2.9 Greenhouse Gas Emissions

Preface

This subchapter 2.9 supersedes and replaces, in full, subchapter 3.1.2 of the project's 2015 Environmental Impact Report (EIR). This subchapter is based on a new Global Climate Change Analysis, prepared by LDN Consulting (January 2018; 2018 GCC Analysis), which replaces the previous technical report addressing the project's greenhouse gas (GHG) emissions and is included in this EIR as Appendix O. The 2018 GCC Analysis reflects updated regulations and recent judicial decisions, including those pertaining to the County's Climate Action Plan and the California Supreme Court's *Center for Biological Diversity v. California Department of Fish and Wildlife* (2015) decision. The analysis was also updated to estimate the project's GHG emissions utilizing California Emissions Estimator Model (CalEEMod), Version 2016.3.1.

As detailed below, new potentially significant environmental impacts associated with the project's GHG emissions have been identified. However, those impacts would be mitigated to below a level of significance through the project's attainment of a net zero GHG emissions level. Relatedly, the 2018 GCC Analysis supplements existing project design features and recommends the adoption of additional mitigation measures to achieve no net increase in GHG emissions. Elements of the GHG reduction framework include, but are not limited to, incorporation of zero net energy design, a refined and expanded TDM program, installation of on- and off-site EV charging infrastructure, and the purchase of off-site GHG emission credits/offsets. Additional details of the new analysis are summarized throughout this subchapter.

2.9.1 Existing Conditions

2.9.1.1 Understanding Climate Change and Greenhouse Gases

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.

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. However, 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.

Climate change impacts could affect a number of resource areas including agriculture, biodiversity and habitat, energy, forestry, ocean and coastal ecosystems and resources, public health, transportation, and water. A summary of current and future climate change impacts to these resource areas in California is detailed in Section 2.1 of the 2018 GCC Analysis (see Appendix O).

Greenhouse Gases of Primary Concern

The project-related GHGs discussed and analyzed in this subchapter are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O).

Carbon Dioxide. CO_2 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 CO_2 include, but are not limited to, respiration of bacteria, plants, animals, and fungi; volcanic out-gassing; and decomposition of dead organic matter. Human activities that generate CO_2 are from the combustion of fuels such as coal, oil, natural gas, and wood and changes in land use.

Methane. CH_4 is produced through both natural and human activities. CH_4 is a flammable gas and is the main component of natural gas. CH_4 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. N_2O is produced through natural and human activities, mainly through agricultural activities and natural biological processes, although fuel burning and other processes also create N_2O. Sources of N_2O 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 using N_2O as a propellant (such as in rockets, racecars, and aerosol sprays).

To simplify GHG calculations, both CH_4 and N_2O are converted to an equivalent amount of carbon dioxide, or CO_2e. CO_2e is calculated by multiplying the calculated levels of CH_4 and N_2O by a Global Warming Potential (GWP). CalEEMod 2016 uses the Intergovernmental Panel on Climate Change (IPCC) report as source data for GWP factors for both CH_4 and N_2O (CAPCOA 2016) using the 100-year period of 25 and 298, respectively (IPCC 2007).

1.1.1.1 2.9.1.2 Existing Setting

The project site currently supports agricultural land that includes citrus and avocado groves. The existing agricultural operations generate GHG emissions associated with, for example, the distribution of irrigation water and vehicle trips undertaken by agricultural workers. For purposes of the GHG analysis, it has conservatively been assumed that the existing agricultural activities occurring on-site do not emit any GHG emissions and emissions from the proposed project are treated as a net increase from existing conditions.

1.1.1.2 2.9.1.3 Regulatory Framework

Federal

Massachusetts v. Environmental Protection Agency (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. 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 EPA 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—CO_2, CH_4, N_2O, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6)—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—CO_2, CH_4, N_2O, 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 CO_2 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 CO_2 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 metric tons (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).

State

State Greenhouse Gas Targets

Executive Order S-3-05: EO S-3-05 (June 2005) established the following statewide goals: GHG emissions should be reduced to 2000 levels by 2010, 1990 levels by 2020, and 80 percent below 1990 levels by 2050.

Assembly Bill 32 (AB 32) and California Air Resources Board's (CARB) 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 regulations necessary to achieve the GHG emissions reduction mandate of AB 32. Therefore, in furtherance of AB 32, CARB adopted regulations requiring the reporting and verification of GHG emissions from specified sources, such as industrial facilities, fuel suppliers and electricity importers (see Health &

Safety Code Section 35830; Cal. Code Regs., tit. 17, §§95100 et seq.). CARB is also 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 million metric tons [MMT] CO_2e). 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 established an overall framework for the measures that will be implemented to reduce California's GHG emissions for various emission sources/sectors to 1990 levels by 2020. The 2008 Scoping Plan evaluated opportunities for sector-specific reductions, integrated all CARB and Climate Action Team[1] early actions and additional GHG reduction features by both entities, identified additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program. The key elements of the 2008 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 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 was 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

[1]The Climate Action Team is comprised of state agency secretaries and heads of state agencies, boards, and departments; these members work to coordinate statewide efforts to implement GHG emissions reduction programs and adaptation programs.

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 identified 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.

In November 2017, CARB released *California's 2017 Climate Change Scoping Plan* (Second Update) for public review and comment (CARB, 2017). This update proposes CARB's strategy for achieving the state's 2030 GHG target as established in Senate Bill (SB) 32 (discussed below). The strategy includes continuing the Cap-and-Trade Program through 2030, inclusive policies and broad support for clean technologies, enhanced industrial efficiency and competitiveness, prioritization of transportation sustainability, continued leadership on clean energy, putting waste resources to beneficial use, supporting resilient agricultural and rural economics and natural and working lands, securing California's water supplies, and cleaning the air and public health. When discussing project-level GHG emissions reduction actions and thresholds, the Second Update states "[a]chieving no net additional increase in GHG emissions, resulting in no contribution to GHG impacts, is an appropriate overall objective, for new development." However, the Second Update also recognizes that such an achievement "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." CARB's Governing Board adopted the *Second Update* in December 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 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 CO_2e. 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.

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 a 2030 statewide emissions reduction target that requires 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. The legislation further requires CARB to make available and update (at least annually via its website) emissions data for GHGs, criteria air pollutants, and toxic air contaminants (TACs) from reporting facilities; and identify specific information for GHG emissions reduction measures when updating the scoping plan, including information regarding the range of projected GHG emissions and air pollution reductions that result from each measure and the cost-effectiveness (including avoided social costs) of each measure (see Health & Safety Code Section 38562.7).

Building Energy

Title 24, Part 6: Title 24 of the California Code of Regulations (CCRs) 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 buildings and alterations or additions to 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 went into effect on July 1, 2014 and were estimated to reduce energy uses from 3.8 percent to 36.4 percent, depending on the energy source and land (Architectural Energy Corporation 2013). The version of CalEEMod used in this analysis, as a default parameter, utilizes compliance with the 2013 Title 24 standards to estimate GHG emissions.

The 2016 Title 24 standards, which went into effect on January 1, 2017, are the currently applicable standards. When comparing the 2013 and 2016 standards for electrical consumption, it is expected that low-rise, single-family detached homes and multi-family homes would use 12 percent and 15 percent less electricity under the 2016 standards, respectively. Similarly, implementation of the 2016 standards is expected to reduce natural gas consumption by 21 percent in single-family homes and 31 percent in multi-family homes. Newly constructed non-residential buildings are estimated to achieve a 5 percent reduction in electricity consumption under the 2016 standards and no significant change relative to natural gas consumption (CEC 2015).

The project would be required, at a minimum, to comply with 2016 Title 24 standards because its building construction phase would commence after January 1, 2017.

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):

1. Mandatory reduction in indoor water use through compliance with specified flow rates for plumbing fixtures and fittings.
2. 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.
3. 65 percent of construction and demolition waste must be diverted from landfills.
4. Mandatory inspections of energy systems to ensure optimal working efficiency.
5. Inclusion of electric vehicle charging stations or designated spaces capable of supporting future charging stations.
6. Low-pollutant emitting exterior and interior finish materials, such as paints, carpets, vinyl flooring, and particle boards.

Zero Net Energy Design Goals: As recognized in the First Update to the Scoping Plan, the California Public Utilities Commission, CEC, and CARB also have a shared, established goal of achieving zero net energy for new construction in California. As background, the California Public Utilities Commission first set forth its zero net energy goals in the 2008 Energy Efficiency Strategic Plan and the 2011 Big Bold Energy Efficiency Strategies. 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. 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 CCRs 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; dishwaters; 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.

Mobile Sources

AB 1493: In response to the transportation sector accounting for more than half of California's CO_2 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 in January 2007, EO S-1-07 sets a declining Low Carbon Fuel Standard for GHG emissions measured in CO_2e 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 (SCS) within their Regional Transportation Plan (RTP). The goal of the SCS 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.

Pursuant to Government Code Section 65080(b)(2)(K), a SCS 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 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 was recently resolved by the California Supreme Court (Case No. S223603), which held that SANDAG did not abuse its discretion when certifying its EIR by declining to explicitly engage in an analysis of the consistency of the RTP/SCS' projected 2050 GHG emissions with the GHG reduction goals reflected in Executive Order No. S-3-05.

In 2015, SANDAG adopted the currently applicable iteration of its RTP/SCS, titled *San Diego Forward: The Regional Plan* (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). It is estimated that the new standards will reduce GHG emissions by 34 percent in 2025 (CARB 2012). 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 (PHEV) in the 2018 to 2025 model years. (California Air Resources Board, 2017). PHEVs contain both an internal combustion engine and an electric motor, which is powered by batteries. As defined by CARB, ZEVs includes PHEVs, Battery Electric Vehicles (BEV) and Fuel Cell Electric Vehicles (FCEV). 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.

As of the publication date of the 2018 GCC Analysis, FCEVs are not common in the San Diego region due to limited refueling capabilities. Based on information obtained from the California Fuel Cell Partnership, only one hydrogen fuel station (located in the City of Del Mar) exists in San Diego County. At this time, one station also is planned for construction in the City of San Diego sometime in the future (California Fuel Cell Partnership, 2017). Therefore, for purposes of this analysis, only BEVs and PHEVs are referenced when ZEVs are discussed. If FCEVs gain traction in San Diego, additional GHG reductions would be realized.

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 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. In August 2016, the County Board of Supervisors adopted Ordinance No. 10437 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 Procurement

SB 1078: SB 1078 (2002) established the Renewables 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 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.***

Water

EO B-29-15: In response to drought-related concerns, 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.

Local

County of San Diego Climate Action Plan

The County is in the process of developing a CAP that will serve as a comprehensive strategy to reduce GHG emissions in the unincorporated communities of San Diego County. The CAP will outline specific reduction to reduce GHG emissions and aid the County meeting state-mandated GHG reduction targets. A draft of the Climate Action Plan was released for review and comment on August 10, 2017; the CAP is anticipated to be completed in 2018.

County of San Diego General Plan

The County's General Plan includes smart growth and land use planning principles designed to reduce vehicle miles traveled (VMT) and result in a reduction in GHG emissions. The project's consistency with applicable General Plan strategies, goals, and policies is evaluated at length in subchapter 3.1.4, Land Use and Planning, of the project's EIR.

Carbon Markets

A GHG offset credit represents a unit of GHG emissions reductions – each credit essentially verifies that a certain quantity of GHG emissions has been avoided, prevented or sequestered. Offset credits are issued by a neutral, third-party registry that has undertaken the responsibility of certifying that emissions reductions have occurred in accordance with standards-based protocols, which typically set forth parameters and defined methodologies for the quantification and verification of emissions reductions.

Under CEQA Guidelines Section 15126.4(c)(3)-(4), a project's GHG emissions can be reduced by "[o]ff-site measures, including offsets that are not otherwise required" and "[m]easures that sequester greenhouse gases." As such, the CEQA Guidelines expressly allow projects to reduce GHG emissions by relying on voluntary market offsets that are not otherwise required, as well as other off-site and sequestration measures that result in GHG reductions.

2.9.*2* Analysis of Project Impacts and Determination of Significance

2.9.2.1 Guidelines for Determination of Significance

Background on CEQA Guidelines/Requirements for GHG Analysis

The following discussion provides a generally applicable overview of the pertinent parameters of the CEQA Guidelines amendments that address GHG emissions. More specifically, 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 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." 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 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."

Thresholds of Significance

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.

For purposes of this analysis, the two Appendix G checklist questions set forth above are utilized as the thresholds of significance when evaluating the environmental effects of the project's GHG emissions. In applying these thresholds, the factors outlined in CEQA Guidelines Section 15064.4(b)(1)-(3), as described above, are also considered.

2.9.2.2 Methodologies

The project's GHG emissions estimates were calculated using CalEEMod Version 2016.3.1. Details related to the use of this version are discussed in Section 4.1 of the GCC Analysis (Appendix O). 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. Numerous lead agencies in the state, including the County, utilize CalEEMod to estimate GHG emissions in accordance with CEQA Guidelines Section 15064.4(a)(1).

Construction

CalEEMod estimates the total construction-related emissions from the project. In doing so, CalEEMod incorporates emission factors for construction-related equipment and vehicles from both the EMFAC2014 and OFFROAD2011 models. Specifically, CalEEMod utilizes data from EMFAC2014 for on-road vehicle emissions (i.e., emissions associated with construction worker trips on roadways) and OFFROAD2011 for off-road vehicle emissions (e.g., emissions from medium- and heavy-duty, off-road equipment).

Construction of the project is expected to commence in 2020 and conclude in 2030. The proposed duration and equipment requirements of the project's various construction phases are detailed in Tables 4.1 through 4.5 of the 2018 GCC Analysis (see Appendix O). These tables, and the corresponding GHG emissions estimates, account for on-site and off-site construction-related activities associated with the project.

Operation

Operation of the project would generate GHG emissions, as calculated by CalEEMod, from area, energy, mobile, solid waste, and water uses. The annual CalEEMod model outputs are shown in the project's unmitigated and mitigated models, included as Attachments A and B, respectively, of the 2018 GCC Analysis (see Appendix O).

Mobile Source Calculations

CalEEMod calculates the GHG emissions associated with on-road mobile sources, such as the light-duty vehicles and trucks that would be driven by the project's residents, workers, and customers, as well as delivery vehicles visiting the land use types in the project. The emissions associated with on-road mobile sources include running and starting exhaust emissions, evaporative emissions, brake and tire wear, and fugitive dust from paved and unpaved roads. With the exception of starting and evaporative emissions, which are associated with the number of starts or time between vehicle uses, all of the other categories of mobile source emissions are dependent on VMT.

Linscott, Law & Greenspan, Engineers, the project's transportation/traffic consulting firm, prepared a memorandum that calculates the project's total VMT in 2030 (Linscott, Law & Greenspan Engineers 2017; see Attachment C to Appendix O). Based on that assessment, it was found that the unmitigated project would generate 85,566,385 VMT per year. The VMT was calculated for the project's build-out year (2030) using information from SANDAG's traffic model; to calculate the annual VMT, the daily weekday and weekend VMT amounts were multiplied by their respective number of days in a year. The unmitigated project's VMT total identified in this paragraph does not account for implementation of the project's transportation demand management (TDM) program, which is described further below. These VMT results were incorporated into CalEEMod.

Area Source Calculations

The area source module within CalEEMod is used to calculate direct sources of GHG emissions located at the project site. Area sources include hearths (i.e., fireplaces), consumer product use, architectural coatings, and landscape maintenance equipment.

For purposes of this analysis, traditional residential units would only include natural gas (but not woodburning) hearths. Because residential heating loads at the project would be met by natural gas furnaces or natural gas hearths, the building energy modeling discussed below (see also Attachment D to Appendix O) accounts for the natural gas consumption of the residential hearths. It should be noted, however, that the project's 200 assisted living units would not include hearth options by design.

Electricity Consumption Calculations

GHGs from electrical usage are calculated using energy-intensity factors. CalEEMod's default factors for San Diego Gas & Electric (SDG&E) reflect SDG&E's emissions rate in 2009. In 2009, SDG&E achieved 10.5 percent procurement of renewable energy (California Public Utilities Commission 2016). The state mandate for renewable energy is 50 percent by 2030. Given this, SDG&E energy-intensity factors for 2030, as modeled within CalEEMod, are shown in Table 4.7 of the 2018 GCC Analysis (see Appendix O).

ConSol, a building energy efficiency consultant, was retained to calculate the residential energy demand for the project. ConSol modeled the energy demand of prototype residences with the CEC's Title 24 compliance software, known as "California Building Energy Code Compliance – Residential." The energy demand of each residential prototype was calculated for both a code-based compliance scenario and a Zero Net Energy attainment scenario. Detailed modeling of the energy use scenarios are contained in ConSol's report (see Attachment D to Appendix O).

For purposes of this analysis, the project's GHG emissions were estimated utilizing ConSol's code-based compliance scenario, which assumed that each of the residential prototypes was designed in accordance with the 2016 Title 24 standards. The project's GHG emissions also were estimated utilizing ConSol's Zero Net Energy attainment scenario, consistent with the project's energy efficiency design feature for residential buildings set forth in the Specific Plan. ConSol's Zero Net Energy attainment scenario assumed that each of the project's residential prototypes was designed in accordance with the CEC's definition of Zero Net Energy as defined in that agency's 2015 Integrated Energy Policy Report (California Energy Commission, 2015). Based on ConSol's analysis, the project's residences can achieve Zero Net Energy through a combination of energy efficiency enhancements to the building envelope and regulated loads, and the provision of on-site solar.

Default CalEEMod energy inputs for all other non-residential land uses not modeled by ConSol were based on the 2013 Title 24 standards. Since the 2016 Title 24 standards currently are applicable, the project's non-residential buildings would have a reduction from the 2013 Title 24 standards of 5 percent for electricity and no significant reduction for natural gas (California Energy Commission 2015).

As a design feature, the project's non-residential buildings would exclusively utilize high-efficiency indoor and outdoor lighting.

Natural Gas Consumption Calculations

Natural gas consumption for the project's residential units was based on ConSol's modeling, as discussed above. Natural gas inputs for the remaining non-residential uses were represented by CalEEMod default settings.

Solid Waste Calculations

CalEEMod calculates the indirect GHG emissions associated with waste that is disposed of at a landfill. Solid waste-related emissions for the project were based on CalEEMod default settings.

Water Use Emission Calculations

The project's water demand assessment determined that the project would require approximately 1,246 acre-feet (AF) per year, before accounting for water conservation measures the project would implement. The project's conservation measures would reduce the project's water demand to 935 AF per year (Dexter Wilson Engineering, Inc. 2015). As discussed in Subchapter 3.1.7, Utilities and Service Systems, total yearly demand could be met by various water sources, which include: potable water from the local water purveyor, groundwater from wells, recycled water, and harvested rain water. For purposes of this analysis, it was assumed that all water would be from potable sources; this is a conservative assumption because potable water sources would be the most intense in terms of GHG emissions generation. In terms of wastewater, the project would generate approximately 292 AF per year of wastewater, which would be equivalent to indoor water usage within CalEEMod. Also, since the project uses 935 AF per year after all design features are implemented, 643 AF per year of exterior water demand would be expected. It should be noted that the exterior demand would be made up of both potable and non-potable water, with about 160 AF per year coming from potable sources and the remaining 483 AF per year from non-potable sources (Dexter Wilson Engineering, Inc. 2015).

Vegetation Change Calculations

Vegetation, as it grows, collects and stores carbon dioxide. Therefore, a project that changes the existing land use type, with respect to vegetation, can result in changes in CO_2 sequestration. CalEEMod has generally applicable sequestration data that can be used to estimate the amount of CO_2 that either is gained or lost from vegetation-based sequestration, depending on the project.

Here, the existing site conditions generally are avocado and citrus groves with some grasslands, coastal sage, and riparian areas. In addition to planting trees within individual residential lots and at park-related amenities, the project's Specific Plan also provides for trees to be planted on slopes, along streets, within homeowners association open space areas, and around all perimeters of the project .as shown on the Master Landscape Concept Plan (see Specific Plan, Figure 70). Site landscape shall require the approval of a Landscape Plan(s) from the County's Planning & Development Services Department; the plan(s) shall comply with the County's Water Conservation in Landscape Ordinance, the Water Efficiency Landscape Design Manual, and other applicable regulatory standards identified in the project's Specific Plan.

CalEEMod uses the IPCC's protocol for vegetation sequestration calculations. Based on this, the model estimates how much CO_2 newly planted trees will sequester and reports the sequestration as a one-time carbon-stock change. (Per the IPCC, trees sequester CO_2 while they are actively growing and the one-time stock is based on a 20-year lifecycle.) The IPCC concludes that a tree's ability to sequester carbon decreases significantly after 20 years and credit after 20 years is not applied. By this logic,

removing trees in excess of 20 years and replacing them with new trees would significantly increase sequestration.

The project would remove approximately 504 acres of vegetation, based on the project's Biological Resources Report prepared by RECON in 2015 (see EIR Appendix G). The project would also plant approximately 35,146 new trees, based on the project's Landscape Report (Wimmer Yamada and Caughey 2017). The vegetation removal for each phase of project development was incorporated into CalEEMod, and information regarding proposed tree plantings is provided in Attachment E to Appendix O. As calculated by CalEEMod, the project's removal of existing vegetation would release a total of approximately 5,991 MT CO_2e of carbon that presently is sequestered in the existing vegetation.

It should be noted, for purposes of this analysis, carbon sequestration credit for the new trees planted was not taken in the impact evaluation. For disclosure purposes only, CalEEMod estimates that the new tree plantings would sequester approximately 24,883 MT CO_2e which will result in a net offset of 18,892 MT CO_2e.

2.9.2.3 Issue 1: Generation of GHG Emissions

Project-Related Construction Emissions

Construction activities associated with the project (e.g., grading and building construction) would produce approximately 12,248 MT CO_2e. A summary of the construction emissions on a yearly basis is shown in Table 2.9-1. The CalEEMod outputs are provided in Attachment A of Appendix O.

TABLE 2.9-1
PROJECT-RELATED CONSTRUCTION CO_2e EMISSIONS SUMMARY

Year	CO_2e (MT)
2020	482
2021	1,960
2022	574
2023	1,835
2024	560
2025	1,720
2026	546
2027	1,637
2028	395
2029	2,327
2030	212
Subtotal	**12,247**
Removal of Existing Vegetation	5,991
Construction Total	18,239

SOURCE: Appendix O, Table 5.1. Data is presented in whole number format and may have minor rounding variations.

During the construction of the project, approximately 504 acres of vegetation -related would be removed and replanted. The sequestered carbon released as a result of the removal of existing vegetation for each phase per the project's Biological Resources Report (see Appendix G) totals 5,991.1 MT CO_2e, as also shown in Table 2.9-1. The resulting total construction-related emissions would be 18,239 MT CO_2e.

Project-Related Operational Emissions

The following discussion refers to GHG emissions that would result from project implementation without the benefit of project design measures (discussed below). The project's operational emissions prior to incorporation of the project design features total 33,212 MT CO_2e per year. A summary of the operational emissions is shown in Table 2.9-2 below.

TABLE 2.9-2
YEAR 2030 OPERATIONAL EMISSIONS SUMMARY
(WITHOUT PROJECT DESIGN FEATURES)

Year 2030	CO_2e (MT/Yr)
Area	25
Energy	2,622
Mobile	26,282
Waste	1,294
Water	989
Total Operations (MT/Year)	**33,212**

SOURCE: Appendix O, Table 5.3. Data is presented in whole number format and may have minor rounding variations.

Calculated GHG Emission Reductions

Project design features have been incorporated into the project to reduce GHG emissions as included in Table 1-3 of the EIR and discussed throughout the Lilac Hills Ranch Specific Plan. "see also Attachment K of Appendix O for discussion of the project's consideration of emission reductions strategies recommended by CARB." These design features are discussed in detail below and the implementation of these features would be required as conditions of any approval from the County.

1. Implementation of a TDM program, which includes specific strategies for residents, hotel guests, and commercial employees;

2. Usage of zero emission vehicles associated with the on-site installation of Level 2 electric vehicle (EV) charging stations (U.S. Department of Energy 2017) as follows: one (1) single-port (6.6 kWh, 30 amp) EV charging station for each of the 1,746 residential units and at least 22 dual-port (19.2 kWh,100 amp) EV charging stations (serving a total of 44 parking spaces) in parking areas for the non-residential uses, including the recreation center, park, school, senior center, and commercial uses;

3. Water conservation strategies;

4. Solid waste diversion strategies;

5. Exclusive utilization of high-efficiency (LED or equivalent) indoor and outdoor lighting in all non-residential buildings;

6. Provision of on-site, solar photovoltaic systems on a minimum of 45 percent of non-residential building roof space and on all covered parking areas. This combination of solar coverage locations (i.e., non-residential building roof space and covered parking areas) is estimated to meet approximately 100 percent of the non-residential land uses' demand for electricity; and

7. Design all residences to achieve the CEC's Zero Net Energy standards, as defined in that agency's 2015 Integrated Energy Policy Report (CEC 2015).

Transportation Demand Management Program (VMT Reduction Evaluation)

The project would implement a TDM program with strategies for all proposed land uses as follows:

Strategies for Residents

- Interim Transit Pool Program/Vanpool
- Interim Private Transit Services
- Carpool Matching Program
- Guaranteed Ride Home Program
- Car Share Program
- Subsidized Transit Pass Program
- Bike Share Program
- School Pool Program
- School Bus Program
- Walking School Bus Program
- Unbundled Parking Program
- TDM Strategy Marketing

Strategies for Hotel Guests

- Interim Private Transit Services
- Bike Share Program
- Hotel Shuttle Service

Strategies for Employees

- Employee Vanpool/Shuttle Services
- Employee Trip Reduction Through Telecommuting and Staggered Work Hours
- Carpool Matching Program
- Employee Parking Cash-Out Program
- Subsidized Transit Pass Program
- TDM Program Marketing

Land Use and Design Strategies

- Transit Facility Optimization
- Bicycle Circulation Improvements
- Traffic Calming

The project's VMT assessment determined that the project would generate 85,566,385 VMT per year (LLG 2017). Based on the analysis conducted by a transportation engineering consultant (Fehr & Peers) retained to evaluate the effectiveness of the TDM program, an 8.1 percent reduction in total VMT would be achieved through implementation of the project's TDM program (see Attachment F to Appendix O). Based on emissions from CalEEMod, mobile emissions would be 26,283 MT CO_2e prior to accounting for the TDM features and 24,235 MT CO_2e after accounting for the TDM features. Based on CalEEMod modeling, the TDM features would reduce emissions by 2,047 MT CO_2e.

Zero Emission Vehicle Usage

The electrification of California's transportation sector is recognized by CARB and other state, regional, and local agencies as a critical element of the state's attainment of its 2030 and 2050 reduction targets. Indeed, CARB's *Second Update to the Scoping Plan* (as adopted in December 2017) seeks to have 1.5 million ZEVs on California's roadways in 2025 and 4.2 million ZEVs by 2030. The plan would require billions of dollars in investment, and would deploy ZEVs across all classes of vehicles and would accelerate deployment of alternative fueling infrastructure.

The trend towards purchasing electric vehicles has grown and it is estimated to increase through the year 2040. A discussion of the trend towards electric vehicle purchases is detailed in Section 5.3 of the 2018 GCC Analysis (see Appendix O). Table 2.9-3, below, provides a summary of the expected market share growth of electric vehicles.

TABLE 2.9-3
EXPECTED EV MARKET SHARE AS A PERCENTAGE OF TOTAL NEW CARS PURCHASED

Year	EV Market Share (%) – California	Total EV Sold per Year
2015	1.70%	34,897
2020	3.79%	77,728
2025	6.67%	136,983
2030	11.76%	241,411
2035	20.73%	425,449
2040	35.00%	718,463

SOURCE: Appendix O, Table 5.4. Data is presented in whole number format and may have minor rounding variations.

A 2016 survey conducted by the Union of Concerned Scientists (UCS) found that more than 54 percent of California drivers are likely to consider an electric vehicle in their next vehicle purchase or lease, and more than 65 percent are interested in electric vehicles

(Consumers Union Policy & Action from Consumer Reports 2016). The TDM evaluation conducted for the project determined the residential population for the project would be 5,185 persons (see Attachment F to Appendix O). Based on studies conducted by the Federal Highway Administration, there were 639 drivers per 1,000 residents in the state of California (Federal Highway Administration 2017). Therefore, out of the 5,185 project residents, it is estimated that 3,313 would be driving in 2030.

CalEEMod incorporates emission factors for on-road mobile sources from the EMFAC2014 model. Based on the EMFAC2014 projections for the year 2030, California would have 32.25 million vehicles on the road; EMFAC2014 assumes that 1.96 million of those vehicles would be electric. This equates to roughly 6 percent of the vehicle fleet in the year 2030 being electric. However, as discussed above, CARB's *Second Update to the Scoping Plan* (which incorporates information from CARB's Mobile Source Strategy (2016)) seeks to have 4.2 million ZEVs on California's roadways by 2030. This would increase the electric vehicle market to 13 percent of the market share, or a 7 percent increase over what EMFAC2014 estimates and is accounted for in CalEEMod.

The project seeks to maximize the usage of ZEVs through project design features that require the installation of on-site charging infrastructure. Specifically, the project would install Level 2 EV charging stations on the project site as follows: one Level 2 single-port (6.6 kWh-30 amp) charging station for each of the 1,746 residential units, and at least 22 Level 2 dual-port (19.2 -kWh 100 amp) EV charging stations (serving a total of 44 parking spaces) throughout the common parking areas for the on-site non-residential uses[2]. For purposes of this analysis and the charging infrastructure proposed by the project to support the deployment of ZEVs, Level 2 charging stations are 220-volt chargers that can provide 19.2 kilowatts of power.

Based on the project's commitment to provide extensive EV charging infrastructure, which includes 1,746 charging stations at the residential units, the project would facilitate the utilization of electric vehicles. Therefore, an additional 7 percent conversion to ZEV-

[2]The project also would install up to 13 Level 2 dual-port (19.2 kWh 100 amp) charging stations (capable of servicing 26 parking spaces) at off-site locations in the project's vicinity (see mitigation measure GHG-1 below). Additional details and emissions reductions from the off-site charging stations are provided below.

It is anticipated that any off-site EV charging stations would be installed in existing developed areas and require limited ground disturbance in such developed areas. For example, the charging stations may be located in areas that include, but are not limited to, retail centers, employment centers, recreational facilities, schools, and other categories of public facilities.

Based on an initial screening, the off-site charging stations are not expected to result in significant environmental impacts to any of the resource categories identified in Appendix G of the CEQA Guidelines because of the minor scope and intensity associated with the installation of charging stations. Specifically, the construction activities associated with such stations primarily are limited to electrical work, and are not expected to require either additional or substantial ground disturbance. This characterization is consistent with Section 91.1.105.3.1.2 of the County's Municipal Code, which provides for streamlined processing of electric vehicle charging station permits, where the charging system meets referenced requirements.

driven residential miles was calculated, consistent with the fleet projections identified in CARB's *Second Update to the Scoping Plan*. In other words, with implementation of the residential on-site charging network, at least 13 percent (6 percent plus 7 percent) of the total trips generated by the project would be from some sort of ZEV. Of the anticipated 3,313 residential drivers, it is estimated that 431 drivers would operate ZEVs, of which 199 drivers were assumed to be present without adding any project design features per the EMFAC emission factors. Project design features, therefore, would increase the number of ZEVs operated by the project's homeowners by 232 ZEVs. As discussed above, ZEVs include BEVs, PHEVs and FCEVs, though for purposes of this analysis, due to the limited infrastructure for FCEVs, only PHEVs and BEVs are considered as project-related ZEVs. Given this, the ZEV fleet breakdown for the project is expected to be roughly 60 percent PHEVs and 40 percent BEVs (California Energy Commission, 2016). Based on this breakdown, out of the 232 ZEVs estimated above as attributable to the project design features, the project would add 139 PHEVs (232 x 60 percent) and 93 BEVs (232 x 40 percent). These vehicles would take the place of regular internal combustion engine vehicles. A detailed discussion of specific emission factors is included in Section 5.3 of the 2018 GCC Analysis (see Appendix O).

Upon application of ZEV GHG emission rates and after applying the TDM reductions, the daily trip generation for residential uses is 12,546.19 trips and would have an average trip length of 12.95 miles (see, Appendix E). Since the project would generate 3,313 drivers, each driver would be expected to make an average of 3.787 trips per day or 49.04 miles per day. Of those 3,313 drivers, 431 would be ZEV drivers (199 drivers of which was already accounted for by EMFAC) and 232 of those ZEV drivers would offset GHG emissions by 79 percent as it relates to only those 232 drivers. Based on this, the 232 drivers traveling 12.95 miles, 3.787 times per day for 365 days per year would likely drive 4,151,189.25 miles each year. Based on CalEEMod, GHG emission rates for every mile driven is roughly 0.000308 MT CO_2e/per mile driven. Out of the 4,152,846.92 miles per year driven by ZEVs, tailpipe reductions would be 1,017 MT annually (4,151,189.25 miles X 0.000308 MT CO_2e/per mile driven X 0.795). This analysis and calculations are included in Attachment G of Appendix O.

For each ZEV used within the project, it is estimated that the charging of that vehicle would require at least 2,865 kilowatt hours (kWh) per year (ConSol 2017). As stated above, this analysis estimates that the project residents would operate an additional 232 ZEVs in 2030. Based on this, the required energy for all 232 ZEVs would be 664,680 kWh per year that would be provided from installed solar. It should be noted that the total energy consumption from on-site ZEV usage was subtracted from the project's total solar usage as shown in Table 5.5 of Appendix O.

Non-Residential On-Site EV Charging Stations

As a project design feature, the project would install up to 22 Level 2 dual-port (19.2 kWh, 100 amp) charging stations (serving a total of 44 parking spaces) in parking areas for the non-residential uses, including the recreation center, park, school, senior center, and commercial uses located within the project site. Since VMT by ZEVs do not generate GHG emissions, it is appropriate to relate the consumption of electricity at EV charging stations to zero emission-driven miles. On average, a Level 2 EV charging station would provide enough charge for a vehicle having a 100 miles per gallon equivalent (MPGe) efficiency to travel roughly 57 miles for each hour of charging. Since each charging location is expected to be utilized for at least 4 hours per day, each EV

charger could provide electricity for 228 zero emission-driven miles per day. Given this, 22 Level 2 dual-port charging stations would provide enough charge for 10,032 zero emission-driven miles per day, and would equate to 3,661,680 VMT per year.

The EV charging stations are estimated to be utilized at least 4 hours per day, which would consume about 76.8 kWh of electricity per day per charging station. The 22 Level 2 dual-port charging stations would, therefore, require approximately 1,233,408 kWh per year to provide charging to EV vehicles. Since the chargers would consume 19.2 kWh of electricity per 57 zero emission-driven miles, each charger would require 0.3351 kWh for every mile of zero-emission driving.

CalEEMod outputs were used to develop GHG emission rates in terms of MT CO_2e/VMT for both standard gas consumption vehicles and EVs. For EVs, electrical data was utilized in terms of MT CO_2e/kWh by summing up the total electrical GHG emissions and dividing that number by the total energy usage, which yielded 0.000183 MT CO_2e/kWh. Since EV charging requires 0.3351 kWh for every VMT, the indirect emissions for every VMT is 6.169 x 10-5 MT CO_2e/VMT.

In terms of calculating the GHG emission rate per VMT for standard gas consumption vehicles, the total mobile emission rate was divided by the total VMT used within CalEEMod. From this data, it was found that the typical fleet of non-ZEVs would generate roughly 0.000308 MT CO_2e/VMT.

Based on this data, the ratio of gas-driven GHGs to ZEV-driven GHGs (from charging) is (0.000308/6.169 x 10-5) or 4.99. In other words, from a global perspective, the utilization of a standard gas consumption vehicle fleet for the project would produce roughly five times more GHG emissions when compared to VMTs produced by ZEVs on an equivalent VMT basis. Given this, the 3,661,680 VMT per year would produce 1,127.79 MT CO_2e using standard vehicles and the equivalent VMTs using ZEV would consume 1,227,029 kWh of power, which would generate approximately 226 MT CO_2e. Therefore, adding the 22 Level 2 dual-port EV charging stations would reduce cumulative GHG emissions by 901 MT CO_2e annually (1,128 MT CO_2e – 226 MT CO_2e).

Water Use Reductions

The project's water service report (see EIR Appendix T) finds that the project would have an unmitigated water use of 1,246 AF per year; with design features; the project would reduce that water demand to 935 AF. Emission reductions from water reductions attributable to conservation measures would be approximately 206MT CO_2e.

Solid Waste Diversion Strategies

Under AB 341 and the County's own Strategic Plan to Reduce Waste, adopted in April 2017), the County would ultimately be required to increase diversion of waste from landfills to 75 percent. The project reserves a site for the construction and operation of an on-site recycling facility, and would provide separate waste containers to allow for simpler material separations or would pay for a waste collection service that recycles materials. All green waste from the project's parks and residential areas also would be diverted from landfills and recycled as mulch, in accordance with AB 341. For purposes of this analysis, a 25 percent reduction in solid waste-related GHGs was applied to reflect AB 341's diversion standard, reducing GHG emissions by 324 MT CO_2e.

Lighting Efficiency Energy Reductions for Non-Residential Buildings

As a design feature, the project's non-residential buildings would exclusively utilize high-efficiency indoor and outdoor lighting. One example of high-efficiency lighting is light-emitting diode (LED) lighting. LED lighting is approximately 75 to 90 percent more efficient than standard lighting. For example, a 10-watt LED bulb replaces a 60-watt standard bulb, and is 83.3 percent more efficient. A typical 15-watt LED bulb has an equivalent rating of a 100-watt standard bulb. Outdoor LED lighting is 65 to 80 percent more efficient than standard lighting. For example: a 70 watt LED bulb replaces a 250-watt standard bulb, which would be 72 percent more efficient.

High-efficiency lighting is addressed by both the 2013 Title 24 standards (CEC 2012) and the 2016 Title 24 standards (CEC 2015); these standards specifically call out lighting power density requirements for non-residential land uses. The default parameters of the version of CalEEMod used in this analysis (along with its predecessor versions) do not account for high-efficiency lighting technologies or the 2016 Title 24 standards.

The applicable 2016 Title 24 standards do not require the exclusive use of high-efficiency lighting in non-residential buildings; instead, the standards require that 50 percent of outdoor lighting qualify as high-efficiency lighting. Therefore, the project design feature requiring the exclusive use of high-efficiency indoor and outdoor lighting in the non-residential buildings would be beyond code.

For purposes of calculating the estimated GHG emissions reduction attributable to this design feature, it conservatively was assumed that the amount of energy needed for outdoor lighting use would be the same as that needed for indoor use. This is conservative because the amount of lighting needed in the interior of buildings is typically higher than the amount of lighting needed outdoors. Based on the design feature, the utilization of 100 percent high-efficiency lighting would reduce energy usage from combined indoor and outdoor lighting by 65 percent. Calculations on estimated lighting energy reductions are shown in Attachment H of Appendix O. The CalEEMod default lighting energy intensity input for non-residential land uses was adjusted to reflect this reduction which equates to 141 MT CO_2e.

On-Site Solar for Non-Residential Buildings

As a design feature, the project would provide on-site solar/ Photovoltaic (PV) systems to maximize the amount of energy demand for the non-residential land uses that can be met through the installation of on-site renewable energy resources. Based on a Nationwide Analysis of U.S. Commercial Building Solar Photovoltaic Breakeven Conditions, it was determined that after installation of rooftop mechanical systems, skylights and other roof-mounted equipment, an average of 35 to 50 percent of the total rooftop area could be utilized for solar; 50 percent of the rooftop area generally can be allocated to solar if the building designers are mindful of the need for solar during the design process (National Renewable Energy Laboratory 2015). For purposes of this analysis, it was assumed that 45 percent of all available commercial rooftop areas will be available for the installation of on-site solar/PV systems, as well as all covered parking areas (approximately 375 parking stalls at the town center and 130 parking stalls at the school).

The emission reductions attributable to this design feature would be 1,083.36 MT CO_2e. Supporting information for this calculation is presented in Table 5.5 of Appendix O and Attachments I and J of Appendix O.

Zero Net Energy Residences

As a design feature, the project's residences would be designed to achieve Zero Net Energy, as that term is defined by the CEC. Table 5.5 of Appendix O provides relevant information regarding the calculation parameters for achievement of Zero Net Energy design by the project's residences. Total GHG reductions associated with the on-site residential solar energy production that is estimated to be necessary to achieve Zero Net Energy design would be 3,398 MT CO_2e. Calculations on estimated solar energy production are shown in Attachment I of Appendix O. The residential estimated solar energy production from PV was added into CalEEMod and is also reflected in Attachment J of Appendix O.

Project Emissions

The project's construction-related emissions (including the removal of existing vegetation) would be approximately 18,236 MT CO_2e, as identified in Table 2.9-1, above.· With respect to operational emissions, after applying GHG reductions associated with all project design features, the project would generate approximately 24,094 MT CO_2e per year, as identified in Table 2.9-4, below. The modeling outputs for the project's emissions, before and after application of the GHG emissions-reducing design features, are provided in Attachments A and B, respectively, of Appendix O. The results are provided in Table 2.9-4.

TABLE 2.9-4
YEAR 2030 OPERATIONAL EMISSIONS SUMMARY
WITH GHG EMISSION REDUCTIONS ASSOCIATED WITH MANDATED PROJECT DESIGN FEATURES

GHG Emissions without Project Design Features	33,211 MT CO_2e
Operational CO_2e-Reducing Project Design Features	CO_2e Reduction (metric tons)
TDM Program	-2,047
Residential ZEV Use	-1,017
On-site Non-Residential EV Charging Stations	-901
Water Conservation	-206
Solid Waste Diversion Strategy	-324
Non-Residential Solar/PV Systems	-1,083
Zero Net Energy Residences	-3,398
Project Design Features Reduction Totals	**-**-9,118 MT CO_2e
Total Operational GHG Emissions with Project Design Features	**24,094 MT CO_2e**

SOURCE: Appendix O, Table 5.6. Data is presented in whole number format and may have minor rounding variations.

Although project related GHG emissions would be reduced by 9,118.06 MT CO_2e as a result of project design features, project operation would result in emissions of 24,093.76 MT CO_2e. For purposes of this analysis, the remaining project emissions would be considered a significant impact (**Impact GHG-1**).

2.9.2.4 Issue 2: Conflict with Plans, Policies or Regulations

Impact Analysis

The following discussion addresses applicable plans, policies, and regulations adopted for the purpose of reducing GHG emissions, and determines that the project does not conflict with such plans, policies, or regulations.

Consistency with Relevant General Plan Policies

This discussion analyzes the project's potential to conflict with an applicable plan—the County of San Diego's General Plan—as that planning document contains various goals, policies, and objectives related to the reduction of GHG emissions and global climate change. The project's consistency with specific General Plan Conservation and Open Space Element policies is analyzed in Table 2.9-5. (See also Appendix W of the EIR for further analysis).

TABLE 2.9-5
EVALUATION OF CONSISTENCY WITH APPLICABLE GENERAL PLAN POLICIES

Policy	Project Consistency
COS14.3 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.	*Consistent*. Please see Section 1.3 of Appendix O for discussion of the project's "green" design features and sustainable land use development practices. The GHG emissions reduction benefits of those features and practices, where quantifiable, are shown in Table 5.6 of Appendix O.
COS14.7 Alternative Energy Sources for Development Projects. Encourage development projects that use energy recovery, photovoltaic, and wind energy.	*Consistent*. The project would install on-site, solar photovoltaic on approximately 45 percent of the non-residential buildings' rooftop area, and on all covered parking areas. Also, as a design feature, the project's residences would be designed to achieve Zero Net Energy, as that term is defined by the CEC.
COS14.10 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*. All project-related construction equipment would be required to meet Tier 3, or higher, emissions standards, with the exception of concrete/industrial saws, generator sets, welders, air compressors, or for construction equipment where Tier 3, or higher, is not available.
COS15.1 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*. The project's residences would be designed to achieve Zero Net Energy, as that term is defined by the CEC. Also, the project's non-residential buildings would be required to comply, at a minimum, with the 2016 Title 24 standards because the building construction phase would commence after January 1, 2017.
COS15.4 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's residences would be designed to achieve Zero Net Energy, as that term is defined by the CEC. The commitment to design to Zero Net Energy standards exceeds the existing Title 24 energy standards. The project's non-residential buildings also would utilize on-site, solar photovoltaic systems, which exceeds the requirements of the existing Title 24 energy standards.
COS17.1 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 proposes to construct and operate an on-site recycled facility. The project also would provide separate waste containers to allow for simpler material separations or would pay for a waste collection service that recycles the materials. Finally, all green waste from parks and residential areas would be diverted from landfills and recycled as mulch.
COS17.2 Construction and Demolition Waste. Require recycling, reduction and reuse of construction and demolition debris.	*Consistent*. The Project would prepare a Construction Debris Management Plan that complies with Section 68.508-68.518 of the County Municipal Code, and would divert at least 90 percent of inert materials and 70 percent of all other materials associated with construction waste from landfills through reuse and recycling.

Consistency with SANDAG's San Diego Forward: The Regional Plan

As to SANDAG's RTP/SCS, the project would include site design elements and project design features that are consistent with the policy objectives of the RTP/SCS and its corresponding legislation (SB 375), including VMT-reducing strategies that would be implemented as part of the project's TDM program. As discussed above and as illustrated further in Attachment F of the *Global Climate Change Analysis* (see Appendix O), the project's TDM program would work to reduce the project's VMT (and corresponding GHG emissions, as shown in Table 2.9-4 above) through four primary strategies: (1) land use and design measures that include transit facility optimization, bicycle/circulation improvements, and traffic calming features; (2) services for residents that would reduce VMT by providing alternatives to single occupancy vehicle trips (e.g., vanpool and carpool programs; car share and bike share programs; transit pass subsidies; school transport options); (3) services for employees of the project's non-residential uses that would reduce VMT (e.g., transit fare subsidies; employee parking cash-out program; trip reduction options, including telecommuting); and (4) services for hotel such as private transit and bike share.

To achieve strategy 1, the project would provide interim private transit services (until public transit service on the project site is available), and would be designed to: (i) develop a comprehensive trails network that provides internal connectivity; (ii) provide a comfortable walking environment for pedestrians; and, (iii) install amenities for bicyclists (e.g., bicycle racks and lockers) along main travel corridors, adjacent to commercial development areas, at public parks and open spaces, and at multi-family residential uses. The project design also would include traffic calming features on at least 25 percent of the on-site roadways and at 25 percent of the on-site intersections.

The project would provide interim transit services, until such time that public transit services become available on the project site. The project's TDM program also would provide a carpool matching program; guaranteed ride home program; car and bike share programs; school pool, school bus and walking school bus programs; unbundled parking; and subsidized transit passes. In order to ensure the success of the program and the effective dissemination of information, TDM strategy marketing would occur.

The TDM program would provide employee vanpool/shuttle services; an employee trip reduction program; carpool matching and employee parking cash-out programs; and subsidized transit passes. In order to ensure the success of the program and the effective dissemination of information, TDM strategy marketing would occur.

In furtherance of strategy 4, the TDM program would provide interim private transit services to hotel guests, until such time that public transit services become available on the project site. The TDM program also would make the bike share program available to hotel guests, and provide a hotel shuttle service.

The elements of the project's TDM program (which are described in additional detail in Attachment F of Appendix O) would support the goals and policies outlined in SANDAG's RTP/SCS and would achieve an 8.1 percent reduction in the project-related VMT. As such, the project would not conflict with SANDAG's RTP/SCS and the corresponding policy objectives set forth in SB 375.

The project would not conflict with an applicable plan, policy, or regulation, adopted for the purpose of reducing the emissions of GHG. Impacts would be less than significant.

2.9.3 Cumulative Impact Analysis

The project's total construction emission generation would be 18,238.55 MT CO_2e, as shown in Table 2.9-1. The project's total operational emission generation would be 24,093.76 MT CO_2e, as shown in Table 2.9-4. The project's total GHG would be a cumulatively considerable contribution to global climate change (**Impact GHG-1**).

2.9.4 Significance of Impacts Prior to Mitigation

It has been determined that the following significant impact related to GHG emissions would occur:

Impact GHG-1: The proposed project would generate GHG emissions that may have a potentially significant impact on the cumulative issue of global climate change (project-specific and cumulative impacts).

2.9.5 Mitigation

After analyzing and requiring all reasonable and feasible project design features for the reduction of GHG emissions(see Attachment I to Appendix O), it has been determined that additional mitigation measures would be required to further reduce impacts from GHG emissions to a less than significant level.

M-GHG-1 Prior to issuance of the project's 1,000th residential building permit, the project applicant or its designee shall provide the County of San Diego's Director of the Planning & Development Services Department (PDS) with proof of installation of 13 dual port (19.2 kWh, 100 amp) EV charging stations capable of serving 26 off-site parking spaces per the following ratio:

- One off-site parking space shall be served by an EV charging station for every 100 dwelling units (equivalent to 17 EV charging stations), and

- one off-site parking space shall be served by an EV charging station for every 10,000 square feet of commercial development (equivalent to 9 EV charging stations). (Commercial development includes retail, office, and hotel buildings.)

Off-site EV charging stations capable of servicing 26 parking spaces would be required if the maximum allowable development facilitated by the project occurs; fewer EV charging stations would be required if maximum build-out under project does not occur.

The EV charging stations shall achieve a similar or better functionality as a Level 2 charging station and may service one or more parking spaces. Additionally, the EV charging stations shall be located within the geographic area defined to include the unincorporated County of San

Diego in areas that are generally accessible to the public, such as areas that include, but are not limited to, retail centers, employment centers and office complexes, recreational facilities, schools, and other categories of public facilities.

M-GHG-2 The project applicant or its designee shall purchase and retire carbon offsets in a quantity sufficient to offset 100 percent of the Project's construction and vegetation removal emissions, which total 18,239 MT CO2e, 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 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.

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 ton of carbon dioxide equivalent that is "not otherwise required" (CEQA Guidelines Section 15126.4(c)(3)).

Third, as to construction GHG emissions, prior to the County's issuance of each project-related grading permit, the project applicant or its designee shall provide evidence to the satisfaction of the Director of the PDS that the project applicant or its designee has purchased and retired carbon offsets in a quantity sufficient to offset 100 percent of the construction GHG emissions generated by construction-related activities in the disturbance area covered by the grading permit as identified in the 2018 GCC Analysis (Appendix O).

Fourth, the County will consider, to the satisfaction of the Director of PDS, the following geographic priorities for GHG reduction features, and off-site carbon offset projects: 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. The purchased carbon offsets used to reduce construction GHG emissions shall achieve real, permanent, quantifiable, verifiable, and enforceable reductions (Cal. Health & Saf. Code Section 38562(d)(1)).

M-GHG-3 As to operational GHG emissions, prior to the County's issuance of building permits for each implementing Site Plan, the project applicant or its designee 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-2.

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 ton of carbon dioxide equivalent that is "not otherwise required" (CEQA Guidelines Section 15126.4(c)(3)).

Third, as to operational emissions, prior to the County's issuance of building permits for each implementing Site Plan, the project applicant or its designee 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).

Fourth, the County will consider, to the satisfaction of the Director of PDS, the following geographic priorities for GHG reduction features, and off-site carbon offset projects: 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. 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)).

Fifth, 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 2018 GCC Analysis (Appendix O).

Sixth, 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.

Seventh, the Global Climate Change Analysis and the project's 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, the operational emission estimates that govern implementation of this project are subject to a "true up" at the

election of the project applicant or its designee and subject to the satisfaction of the Director 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 a "true-up" exercise is undertaken, the project applicant or its designee shall provide an operational GHG emissions inventory of 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 (or its designee's) election, subject to the satisfaction of the Director of PDS, these calculations shall be conducted using a County-approved model and/or methodology. Alternatively, the project applicant or its designee 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 Director of PDS (or its designee) prior to the issuance of building permits for the next build-out 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.

2.9.6 Conclusion

The project would result in a potentially significant impact related to the generation of GHG emissions during construction. However, as shown in Table 2.9-6, implementation of the recommended Mitigation Measure M-GHG-2 would reduce the project's construction-related emissions by 18,239 MT CO_2e to net zero. With implementation of M-GHG-2's carbon offsets requirement, the project's construction-related emissions would not be significant.

TABLE 2.9-6
APPLICATION OF MITIGATION MEASURES TO CONSTRUCTION-RELATED EMISSIONS

Construction-Related CO_2e Emissions	Total Project CO_2e Emissions (Metric Tons)
Total Construction-Related Emissions (see Table 2.9-1)	18,239
Carbon Offsets (MM-GHG-2)	-18,239
Mitigated Construction-Related Emissions	0

Operationally, the project would result in a potentially significant impact related to the generation of GHG emissions. However, as shown in Table 2.9-4, implementation of identified project design features would reduce project emissions by 9,118.06MT CO_2e per year; however, significant project-related GHG emissions would remain. The project would be required to implement Mitigation Measures M-GHG-1 and M-GHG-3 to further reduce project GHG emissions.

Specifically, implementation of M-GHG-1 would require the installation of up to 13 Level 2 dual-port charging stations capable of servicing 26 parking spaces at off-site locations within the County of San Diego. Similar to the on-site EV charging stations, each Level 2 EV charging station would provide enough charge for a vehicle having a 100 MPGe efficiency to travel roughly 57 miles for each hour of charging. Since each charging location is expected to be utilized for at least 4 hours per day, each EV charger could provide electricity for 228 zero emission-driven miles per day. Given this, Mitigation Measure M-GHG-1 would provide enough charge for 5,928 zero emission-driven miles per day, or 2,163,720 zero emission-driven miles per year.

Because the EV charging stations are estimated to be utilized at least 4 hours per day, about 76.8 kWh of electricity per day per charging station would be consumed . The charging stations would, therefore, require approximately 728,832 kWh per year to provide charging to EV vehicles. Since the chargers would consume 19.2 kWh of electricity per 57 zero emission-driven miles, each charger would consume 0.3351 kWh for every mile of zero-emission driving.

Given this, the 2,163,720 VMT per year would produce 666.43 MT CO_2e using standard vehicles; the equivalent VMT driven with ZEVs would consume 725,062.57 kWh of power, which would generate 133.48 MT CO_2e. Therefore, adding the 13 Level 2 dual-port EV charging stations would reduce GHG emissions by 532.95 MT CO_2e annually (666.43 MT CO_2e – 133.48 MT CO_2e).

As shown in Table 2.9-7, implementation of recommended Mitigation Measures M-GHG-1 and M-GHG-3 would reduce project GHG emissions to net zero.

TABLE 2.9-7
APPLICATION OF MITIGATION MEASURES TO OPERATIONAL-RELATED EMISSIONS

Total Operational-Related GHG Emissions without GHG Emission Reducing Project Design Features (see Table 2.9-3)	33,211.82 MT CO_2e
Total GHG Emission Reductions from Project Design Features (see Table 2.9-4) Measure	-9,118.06 MT CO_2e
Total Operational-Related GHG Emissions after Project Design Measure Reductions (see Table 2.9-4)	23,560.81 MT CO_2e
Total Reduction from Mitigation Measures Carbon Offsets Mitigation (MM -GHG-3)	-23,992.27
Mitigated Operational-Related Emissions	0

Because the mitigated project would have no net increase in GHG emissions, as compared to the existing environmental setting (see CEQA Guidelines Section 15064.4(b)(1)), the mitigated project would not generate GHG emissions that may have a significant impact on the environment. Similarly, because the mitigated project would have no net increase in the GHG emissions level, the mitigated project would not make a cumulatively considerable contribution to global GHG emissions.

Additionally, the project would not conflict with any adopted and applicable local or state plans, policies or regulations to reduce GHG emissions in 2020, 2030 and/or 2050, all of which utilize non-zero targets. Relatedly, the project accords to CARB's Second Update to the Scoping Plan, which recognizes that achieving no net increase in GHG emissions is an appropriate overall objective in the CEQA context. Finally, the project's attainment of net zero GHG emissions and TDM program ensure that the project is consistent with applicable goals and policies of the County's General Plan and SANDAG's adopted San Diego Forward: The Regional Plan.