implementation of the 33% target by 2020 would reduce GHG emissions by following full implementation of the RPS. Implementation of the 33% RPS would reduce GHG emissions by 27% below 2006 levels. While conservatively not accounted for in the project's GHG emissions estimates, implementation of the 50% mandate by 2030 would reduce GHG emissions by an additional 17%.	The emissions intensity factors for utility energy use were adjusted to account for implementation of 33% RPS in 2020 (see Appendix E of Appendix K).	SB 350; CalEEMod 2016.3.1, Appendix D, Table 1.2; SDG&E 2009 Power Content Label (actual).

Table 2.7-6
Estimated "Project Emissions Without GHG Reduction Features" (2021)

Emissions Source	Annual Emissions (Metric Tons per Year)			
	CO ₂	CH ₄	N ₂ O	CO ₂ E
Motor Vehicles	42,481	2.18	0.00	42,536
Electricity Consumption	3,737	0.15	0.03	3,751
Natural Gas Consumption	2,452	0.05	0.05	2,467
Area Sources	2,725	0.04	0.17	2,777
Water Demand Supply and Wastewater	672	3.95	0.10	800

Table 2.7-6
Estimated “Project Emissions Without GHG Reduction Features” (2021)

Emissions Source	Annual Emissions (Metric Tons per Year)			
	CO ₂	CH ₄	N ₂ O	CO ₂ E
Solid Waste Generation	265	15.64	0.00	655
Total	52,332	22.01	0.35	52,986
TOTAL Annual CO₂E Emissions	52,986			

Notes: See Appendix C of Appendix K for complete results. Numbers may not add exactly due to rounding.

Table 2.7-7
Project Design Features to Reduce GHG Emissions

PDF Number	Strategy to Reduce GHG Emissions	Description	Emissions Reduction	Basis for Emissions Reduction
<i>Project-Specific Transportation Demand Management Program</i>				
<i>Land Use and Design Strategies</i>				
PDF-1	Land Use Diversity	The project would: Provide a mix of land uses, including residential, commercial, educational, and parks so that residents of the project have access to basic shopping, school, and recreation opportunities without having to travel outside of the project Site. This would lower vehicle miles traveled because residents can use alternative transportation modes to reach the various land uses available within the Site.	5% per calculations in Appendix D of Appendix K	Appendix D of Appendix K.
<i>Travel and Commute Services for Residents</i>				
PDF-2 and 3	Pedestrian and Bicycle Trails and Network	The project would: - Develop a comprehensive trails network designed to provide multi-use trails between the various project components, land-uses, parks/open spaces, schools, and the Town Center. The trails network would provide connections to the various recreational trails and multi-modal facilities accessing the project Site. Additionally, the loop road includes 5-foot-wide bike lanes on both sides of the roadway. - Provide bicycle racks along main travel corridors, adjacent to commercial developments, at public parks and open spaces, and at retail and multi-family buildings within the project Site.	2% per calculations in Appendix D of Appendix K.	CAPCOA 2010, Measure SDT-1, SDT-6, SDT-7, and SDT-9; Proposed Project TDM Program.
PDF-4	Electric Bike-Share	The project would:	0.6% per	CAPCOA 2010,

Table 2.7-7
Project Design Features to Reduce GHG Emissions

PDF Number	Strategy to Reduce GHG Emissions	Description	Emissions Reduction	Basis for Emissions Reduction
	Program	Implement an electric bike share program to further link the project neighborhoods to on another and to reduce motorized vehicle trips. The bike share program includes the placement of eight kiosks throughout the Community. Electric bikes can be taken from one kiosk and left at another to promote sustainable transportation between planning areas. It is anticipated that each kiosk will contain 10-20 electric bikes.	calculations in Appendix D of Appendix K	Measure TRT-12 and SDT-3; Proposed Project TDM Program Appendix D of Appendix K
PDF-5	Carshare Program	The project would: Coordinate with a car-share organization to install three car-share stations with one car each (for a total of three cars) in the commercial area of the project Site, available to residents on an on-demand basis.	0.4% per calculations in Appendix D of Appendix K .	CAPCOA 2010, Measure TRT-9; Proposed Project TDM Program .
PDF-6	Local Shuttle Service	The project would: Coordinate a ride share or shuttle system that connects the various project neighborhoods to the Town Center and to external transit facilities and resources such as the park-and-ride lots and the Escondido Transit Center.	1.2% per calculations in Appendix D of Appendix K.	CAPCOA 2010, Measure TST-3, TST-4 and TST-6; Proposed Project TDM Program.
PDF-7 and 8	Ridesharing Support Features for Residents	The project would: - Coordinate with SANDAG's iCommute program for carpool, vanpool, and rideshare programs that are specific to the project's residents. - Promote the adjacent park-and-ride lots at the northeast quadrant of the Deer Springs Road/Mesa Rock Road intersection and at the northwest quadrant of the Deer Springs Road/Old Highway 395 intersection to residents to encourage carpooling.	0.6% per calculations in Appendix D of Appendix K .	CAPCOA 2010, Measure RPT-4 and TRT-3; Proposed Project TDM Program.
PDF-9	Transit Fare Subsidy for Residents	The project would provide transit subsidies for residents.	0.9% per calculations in Appendix D of Appendix K.	CAPCOA 2010, Measure TRT-4; Proposed Project TDM Program.
PDF-10-13, 20	TDM Program Marketing for Residents	The project would: To ensure that the TDM Program strategies are implemented and effective,	0.5% per calculations in Appendix D of	CAPCOA 2010, Measure TRT-7; Proposed

Table 2.7-7
Project Design Features to Reduce GHG Emissions

PDF Number	Strategy to Reduce GHG Emissions	Description	Emissions Reduction	Basis for Emissions Reduction
		a transportation coordinator (likely as part of a homeowner's association (HOA)) would be established to monitor the TDM Program, and would be responsible for developing, marketing, implementing, and evaluating the TDM Program. Promote available websites providing transportation options for residents. • Promote available websites providing transportation options for residents. • Create and distribute a "new resident" information packet addressing alternative modes of transportation. • Promote a transportation option app for use on mobile devices. • Coordinate with NCTD and SANDAG about future siting of transit stops/stations at the adjacent park-and-ride lots.	Appendix K.	Project TDM Program.
<i>Commute Services for Employees</i>				
PDF-14	Transit Fare Subsidy for Employees	Provide transit subsidies for employees of the project's Town Center.	0.3% per calculations in Appendix D of Appendix K.	CAPCOA 2010, Measure TRT-4; Proposed Project TDM Program.
PDF-15-19	TDM Program Marketing for Employees	The project would: • Promote available websites providing transportation options for businesses in the Town Center. • Promote the adjacent park-and-ride lots to employees to support carpooling. • Implement a demand-responsive shuttle service that provides access throughout the project Site, to the park-and-ride lots, and to the Escondido Transit Center. • Coordinate with SANDAG's iCommute program for carpool, vanpool, and rideshare programs that are specific to the project's employees. • Coordinate with NCTD and SANDAG on the future siting of transit stops/stations at the adjacent park-and-ride lots.	0.1% per calculations in Appendix D of Appendix K.	CAPCOA 2010, Measure TRT-7; Proposed Project TDM Program.
Total VMT Reduction from Implementation of TDM Program			11.1%	
<i>Other Project-Specific Reduction Features</i>				
PDF-21	Landform Alteration	Landform alteration shall be minimized by clustering development and preserving	Conservatively, no credit was taken	n/a

Table 2.7-7
Project Design Features to Reduce GHG Emissions

PDF Number	Strategy to Reduce GHG Emissions	Description	Emissions Reduction	Basis for Emissions Reduction
		natural topography, open spaces, and view corridors. Community open space areas shall be integrated into Site design and building layout.	for Landform Alteration	
PDF-22	Solar Power	Solar panels shall be required on all residential units. Where feasible, roof-integrated solar panels should be considered to minimize visual impacts. All light fixtures along public roads shall be solar powered. The project can use centralized solar arrays (e.g., a solar array on top of a shade structure in a parking lot) to implement this requirement.	<u>Emission reductions from solar on residential units would equate to approximately 3,453 MT CO₂E per year.</u> Conservatively, no credit was taken for implementation for solar power on community facilities and light fixtures.	n/a
PDF-23	Installation of EV Plug-in Stations	<u>All private residential garages shall include an electric vehicle charger, and in all public-parking areas with ten or more spaces (i.e., commercial parking lots and at community and public parks), electric vehicle charging stations shall be installed in 3 percent of the parking spaces.</u> The garages of all single-family homes shall include an electric vehicle charger in the garage, and electric vehicle charging stations shall be installed in 3% of the Town Center's commercial core parking spaces.	Conservatively, no credit was taken for EV charging stations.	n/a
PDF-24	Water and Waste Reduction	All common area landscapes shall meet an evapotranspiration adjustment factor of 0.55 within residential neighborhoods and 0.45 within non-residential areas. An evapotranspiration adjustment factor of 1.0 is allowed for special landscape areas (i.e., recreational and community garden areas), as noted in County Ordinance Number 10032. All irrigation shall be designed to meet or exceed an average irrigation efficiency rating of 0.75 for spray/rotor irrigation and 0.81 for drip irrigation.	Conservatively, no credit was taken for the use of drought tolerant landscaping and sustainable practices in open space areas.	n/a
PDF-25	Turf Grass Reduction	Turf grass shall be prohibited in residential front yards and within street rights-of-way. Turf in rear or side yards of single-family	Conservatively, no credit was taken for turf reduction.	n/a

Table 2.7-7
Project Design Features to Reduce GHG Emissions

PDF Number	Strategy to Reduce GHG Emissions	Description	Emissions Reduction	Basis for Emissions Reduction
		homes shall be warm-season turf or shall have a plant species factor of 0.6 or lower.		
PDF-26	Grey Water Systems	All single-family homes shall be plumbed for greywater systems for use in private yards.	Conservatively, no credit was taken for pre-plumbing of grey water.	n/a
PDF-27	Stormwater Runoff	The amount of stormwater run-off and pollutant discharge shall be minimized through the use of open vegetated swales along roadways and within neighborhoods; water quality and detention basins; permeable paving, where feasible; and other similar low-impact-development techniques.	Conservatively, no credit was taken for stormwater	n/a
PDF-28	Green Waste Collection Area	An area within the maintenance yard of the Sierra Farms Park shall be designated for collection of common area landscape trimmings. These landscape trimmings shall be chipped and ground into either mulch or compost and used to return organic matter and nutrients to the project's landscaped areas. The green waste collection area shall be designed to collect approximately 30 to 40 yards of material at a time (approximately three open stalls 10 feet wide by 10 feet long by 6 feet tall). A buffer of screening shrubs shall be planted between the collection area and the street. The green waste area shall be maintained by the HOA.	Conservatively, no credit was taken for the green waste collection area.	n/a
PDF-29	Productive Landscapes	Vineyards and community gardens shall be incorporated to connect the Community to the region's agrarian history and provide productive landscapes.	Conservatively, no credit was taken for the implementation of productive landscapes	n/a
PDF-30	Cool Roofs	<u>Residential structures will have solar photovoltaic panels installed on rooftops. Non-residential structures will comply with the 2016 Title 24 requirements for cool roofs. Outdoor pavement, such as walkways and patios, will use paving materials with three-year SRI of 0.28 or initial SRI of 0.33. Where feasible, commercial structures would use cool roof technologies and light-colored paving.</u>	Conservatively, no credit was taken for the use of cool roofs and pavements.	n/a
PDF-31	Energy-Efficient Appliances	Builders would offer residents their choice of energy-efficient appliances (including	Conservatively, no credit was taken	n/a

Table 2.7-7
Project Design Features to Reduce GHG Emissions

PDF Number	Strategy to Reduce GHG Emissions	Description	Emissions Reduction	Basis for Emissions Reduction
		washer/dryers, refrigerators), and appliances (including dishwashers) installed by builders would be Energy Star rated or equivalent.	for the use of energy-efficient appliances.	
PDF-32	Hearth Use	The project would not install wood-burning fireplaces for heating purposes. All fireplaces would be natural-gas-fired.	Conservatively, no credit was taken for the elimination of wood-burning fireplaces.	n/a

Note: PDF = project design feature

Table 2.7-8
Estimated Proposed Project Emissions with GHG Reduction Features (2021)

Emissions Source	Annual Emissions (Metric Tons per Year)			
	CO ₂	CH ₄	N ₂ O	CO ₂ E
Motor Vehicles	37,766	1.94	0.00	37,814
Electricity Consumption	296	0.01	0.00	298
Natural Gas Consumption	2,452	0.05	0.04	2,467
Area Sources	1,539	0.04	0.02	1,549
Water Supply and Wastewater Demand	675	0.17	0.09	711
Solid Waste Generation	266	15.86	0.00	659
Total	42,995	18.07	0.15	43,498
Total Annual CO₂E Emissions	43,498			
Total GHG Offsets (CO₂E) Over 30-year Project Life	1,304,940			

Notes: See Appendix C of Appendix K for complete results. Numbers may not add exactly due to rounding.

Table 2.7-9
Estimated Proposed Project Emissions (2021) Single-Family Residential

Emissions Source	Annual Emissions (Metric Tons per Year)			
	CO ₂	CH ₄	N ₂ O	CO ₂ E
Motor Vehicles	11,551	0.59	0.00	11,566
Electricity Consumption	0	0.00	0.00	0
Natural Gas Consumption	1,330	0.03	0.02	1,338
Area Sources	631	0.02	0.01	635
Water Supply and Wastewater Demand	428	0.12	0.07	451
Solid Waste Generation	156	9.23	0.00	387
Total	14,096	9.99	0.10	14,377
Annual MT CO₂E per Dwelling Unit*	16			
Total GHG Offsets (CO₂E) per Dwelling Unit Over 30-year Project Life	480			

Notes: See Appendix C of Appendix K for complete results. Numbers may not add exactly due to rounding.

* 14,377 MT CO₂E / 875 single-family units

Table 2.7-10
Estimated Proposed Project Emissions (2021) Multi-Family Residential

Emissions Source	Annual Emissions (Metric Tons per Year)			
	CO ₂	CH ₄	N ₂ O	CO ₂ E
Motor Vehicles	9,874	0.51	0.00	9,887
Electricity Consumption	0	0.00	0.00	0
Natural Gas Consumption	853	0.02	0.02	858
Area Sources	674	0.02	0.01	678
Water Supply and Wastewater Demand	95	0.02	0.01	101
Solid Waste Generation	65	4.00	0.00	162
Total	11,561	4.57	0.04	11,686
Annual MT CO₂E per Dwelling Unit*	13			
Total GHG Offsets (CO₂E) per Dwelling Unit Over 30-year Project Life	390			

Notes: See Appendix C of Appendix K for complete results. Numbers may not add exactly due to rounding.

* 11,686 MT CO₂E / 935 multi-family units

Table 2.7-11
Estimated Proposed Project Emissions (2021) Age-Qualified Units

Emissions Source	Annual Emissions (Metric Tons per Year)			
	CO ₂	CH ₄	N ₂ O	CO ₂ E
Motor Vehicles	1,716	0.09	0.00	1,718
Electricity Consumption	0	0.00	0.00	0
Natural Gas Consumption	249	0.00	0.00	250
Area Sources	234	0.00	0.00	236
Water Supply and Wastewater Demand	95	0.03	0.01	101
Solid Waste Generation	23	1.35	0.00	56
Total	2,317	1.47	0.01	2,362
Annual MT CO₂E per Dwelling Unit*	7			
Total GHG Offsets (CO₂E) per Dwelling Unit Over 30-year Project Life	210			

Notes: See Appendix C of Appendix K for complete results. Numbers may not add exactly due to rounding.

* 2,362 MT CO₂E / 325 age-qualified

Table 2.7-12
Estimated Proposed Project Emissions (2021) Commercial

Emissions Source	Annual Emissions (Metric Tons per Year)			
	CO ₂	CH ₄	N ₂ O	CO ₂ E
Motor Vehicles	12,832	0.66	0.00	12,848
Electricity Consumption	254	0.01	0.00	255
Natural Gas Consumption	10	0.00	0.00	10
Area Sources	0	0.00	0.00	0
Water Supply and Wastewater Demand	9	0.00	0.00	9
Solid Waste Generation	13	0.77	0.00	32
Total	13,118	1.44	0.00	13,154
Annual MT CO₂E per 1,000 sf*	162			
Total GHG Offsets (CO₂E) per 1,000 sf Unit Over 30-year Project Life	4,860			

Notes: See Appendix C of Appendix K for complete results. Numbers may not add exactly due to rounding.

* 13,154 MT CO₂E / 81 ksf of commercial space

Table 2.7-13
Estimated Proposed Project Emissions (2021) School

Emissions Source	Annual Emissions (Metric Tons per Year)			
	CO ₂	CH ₄	N ₂ O	CO ₂ E
Motor Vehicles	837	0.04	0.00	838
Electricity Consumption	42	0.00	0.00	43
Natural Gas Consumption	10	0.00	0.00	11
Area Sources	0	0.00	0.00	0
Water Supply and Wastewater Demand	4	0.00	0.00	4
Solid Waste Generation	7	0.39	0.00	16
Total	900	0.43	0.00	912
Annual MT CO₂E per 1,000 sf*	28			
Total GHG Offsets (CO₂E) per 1,000 sf Unit Over 30-year Project Life	840			

Notes: See Appendix C of Appendix K for complete results. Numbers may not add exactly due to rounding.

* 912 MT CO₂E / 33 ksf of school space

Table 2.7-14
Estimated Proposed Project Emissions (2021) Parks

Emissions Source	Annual Emissions (Metric Tons per Year)			
	CO ₂	CH ₄	N ₂ O	CO ₂ E
Motor Vehicles	956	0.05	0.00	957
Electricity Consumption	0	0.00	0.00	0
Natural Gas Consumption	0	0.00	0.00	0
Area Sources	0	0.00	0.00	0
Water Supply and Wastewater Demand	45	0.00	0.00	45
Solid Waste Generation	2	0.12	0.00	5
Total	1,002	0.17	0.00	1,007
Annual MT CO₂E per Acre*	28			
Total GHG Offsets (CO₂E) per Acre Over 30-year Project Life	840			

Notes: See Appendix C of Appendix K for complete results. Numbers may not add exactly due to rounding.

* 1,007 MT CO₂E / 35.9 acres of park space

Table 2.7-15
Regional Transportation Plan/Sustainable Communities Strategy Consistency Analysis

Category	Policy Objective or Strategy	Consistency Analysis
<i>The Regional Plan – Policy Objectives</i>		
Mobility Choices	Provide safe, secure, healthy, affordable, and convenient travel choices between the places where people live, work, and play.	<i>Consistent.</i> The project's internal circulation features provide residents the opportunity to access employment, education, recreational, and commercial uses via multiple modes of transportation.
Mobility Choices	Take advantage of new technologies to make the transportation system more efficient and environmentally friendly.	<i>Consistent.</i> The project would include lane and intersection design configuration modifications where necessary, as well as installation of signalization where required per the Traffic Impact Analysis (Appendix R). The project would also include an electric bike-share program to encourage internal trips by a non-vehicular mode. Additionally, the project would not impair SANDAG's ability to employ new technologies to make travel more reliable and convenient.
Habitat and Open Space Preservation	Focus growth in areas that are already urbanized, allowing the region to set aside and restore more open space in our less developed areas.	<i>Consistent.</i> The project would be located close to major urban and employment centers, including the City of San Marcos and City of Escondido. The project's open space design would consist of two continuous blocks of key biological resources situated within the northern half and along the eastern boundary of the project Site, as well as a third block of open space in the center of the proposed development that would connect the abovementioned blocks of open space to open space located east and south of the project Site. The project would preserve 1,209 acres of open space.
Habitat and Open Space Preservation	Protect and restore our region's urban canyons, coastlines, beaches, and water resources.	<i>Consistent.</i> Site planning for the proposed project took into account existing landforms and topography by concentrating development between and away from ridge lines. Prominent ridges and landforms were mapped, and each neighborhood was designed to minimize disturbance to prominent peaks and landforms. Each neighborhood was designed to be compact and clustered, reducing the impact of development on open space. Where possible, streets were designed to parallel topography and were guided by watershed patterns on the Site.

Table 2.7-15
Regional Transportation Plan/Sustainable Communities Strategy Consistency Analysis

Category	Policy Objective or Strategy	Consistency Analysis
Regional Economic Prosperity	Invest in transportation projects that provide access for all communities to a variety of jobs with competitive wages.	Not Applicable. The project would not impair the ability of SANDAG to invest in transportation projects available to all members of the Community.
Regional Economic Prosperity	Build infrastructure that makes the movement of freight in our community more efficient and environmentally friendly.	Not Applicable. The project does not propose regional freight movement, nor would it impair SANDAG's ability to preserve and expand options for regional freight movement.
Partnerships/Collaboration	Collaborate with Native American tribes, Mexico, military bases, neighboring counties, infrastructure providers, the private sector, and local communities to design a transportation system that connects to the mega-region and national network, and works for everyone and fosters a high quality of life for all.	Not Applicable. The project would not impair the ability of SANDAG to provide transportation choices to better connect the San Diego region with Mexico, neighboring counties, and tribal nations. Furthermore, the project has coordinated with Native American tribes and neighboring jurisdictions.
Partnerships/Collaboration	As we plan for our region, recognize the vital economic, environmental, cultural, and community linkages between the San Diego region and Baja California.	Not Applicable. The project would not impair the ability of SANDAG to provide transportation choices to better connect the San Diego region with Mexico.
Healthy and Complete Communities	Create great places for everyone to live, work, and play.	Consistent. The project's internal circulation features would provide residents the opportunity to access employment, education, and recreational and commercial uses via multiple modes of transportation. The project would encourage non-vehicular modes of transportation through the inclusion of bike lanes, an extensive trail system consisting of roadside pathways within the linear greenbelts, and multi-use trails. Additionally, the project was designed to promote health and sustainability by focusing on a compact pattern of development. The project would also include electric bike-share programs available to all residents, bicycle and pedestrian features throughout the Community, and a denser Town Center. These features would develop transportation improvements that respect and enhance the environment.

Table 2.7-15
Regional Transportation Plan/Sustainable Communities Strategy Consistency Analysis

Category	Policy Objective or Strategy	Consistency Analysis
Healthy and Complete Communities	Connect communities through a variety of transportation choices that promote healthy lifestyles, including walking and biking.	Consistent. The project would encourage non-vehicular modes of transportation through the inclusion of bike lanes, an extensive trail system consisting of roadside pathways within the linear greenbelts, multi-use trails, and an electric bike-share program. The project would help to reduce GHG emissions from vehicles. PDF-1 through PDF-20 would reduce vehicle miles travelled (VMT) associated with the project through implementation of a Transportation Demand Management (TDM) Program.
Environmental Stewardship	Make transportation investments that result in cleaner air, environmental protection, conservation, efficiency, and sustainable living.	Consistent. The project would encourage non-vehicular modes of transportation through the inclusion of bike lanes, an extensive trail system consisting of roadside pathways within the linear greenbelts, and multi-use trails. The project would help reduce GHG emissions from Community vehicles. PDF-1 through PDF-20 would reduce VMT associated with the project through implementation of a TDM Program. Additionally, the project was designed to promote health and sustainability by focusing on a compact pattern of development. The project would also include an electric bike-share program available to all residents and bicycle and pedestrian amenities throughout the Community, and would create a denser Town Center. These features would develop transportation improvements that respect and enhance the environment.
Environmental Stewardship	Support energy programs that promote sustainability.	Consistent. See above.
<i>Sustainable Communities Strategy (SCS) – Strategies</i>		
Strategy #1	Focus housing and job growth in urbanized areas where there is existing and planned transportation infrastructure, including transit.	<i>Consistent.</i> The proposed project would be located close to major urban and employment centers, including the City of San Marcos and City of Escondido. A variety of housing types would be developed, including a range of single-family, multi-family, age-qualified options located within a mixed-used Community. The project would also provide interim transit service to all of its residents.

Table 2.7-15
Regional Transportation Plan/Sustainable Communities Strategy Consistency Analysis

Category	Policy Objective or Strategy	Consistency Analysis
Strategy #2	Protect the environment and help ensure the success of smart growth land use policies by preserving sensitive habitat, open space, cultural resources, and farmland.	<i>Consistent.</i> The proposed project would be located close to major urban and employment centers, including the City of San Marcos and City of Escondido. The project's open space design would consist of two continuous blocks of key biological resources situated within the northern half and along the eastern boundary of the project Site, and a third block of open space in the center of the proposed Site that would connect the abovementioned blocks of open space to open space located east and south of the project Site. In total, the project would preserve 1,209 acres of open space. Additionally, the project would include approximately 20 acres of vineyards. Impacts to significant cultural resources located along Deer Springs Road would be minimized to the greatest extent feasible through the use of soldier pile walls.
Strategy #3	Invest in a transportation network that gives people transportation choices and reduces GHG emissions.	<i>Consistent.</i> The project would encourage non-vehicular modes of transportation through the inclusion of bike lanes, an extensive trail system consisting of roadside pathways within the linear greenbelts, an electric bike program, and multi-use trails. The project would help reduce GHG emissions from vehicles in the region. PDF-1 through PDF-20 would reduce VMT associated with the project through implementation of a TDM Program.
Strategy #4	Address the housing needs of all economic segments of the population.	A variety of housing types would be developed, including a range of single-family, multi-family, and age-qualified housing options located within a mixed-used Community. These housing types would support a range of buyers from various income categories.
Strategy #5	Implement the Regional Plan through incentives and collaboration.	<i>Not Applicable.</i> The project would not impair the ability of SANDAG to implement the RTP through incentives and collaborations.

Source: SANDAG 2015

Table 2.7-16
Year 2035 Vehicle Miles Travelled (VMT)

	No Project/General Plan VMT	Proposed Project VMT¹
Regional Total	107,597,246	107,625,113
Project-Level Total	251,116	294,804 (without VMT reduction) 262,376 (with VMT reduction)
Vehicle Trips Generated	22,870	28,862
Average Trip Length	11.0 miles per trip	10.21 miles per trip (294,804 VMT / 28,862 trips)

Sources: Appendix R

Table 2.7-17
County of San Diego General Plan – Project Consistency Analysis

Goal	Consistency Analysis
<i>Conservation and Open Space Element</i>	
COS-4.1 Water Conservation. Require development to reduce the waste of potable water through use of efficient technologies and conservation efforts that minimize the County's dependence on imported water and conserve groundwater resources.	Consistent. The project proposes several project design features aimed at water conservation that would reduce the project's projected water demand by 52% below what VWD has programmed for the project Site in their Urban Water Management Plan (UWMP), including: a plant palette comprised predominantly of low water use drought-tolerant plants, water efficient irrigation systems with the extensive use of efficient drip irrigation; weather-based "smart" irrigation controllers that adjust the irrigation schedule in response to rain events; prohibitions on planting turf in the front yard areas of private residences; restricting backyard and side yard turf to "warm season" turf varieties only; low water use fixtures in all new construction as required by Title 24 (i.e., the California Green Building Standards Code/CalGreen), and provisions to require pre-plumbing for greywater systems in all of the project's single-family homes. Collectively, the project's proposed indoor and outdoor water conservation measures exceed the latest requirements imposed by the state and the County, including California Title 24 and the County's "Water Conservation in Landscape" Ordinance and the County's Water Efficient Landscape Design Manual.
COS-4.2 Drought-Efficient Landscaping. Require efficient irrigation systems and in new development encourage the use of native plant species and non-invasive drought tolerant/low water use plants in landscaping.	Consistent. The project's Specific Plan and the County's Water Efficient Landscape Design Manual would require the use of efficient irrigation systems (i.e., drip irrigation), weather based "smart" irrigation controllers, and the use of native plant species and non-invasive drought-tolerant/low water use plants in landscaping, including a plant palette comprised mostly of low water use drought-tolerant plants and native or naturalized plants. To ensure compliance with this requirement, prior to any permanent landscaping being installed, the project's various landscape construction documents would be reviewed and permitted in compliance with the project's Conditions of Approval, Specific Plan, the Fire Protection Plan, and the County's Water Efficient Landscape Design Manual.

Table 2.7-17
County of San Diego General Plan – Project Consistency Analysis

Goal	Consistency Analysis
COS-4.5 Recycled Water. Promote the use of recycled water and grey water systems where feasible.	Consistent. The project would require the pre-plumbing for greywater systems in all of its single-family homes subject to the permitting requirements of the County of San Diego for greywater systems. In the same fundamental way that recycled water serves as a form of water reuse, greywater use in the project would as well. The project does not propose the use of recycled water because Vallecitos Water District (VWD) does not currently provide any recycled water service within its sphere of influence. .
COS-14.1 Land Use Development Form. Require that development be located and designed to reduce vehicular trips (and associated air pollution) by utilizing compact regional and community-level development patterns while maintaining community character.	Consistent. The project Site is located and designed to reduce vehicular trips (and associated air pollution). The project would support the use of internal roads and alternative modes of travel to reduce single-occupancy vehicle trips. Specifically, the project would facilitate non-vehicular modes of transportation through the inclusion of a shuttle service to major North County transit centers, bike lanes, and an extensive trail system consisting of pedestrian pathways connecting the project's various neighborhoods, multi-use trails, an electric bike-share program, a ride-share program, a car-share program, and transit fare passes for residents. These features would help reduce vehicle trips and associated air pollution through Community-level development patterns. The project would include a mix of land uses surrounding a Town Center, and would include a school on-site. PDF-1 through PDF-20 would reduce vehicle miles traveled (VMT) associated with the project through implementation of a TDM Program.
COS-14.2 Villages and Rural Villages. Incorporate a mixture of uses within Villages and Rural Villages that encourage people to walk, bicycle, or use public transit to reduce air pollution and GHG emissions.	Consistent. The proposed project incorporates a mixture of uses within its Village designated area (the Town Center Neighborhood), including 81,000 square feet of commercial/retail uses, a school site, 95 multi-family housing units, and three public parks. The Town Center is immediately adjacent and within walking distance of the project's Terraces Neighborhood which is planned with an additional 446 multi-family housing units. More broadly, the project is a multi-use project with a variety of housing types and choices to accommodate a wide range of household types planned around pocket, neighborhood, and community parks. Additionally, the project proposes a TDM Program (PDF-1 through PDF-20) that would include the following: a network of pedestrian pathways and multi-use trails connecting the project's various neighborhoods to each other, its parks and open space, the school site, and the commercial/retail area as well as to off-site pathways and bicycle routes with connections into Twin Oaks and San Marcos; a Community sponsored electric bike-share program linking the neighborhoods to one another; a system of streets designed to support bicycles and walking; support for car-share and ride-share services; and shuttle services within and around the project and to the Escondido Transit Center, a north county public transit hub. As a multi-use project with a TDM Program offering viable alternatives to driving, the project would provide residents the opportunity to access the Town Center as well as employment, education, recreation, and commercial uses via walking, bicycling, and/or transit.

Table 2.7-17
County of San Diego General Plan – Project Consistency Analysis

Goal	Consistency Analysis
COS-14.3 Require design of residential subdivisions and nonresidential development through “green” and sustainable land development practices to conserve energy, water, open space, and natural resources.	Consistent. The project would include solar installation on all single-family and multi-family residential units, and on all common areas and Community facilities (e.g., pool areas, recreation centers), which would offset 100% of the project’s electricity demand associated with these uses. The project would also include the installation of EV charging equipment in the garages of all single-family residential units, the installation of charging stations in 3% of the Town Center area, and would encourage installation of charging stations in 3% of the park-&-ride parking spaces. Should installation of EV charging stations at the park-&-ride facilities be deemed acceptable by the land owner, the applicant would fully fund these improvements. Additionally, the project would include a denser Town Center and a diverse mix of land uses, would be consistent with the most recent Title 24 standards, would offer drought- tolerant landscaping, and would offer other design features designed to conserve energy, water, open space, and natural resources.
COS-14.4 Sustainable Technology and Projects. Require technologies and projects that contribute to the conservation of resources in a sustainable manner, that are compatible with community character, and that increase the self-sufficiency of individual communities, residents, and businesses.	Consistent. The proposed project would require technologies that contribute to the conservation of resources in a sustainable manner, which are compatible with Community character, and which increase the self-sufficiency of individual communities, residents, and businesses. Examples include solar-powered lighting for all communal areas and solar on the project’s residential units; high-efficiency low water use irrigation systems with weather-based “smart” irrigation controllers; roadside swales, bioretention basins, and other Low Impact Development design features designed to capture, treat, and infiltrate stormwater runoff; Community gardens and grape vineyards within and adjacent to individual neighborhoods to facilitate sustainable Community-scale agricultural practices; a Community-based electric bike-share program and shuttle services to major transit centers for the project’s residents to use as an alternative to driving, and other multi-modal/transit based project design features. Additionally, the project would meet the most recent Title 24 energy-efficiency standards, feature drought-tolerant landscaping, and require the pre-plumbing of greywater systems in all single-family residential homes.
COS-14.7 Alternative Energy Sources for Development Projects. Encourage development projects that use energy recovery, photovoltaic, and wind energy.	Consistent. Photovoltaic panels would be used on residences, community facilities, and street lighting to offset 100% of the estimated electricity demand. The project would also include the installation of EV charging equipment in the garages of all single-family residential units, the installation of charging stations in 3% of the Town Center area, and would encourage installation of charging stations in 3% of the park-and-ride parking spaces. Should installation of EV charging stations at the park-and-ride facilities be deemed acceptable by the land owner, the applicant would fully fund these improvements.
COS-14.9 Significant Producers of Air Pollutants. Require projects that generate potentially significant levels of air pollutants and/or GHGs such as quarries, landfill operations, or large land development projects to incorporate renewable energy, and the best available control technologies and practices into the project design.	Consistent. Photovoltaic panels would be used on single-family and multi-family residences, Community facilities, and street lighting to offset 100% of the estimated electricity demand. The project would also implement other best available control technologies and practices to minimize air pollutants and/or GHGs (see Table 2.7-7). The project would also include the installation of EV charging equipment in the garages of all single-family residential units, the installation of charging stations in 3% of the Town Center area, and would encourage installation of charging stations in 3% the park-&-ride parking spaces. Should installation of EV charging stations at the park-&-ride facilities be deemed acceptable by Caltrans (the owner of the existing park-and-ride facility), the applicant would fully fund these improvements.

Table 2.7-17
County of San Diego General Plan – Project Consistency Analysis

Goal	Consistency Analysis
COS-14.10 Low Emission Construction Vehicles and Equipment. Require County contractors and encourage other developers to use low emission construction vehicles and equipment to improve air quality and reduce GHG emissions.	Consistent. Site grading was designed to be balanced within the boundaries of the project Site and the improvements to Deer Springs Road and Sarver Lane immediately off-site, which would reduce off-site truck trips during construction of the proposed project. Additionally, Tier 4 low-emissions construction equipment would be employed during construction activities when feasible and commercially available at the regional level.
COS-15.1 Design and Construction of New Buildings. Require that new buildings be designed and constructed in accordance with green building programs that incorporate techniques and materials that maximize energy efficiency, incorporate the use of sustainable resources and recycled materials, and reduce emissions of GHGs and toxic air contaminants.	Consistent. All new construction, including residential and non-residential (e.g., commercial) would comply with the latest applicable edition of Title 24 at building permit application. Title 24 constitutes the California Building Standards Code, which contains the California Green Building Standards Code (CalGreen), the California Energy Code, the California Plumbing Code, and other code sections applicable to all new construction. CalGreen contains mandatory measures that address Site development, material resource conservation, energy and water conservation, and indoor environmental quality. The California Energy Code contains mandatory measures that govern the energy efficiency of windows, doors, exterior walls, attics, and roofs; the performance of heating and air conditioning systems, and lighting systems. The California Building Standards Code has a regular code cycle with a long history of increasing energy and water efficiency requirements applying with subsequent code cycles. In this way, construction permitted under subsequent code cycles must meet the latest, most stringent code requirements. Future editions of the California Energy Code and/or the California Green Building Code are expected to include requirements for renewable energy such as solar. The project would also include the installation of EV charging equipment in the garages of all single-family residential units, the installation of charging stations in 3% of the Town Center area, and would encourage installation of charging stations in 3% of the park-&-ride parking spaces. Should installation of EV charging stations at the park-&-ride facilities be deemed acceptable by the land owner, the applicant would fully fund these improvements.
COS-15.4 Title 24 Energy Standards. Require development to minimize energy impacts from new buildings in accordance with or exceeding Title 24 energy standards.	Consistent. The project would be built in accordance with the most recent Title 24 energy standards, insuring maximum energy efficiency. Further, the project would exceed the existing Title 24 energy standards by installing photovoltaic panels on residences, Community facilities (e.g., pool areas, recreation centers), and street lighting in order to offset 100% of the estimated electricity demand.
COS-15.6 Design and Construction Methods. Require development design and construction methods to minimize impacts to air quality.	Consistent. The project would be built in accordance with the most recent Title 24 energy standards, which would encourage the use of low- and zero-emissions equipment to minimize impacts to air quality and reduce GHG emissions (e.g., solar panels, solar-powered lighting). Additionally, Site grading would be balanced within the boundaries of the project Site and the improvements to Deer Springs Road and Sarver Lane immediately off-site, which would reduce off-site truck trips during construction of the proposed project. To reduce CO and NO_x emissions from construction activities, M-AQ-2 would be implemented. M-AQ-3 and M-AQ-4 would be implemented to reduce fugitive dust emissions.

Table 2.7-17
County of San Diego General Plan – Project Consistency Analysis

Goal	Consistency Analysis
COS-16.1 Alternative Transportation Modes. Work with SANDAG and local transportation agencies to expand opportunities for transit use. Support the development of alternative transportation modes, as provided by Mobility Element policies.	Consistent. The project would encourage alternative modes of transportation through the inclusion of a shuttle service, bike lanes, a trail system consisting of roadside pathways within the linear greenbelts and multi-use trails, and an electric bike-share program. These features would help reduce air pollution and GHG emissions. PDF-1 through PDF- 20 would reduce VMT associated with the project through implementation of a TDM Program.
COS-16.2 Single-Occupancy Vehicles. Support transportation management programs that reduce the use of single-occupancy vehicles.	Consistent. The project would encourage alternative modes of transportation through the inclusion of bike lanes, a trail system consisting of roadside pathways within the linear greenbelts and multi-use trails, and an electric bike-share program. Also, park-&-ride facilities may be expanded in the area for enhanced ride sharing and public transit expansion opportunities. These project features would help reduce the use of single-occupancy vehicles. PDF-1 through PDF-20 would reduce VMT associated with the project through implementation of a TDM Program.
COS-16.3 Low-Emissions Vehicles and Equipment. Require County operations and encourage private development to provide incentives (such as priority parking) for the use of low- and zero-emission vehicles and equipment to improve air quality and reduce GHG emissions. [Refer also to Policy M- 9.3 (Preferred Parking) in the Mobility Element.]	Consistent. The project would comply with CALGreen which would include preferential parking that would be provided for electric-powered vehicles, compressed natural gas vehicles, and carpool/vanpool rideshare programs. The project would also include an electric bike-share program and the project applicant will continue to coordinate with Caltrans, SANDAG, and NCTD on a potential future expanded or improved park-and-ride facilities that could include electric vehicle charging stations and priority parking for low and zero-emission vehicles, among other transportation related features that would reduce air quality impacts and GHG emissions. The project would also include the installation of EV charging equipment in the garages of all single-family residential units, the installation of charging stations in 3% of the Town Center area, and would encourage installation of charging stations in 3% of the park-&-ride parking spaces. Should installation of EV charging stations at the park-&-ride facilities be deemed acceptable by the land owner, the applicant would fully fund these improvements.
COS-16.5 Transit-Center Development. Encourage compact development patterns along major transit routes.	Consistent. The project's proposed Town Center and Terraces neighborhoods provide mixed-uses including commercial/retail uses, a school site, parks, and multi-family residential planned in an environmentally sensitive development pattern and immediately adjacent to the Deer Springs Road/I-15 Interchange with I-15 serving as a major transportation corridor and a planned transit route. In furtherance of this policy, the project also proposes shuttle services between and among its seven neighborhoods and to major North County transit centers.
COS-17.1 Reduction of Solid Waste Materials. Reduce GHG emissions and future landfill capacity needs through reduction, reuse, or recycling of all types of solid waste that is generated. Divert solid waste from landfills in compliance with state law.	Consistent. The project would comply with the County's reduction, re-use, and recycling requirements contained in their Recycling and Construction and Demolition Debris (C&D Debris) Recycling Ordinances. These ordinances were adopted by the County in order to comply with state legislation pertaining to solid waste reduction and diversion from landfills. AB 341 requires a diversion of 75% of solid waste by 2020, and the project would comply with all requirements of state law.

Table 2.7-17
County of San Diego General Plan – Project Consistency Analysis

Goal	Consistency Analysis
COS-17.6 Recycling Containers. Require that all new land development projects include space for recycling containers.	Consistent. The project would include space for recycling containers in mixed-use, commercial, and public use areas, which facilitates the recycling of cans, bottles, paper, plastic, and similar materials in accordance with the County's recycling ordinance and the Community's waste management strategy.
COS-19.1 Sustainable Development Practices. Require land development, building design, landscaping, and operational practices that minimize water consumption.	Consistent. The project would have drought-tolerant landscaping, may offer grey water systems in residential homes, and would not allow front lawns/turf. Through these project design features, the project would minimize water consumption.

Source: County of San Diego 2011

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