2.3 Global Climate Change

This section analyzes the potential global climate change impacts resulting from the Project's greenhouse gas (GHG) emissions. Specifically, the section discusses the scientific, regulatory and policy developments surrounding global climate change; provides a quantitative inventory of the GHG emissions that would result from Project implementation; evaluates the significance of the Project's GHG emissions; and evaluates potential mitigation to mitigate the Project's impacts. The analysis presented in this section primarily is based on the Questhaven Project – Greenhouse Gas Emissions Technical Report (GHG Report), included in *Appendix G* of this EIR. (Helix, 2024).

This section quantifies and analyzes the significance of GHG emissions from the Project's one-time construction and vegetation change-associated activities, and annual operational activities. The operational activities that would generate GHG emissions include area sources (e.g., landscaping equipment and fireplaces); the consumption of electricity by residences; the treatment and distribution of water; the handling of solid waste; and, the use of vehicles for transportation-related purposes.

The GHG emissions estimates for the Project presented in this section were calculated using California Emissions Estimator Model (CalEEMod) Version 2022.1.1.13. CalEEMod provides a CEQA-oriented platform to calculate both construction and operational emissions from land use development projects. The model was developed for the California Air Pollution Control Officers Association (CAPCOA) in collaboration with multiple air districts across the State of California, including the San Diego Air Pollution Control District (SDAPCD). Numerous lead agencies in the State, including the County of San Diego, utilize CalEEMod to estimate GHG emissions in accordance with CEQA Guidelines Section 15064.4(a)(1) and (c).

2.3.1 Existing Conditions

2.3.1.1 Global Climate Change

Global climate change refers to changes in average climatic conditions on Earth as a whole, including temperature, wind patterns, precipitation, and storms. Global temperatures are moderated by naturally occurring atmospheric gases. These gases are commonly referred to as GHGs because they function like a greenhouse by letting light in but preventing heat from escaping, thus warming the Earth's atmosphere. These gases allow solar radiation (sunlight) into the Earth's atmosphere but prevent radiative heat from escaping, thus warming the Earth's atmosphere.

GHGs are emitted by natural processes and human (anthropogenic) activities. Anthropogenic GHG emissions are primarily associated with (1) the burning of fossil fuels during motorized transport, electricity generation, natural gas consumption, industrial activity, manufacturing, and other activities; (2) deforestation; (3) agricultural activity; and (4) solid waste decomposition.

The temperature record shows a decades-long trend of warming, with the most recent nine years (2014 through 2022) ranking as the warmest years on record since 1880. The newest release in long-term warming trends announced 2022 ranked as tied with 2015 for the fifth warmest year on record with an increase of 0.9 degrees Fahrenheit compared to the 1951-1980 average (National Aeronautics and Space Administration [NASA] 2023). GHG emissions from human activities are the most significant

driver of observed climate change since the mid-20th century (United Nations Intergovernmental Panel on Climate Change [IPCC] 2013). The IPCC constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. The statistical models show a "high confidence" that temperature increase caused by anthropogenic GHG emissions could be kept to less than two degrees Celsius relative to pre-industrial levels if atmospheric concentrations are stabilized at about 450 parts per million (ppm) carbon dioxide equivalent (CO_2e) by the year 2100.

Greenhouse Gases

The GHGs, as defined under California's Assembly Bill (AB) 32, include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Although water vapor is the most abundant and variable GHG in the atmosphere, it is not considered a pollutant; it maintains a climate necessary for life. Please refer to Section 2.2 of the GHG Emissions Technical Report for a detailed discussion of the different types of GHGs.

GHGs have long atmospheric lifetimes that range from one year to several thousand years. Long atmospheric lifetimes allow for GHG emissions to disperse around the globe. Because GHG emissions vary widely in the power of their climatic effects, climate scientists have established a unit called global warming potential (GWP). The GWP of a gas is a measure of both potency and lifespan in the atmosphere as compared to CO_2. For example, and as indicated in in the IPCC Fourth Assessment Report (AR4), because CH_4 and N_2O are approximately 25 and 298 times more powerful than CO_2, respectively, in their ability to trap heat in the atmosphere, they have GWPs of 25 and 298, respectively (CO_2 has a GWP of 1) (IPCC, 2007). CO_2e is a quantity that enables all GHG emissions to be considered as a group despite their varying GWP. The GWP of each GHG is multiplied by the prevalence of that gas to produce CO_2e.

Historically, GHG emission inventories have been calculated using the GWPs from the IPCC's Second Assessment Report (SAR). IPCC updated the GWP values in its Third Assessment Report (AR3) in 2001 and again in 2007 in its Fourth Assessment Report (AR4). The updated GWPs in the IPCC AR4 have begun to be used in recent GHG emissions inventories. In 2013, IPCC again updated the GWP values based on the latest science in its Fifth Assessment Report (AR5). However, United Nations Framework Convention on Climate Change (UNFCCC) reporting guidelines for national inventories require the use of GWP values from the AR4. To comply with international reporting standards under the UNFCCC, official emission estimates for California and the U.S. are reported using AR4 GWP values. Therefore, statewide and national GHG inventories have not yet updated their GWP values to the AR5 values. By applying the GWP ratios, project related CO_2e emissions can be tabulated in metric tons per year. Typically, the GWP ratio corresponding to the warming potential of CO_2 over a 100-year period is used as a baseline. The atmospheric lifetime and GWP of selected GHGs are summarized in Table 2.3-1, *Global Warming Potentials and Atmospheric Lifetimes.*

The California Air Resources Board (CARB) performed statewide inventories for the years 1990 to 2020, as shown in Table 2 of the Project's GHG Report (*Appendix G* to this EIR). The inventory is divided into six broad sectors of economic activity: agriculture, commercial, electricity generation, industrial, residential, and transportation. Emissions are quantified in million metric tons (MMT) CO_2e.

Statewide GHG source emissions totaled 431 MMT CO_2e in 1990, 462 MMT CO_2e in 2000, 443 MMT CO_2e in 2010, and 381 MMT CO_2e in 2021. The reduced amount of GHG emissions in 2021 was likely due to reduced travel and industrial activity as a result of the 2020 COVID-19 global pandemic. Transportation-related emissions consistently contribute the most GHG emissions, followed by electricity generation and industrial emissions (CARB, 2007 and CARB, 2023).

An unincorporated San Diego regional emissions inventory that was prepared by the University of San Diego (USD) School of Law, Energy Policy Initiative Center (EPIC) accounted for the unique characteristics of the region. Its 2019 emissions inventory update for unincorporated San Diego County is presented in Table 2.3-2, *GHG Emissions by Category*. The sectors included in this inventory are somewhat different from those in the statewide inventory. Similar to the statewide emissions; however, transportation-related GHG emissions contributed the most countywide, followed by emissions associated with energy use. Regional GHG source emissions totaled 3.21 MMT CO_2e in 2019.

The 2019 inventory was included as part of the County of San Diego Draft Climate Action Plan (CAP), released for public review on October 26, 2023 (2019 Emissions Inventory). It should be noted at the time this EIR was prepared (April 2024) the CAP was not yet approved by the County.

2.3.1.2 Effects of Climate Change in California

Public Health

Higher temperatures may increase the frequency, duration, and intensity of conditions conducive to air pollution formation, which can adversely affect human health. For example, days with weather conducive to ozone formation could increase. In addition, if global background ozone levels increase as predicted in some scenarios, it may become impossible to meet local air quality standards. Air quality could be further compromised by increases in wildfires, which emit fine particulate matter that can travel long distances, depending on wind conditions. Rising temperatures could increase the risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat.

Water Resources

A vast network of man-made reservoirs and aqueducts captures and transports water throughout the State from northern California rivers and the Colorado River. The current distribution system relies on Sierra Nevada snowpack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snowpack, increasing the risk of summer water shortages. The State's water supplies are also at risk from rising sea levels. An influx of saltwater could degrade California's estuaries, wetlands, and groundwater aquifers. Saltwater intrusion caused by rising sea levels is a major threat to the quality and reliability of water within the southern edge of the Sacramento/San Joaquin River Delta – a major fresh water supply.

Agriculture

Increased temperatures could cause widespread changes to the agriculture industry reducing the quantity and quality of agricultural products statewide. First, California farmers could possibly lose as much as 25% of the water supply needed. Although higher CO_2 levels can stimulate plant production and increase plant water-use efficiency, California's farmers could face greater water demand for crops and a less reliable water supply as temperatures rise. Crop growth and development could change, as could the intensity and frequency of pest and disease outbreaks. Rising temperatures could aggravate ozone pollution, which makes plants more susceptible to disease and pests and interferes with plant growth. Products likely to be most affected include wine grapes, fruits, and nuts. In addition, continued global climate change could alter the abundance and types of many pests, lengthen pests' breeding season, and increase pathogen growth rates.

Forests and Landscapes

Global climate change has the potential to intensify the current threat to forests and landscapes by increasing the risk of wildfire and altering the distribution and character of natural vegetation.

Rising Sea Levels

Rising sea levels, more intense coastal storms, and warmer water temperatures could increasingly threaten the State's coastal regions. Elevations of this magnitude would inundate low-lying coastal areas with saltwater, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats.

2.3.1.3 Regulatory Setting

Federal

Clean Air Act

The U.S. Supreme Court ruled on April 2, 2007, in Massachusetts v. U.S. Environmental Protection Agency (USEPA) that CO_2 is an air pollutant, as defined under the Clean Air Act (CAA), and that the USEPA has the authority to regulate emissions of GHGs. The USEPA announced that GHGs (including CO_2, CH_4, N_2O, HFC, PFC, and SF_6) threaten the public health and welfare of the American people.

Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards

The USEPA and the NHTSA worked together on developing a national program of regulations to reduce GHG emissions and to improve fuel economy of light-duty vehicles. The USEPA established the first-ever national GHG emissions standards under the CAA, and the NHTSA established Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act. On April 1, 2010, the USEPA and NHTSA announced a joint Final Rulemaking that established standards for 2012 through 2016 model year vehicles. This was followed up on October 15, 2012, when the agencies issued a Final Rulemaking with standards for model years 2017 through 2025.

In December 2021, USEPA issued a new rule formally adopting standards previously proposed in August 2021 for model years 2023 and 2024 and finalizing more stringent standards than previously proposed for model years 2025 and 2026. The rule assumes a 17 percent electric vehicle (EV) market penetration by 2026. Although this is a departure from the NHTSA CAFE standards, USEPA did coordinate with NHTSA during development of the new standards. On April 12, 2023, USEPA announced new, more ambitious proposed standards to further reduce harmful air pollutant emissions from light-duty and medium-duty vehicles starting with model year 2027. The proposal builds upon USEPA's final standards for federal GHG emissions standards for passenger cars and light trucks for model years 2023 through 2026 and leverages advances in clean car technology to result in benefits to Americans ranging from reducing climate pollution, to improving public health, to saving drivers money through reduced fuel and maintenance costs. The proposed standards would phase in over model years 2027 through 2032.

State

California Code of Regulations, Title 24, Part 6

California Code of Regulations (CCR) Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. Energy-efficient buildings require less electricity, natural gas, and other fuels. Electricity production from fossil fuels and on-site fuel combustion (typically for water heating) results in GHG emissions.

The Title 24 standards are updated approximately every three years to allow consideration and possible incorporation of new energy efficiency technologies and methods. The latest update to the Title 24 standards occurred in 2022, and went into effect on January 1, 2023. The Building Energy Efficiency Standards focus on several key areas to improve the energy efficiency of newly constructed buildings and additions and alterations to existing buildings. The most significant efficiency improvements to the residential standards include improvements for attics, walls, water heating, and lighting, and the requirement for on-site photovoltaic (solar) energy generation for new residential buildings three or fewer stories high. The standards are divided into three basic sets. First, there is a basic set of mandatory requirements that apply to all buildings. Second, there is a set of performance standards–the energy budgets–that vary by climate zone (of which there are 16 in California) and building type; thus, the standards are tailored to local conditions. Finally, the third set constitutes an alternative to the performance standards, which is a set of prescriptive packages that are basically a recipe or a checklist compliance approach (CEC 2022).

California Green Building Standards Code

The California Green Building Standards Code (CALGreen; CCR Title 24, Part 11) includes mandatory requirements for new residential and nonresidential buildings throughout California. The code is Part 11 of the California Building Standards Code in Title 24 of the CCR. The current 2022

Standards for new construction of, and additions and alterations to, residential and nonresidential buildings went into effect on January 1, 2023 (CBSC 2022).

The development of CALGreen is intended to (1) cause a reduction in GHG emissions from buildings; (2) promote environmentally responsible, cost-effective, healthier places to live and work; (3) reduce energy and water consumption; and (4) respond to the directives by the Governor. In short, the code is established to reduce construction waste; make buildings more efficient in the use of materials and energy; and reduce environmental impact during and after construction.

CALGreen contains requirements for storm water control during construction; construction waste reduction; indoor water use reduction; material selection; natural resource conservation; site irrigation conservation; and more. The code provides for design options allowing the designer to determine how best to achieve compliance for a given site or building condition. The code also requires building commissioning, which is a process for the verification that all building systems, like heating and cooling equipment and lighting systems, are functioning at their maximum efficiency.

Executive Order S-3-05

On June 1, 2005, Executive Order (EO) S-3-05 proclaimed that California is vulnerable to climate change impacts. It declared that increased temperatures could reduce snowpack in the Sierra Nevada, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. In an effort to avoid or reduce climate change impacts, EO S-3-05 calls for a reduction in GHG emissions to the year 2000 level by 2010, to year 1990 levels by 2020, and to 80 percent below 1990 levels by 2050. EOs are not laws and can only provide the governor's direction to state agencies to act within their authority. Legislation is required to enact the goals of EO S-3-05 and establish a framework for statewide implementation. AB 32, described below, mandates the 2020 GHG reduction goals of EO S-3-05. The 2050 GHG reduction goal of EO S-3-05 has not been enacted by any legislation and remains only a goal of the EO.

Assembly Bill 32 – Global Warming Solution Act of 2006

The California Global Warming Solutions Act of 2006 (AB 32) and Health and Safety Code Sections 38500, 38501, 28510, 38530, 38550, 38560, 38561–38565, 38570, 38571, 38574, 38580, 38590, 38592–38599), widely known as AB 32, requires that CARB develop and enforce regulations for the reporting and verification of statewide GHG emissions. CARB is directed to set a GHG emission limit, based on 1990 levels, to be achieved by 2020. The bill requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions. AB 32 enacts the goals of EO S-3-05.

Executive Order B-30-15

On April 29, 2015, EO B-30-15 established a California GHG reduction target of 40 percent below 1990 levels by 2030. The EO aligns California's GHG reduction targets with those of leading international governments, including the 28-nation European Union. California is on track to meet or

exceed the target of reducing GHG emissions to 1990 levels by 2020, as established in AB 32. California's new emission reduction target of 40 percent below 1990 levels by 2030 will make it possible to reach the ultimate goal established by EO S-3-05 of reducing emissions 80 percent under 1990 levels by 2050. Senate Bill (SB) 32, described below, mandates the 2030 GHG reduction goals of EO B-30-15.

Senate Bill 32

SB 32 (Amendments to the California Global Warming Solutions Action of 2006) extends California's GHG reduction programs beyond 2020. SB 32 amended the Health and Safety Code to include Section 38566, which contains language to authorize CARB to achieve a statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030. SB 32 codified the targets established by EO B-30-15 for 2030, which set the next interim step in the State's continuing efforts to pursue the long-term target expressed in EO B-30-15 of 80 percent below 1990 emissions levels by 2050.

Assembly Bill 1279

Approved by Governor Newsom on September 16, 2022, AB 1279, The California Climate Crisis Act, declares the policy of the State to achieve net zero GHG emissions as soon as possible, but no later than 2045, and achieve and maintain net negative GHG emissions thereafter, and to ensure that by 2045, statewide anthropogenic GHG emissions are reduced to at least 85 percent below the 1990 levels. AB 1279 anticipates achieving these policies through direct GHG emissions reductions, removal of CO_2 from the atmosphere (carbon capture), and almost complete transition away from fossil fuels.

Senate Bill 905

Approved by Governor Newsom on September 16, 2022, SB 905, Carbon sequestration: Carbon Capture, Removal, Utilization, and Storage Program, requires CARB to establish a Carbon Capture, Removal, Utilization, and Storage Program to evaluate the efficacy, safety, and viability of carbon capture, utilization, or storage technologies and CO_2 removal technologies and facilitate the capture and sequestration of CO_2 from those technologies, where appropriate. SB 905 is an integral part of achieving the state policies mandated in AB 1279.

Assembly Bill 1493 – Vehicular Emissions of Greenhouse Gases

AB 1493 (Pavley) requires that CARB develop and adopt regulations that achieve "the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty truck and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the State." On September 24, 2009, CARB adopted amendments to the Pavley regulations that intend to reduce GHG emissions in new passenger vehicles from 2009 through 2016. The amendments bind California's enforcement of AB 1493 (starting in 2009), while providing vehicle manufacturers with new compliance flexibility. The amendments also prepare California to merge its rules with the federal

CAFE rules for passenger vehicles (CARB 2013). In January 2012, CARB approved a new emissions-control program for model years 2017 through 2025.

Executive Order S-01-07

This EO, signed by Governor Schwarzenegger on January 18, 2007, directs that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by the year 2020. It orders that a Low Carbon Fuel Standard (LCFS) for transportation fuels be established for California and directs the CARB to determine whether a LCFS can be adopted as a discrete early action measure pursuant to AB 32. CARB approved the LCFS as a discrete early action item with a regulation adopted and implemented in April 2010. Although challenged in 2011, the Ninth Circuit Court of Appeals reversed the District Court's opinion and rejected arguments that implementing LCFS violates the interstate commerce clause in September 2013. CARB, therefore, is continuing to implement the LCFS statewide.

Senate Bill 375

SB 375 aligns regional transportation planning efforts, regional GHG reduction targets, and affordable housing allocations. Metropolitan Planning Organizations (MPOs) are required to adopt a Sustainable Communities Strategy (SCS), which allocates land uses in the MPO's Regional Transportation Plan (RTP). The RTP is discussed further in EIR Section 2.6, *Transportation*. Qualified projects consistent with an approved SCS or Alternative Planning Strategy categorized as "transit priority projects" would receive incentives to streamline CEQA processing.

Executive Order N-79-20

EO N-79-20, signed by Governor Newsom on September 23, 2020, establishes three goals for implementation of zero emissions vehicles in California: first, 100 percent of in-state sales of new passenger cars and trucks will be zero-emissions by 2035; second, 100 percent of medium- and heavy-duty vehicles in the state will be zero-emissions vehicles by 2045 for all operations where feasible, and by 2035 for drayage trucks; and third, 100 percent of off-road vehicles and equipment will be zero emissions by 2035 where feasible.

California Air Resources Board Scoping Plan

The Scoping Plan is a strategy CARB develops and updates at least one every five years, as required by AB 32. It lays out the transformations needed across our society and economy to reduce emissions and reach our climate targets. The initial 2008 Scoping Plan laid out a path to achieve the AB 32 mandate of returning to 1990 levels of GHG emissions by 2020, a reduction of approximately 15 percent below business as usual. The 2008 Scoping Plan included a mix of incentives, regulations, and carbon pricing, laying out the portfolio approach to addressing climate change and clearly making the case for using multiple tools to meet California's GHG targets. The 2013 Scoping Plan assessed progress toward achieving the 2020 mandate and made the case for addressing short-lived climate pollutants. The 2017 Scoping Plan also assessed the progress toward achieving the 2020 limit and

provided a technologically feasible and cost-effective path to achieving the SB 32 mandate of reducing GHGs by at least 40 percent below 1990 levels by 2030. On December 15, 2022, CARB approved the 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan). The 2022 Scoping Plan lays out a path to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels no later than 2045, as directed by AB 1279. The actions and outcomes in the plan will achieve significant reductions in fossil fuel combustion by deploying clean technologies and fuels; further reductions in short-lived climate pollutants (SLCPs); support for sustainable development; increased action on natural and working lands to reduce emissions and sequester carbon; and the capture and storage of carbon (CARB, 2022b).

Local

San Diego Association of Governments San Diego Forward: The Regional Plan

The SANDAG RTP/SCS "San Diego Forward: The 2021 Regional Plan" (Regional Plan) is the long-range planning document developed to meet the requirements of SB 375 and to address the region's housing, economic, transportation, environmental, and overall quality-of-life needs. The Regional Plan establishes a planning framework and implementation actions that increase the region's sustainability and encourage "smart growth while preserving natural resources and limiting urban sprawl." The Regional Plan encourages the regions and the County to increase residential and employment concentrations in areas with the best existing and future transit connections, and to preserve important open spaces. The focus is on implementation of basic smart growth principles designed to strengthen the integration of land use and transportation (SANDAG 2021).

San Diego Association of Governments Climate Action Strategy

The SANDAG Climate Action Strategy serves as a guide to help policymakers address climate change as they make decisions to meet the needs of growing populations, as well as to maintain and enhance quality of life and promote economic stability (SANDAG 2010). The purpose of the strategy is to identify land use, transportation, and other related policy measures that could reduce GHG emissions from passenger cars and light-duty trucks as part of the development of the SCS for the 2050 RTP in compliance with SB 375. Additional policy measures are identified for buildings and energy use, protecting transportation and energy infrastructures from climate impacts, and assisting SANDAG and other local agencies in reducing GHG emissions from their operations.

County of San Diego General Plan

The County's General Plan, adopted in 2011, provides guiding principles designed to balance future growth, conservation, and sustainability. The General Plan aims to balance the need for infrastructure, housing and economic vitality, while maintaining and preserving unique community, agricultural areas, and extensive open space (County 2011). The General Plan contains goals and policies specific to reducing GHG emissions, including efficient and compact growth and development; increasing energy efficiency and use of renewable energy sources; increasing recycling; and improving access to sustainable transportation.

The General Plan addresses AB 32 and climate change and provides an extensive list of policies designed to reduce GHG emissions and adapt to current climate change related impacts. Strategies listed to mitigate and reduce GHG emissions include: reduce vehicle trips, gasoline and energy consumption; improve energy efficiency by decreasing non-renewable energy consumption and generation; increase generation and use of renewable energy sources; reduce water consumption and waste generation; improve solid waste reuse and recycle and composting programs; promote landscapes designed to sequester CO_2; and preserve open space and agricultural lands. Adaptive strategies designed to prevent, and mitigate current climate change impacts, include the following: reduce wildfire and flood risk; conserve water during water shortages; promote agricultural lands to support local food production; and provide education and leadership.

County of San Diego Climate Action Plan

In February 2018, the County's Board of Supervisors adopted a Climate Action Plan (2018 CAP) that serves as a long-term programmatic plan that identifies strategies and measures to meet the County's targets to reduce GHG emissions by 2020 and 2030, consistent with the State's legislative GHG reduction targets.

In March 2018, several petitioners filed a lawsuit against the County. In December 2018, the San Diego County Superior Court issued a writ setting aside the 2018 CAP and the Supplemental Environmental Impact Report (SEIR). In The Fourth District Court of Appeal, Division One (Case No. D064243), subsequently upheld the Superior Court's ruling. In September 2020, the County Board of Supervisors voted to rescind the 2018 CAP and SEIR.

The County was directed to prepare a new CAP. The updated CAP and Draft SEIR were available for public review from October 26, 2023, to January 5, 2024. The County anticipates that the CAP will be presented to the Board of Supervisors at public hearing in Fall of 2024.

As noted above, the 2019 Emissions Inventory was completed as part of the CAP process. The 2019 Emissions Inventory is organized into nine emissions categories: on-road transportation, which totaled 1,331,000 MMT CO_2e; electricity, which totaled 599,000 MMT CO_2e; natural gas, which totaled 478,000 MMT CO_2e; solid waste, which totaled 193,000 MMT CO_2e; agriculture, which totaled 134,000 MMT CO_2e; propane, which totaled 121,000 MMT CO_2e; off-road transportation, which totaled 71,000 MMT CO_2e; water, which totaled 39,000 MMT CO_2e; and wastewater, which totaled 18,000 MMT CO_2e. The Emissions Inventory which is shown in Table 2.3-2, calculated 2,984,000 MMT CO2e of GHG emissions for the year 2019.

2.3.2 Analysis of Project Effects and Determinations as to Significance

2.3.2.1 Generate GHG Emissions, Either Directly or Indirectly, that may have a Significant Impact on the Environment

Guidelines for the Determination of Significance

A significant global climate change impact would occur if implementation of the Project would do the following:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

Guidelines Source

Neither the State of California, the SDAPCD, nor the County has adopted quantitative emission-based thresholds of significance for GHG emissions under CEQA. In the absence of any adopted numeric threshold, the significance of the Project's GHG emissions is evaluated herein consistent with CEQA Guidelines Section 15064.4.

CEQA Guidelines Section 15064.4 states;

(a) 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 shall 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. A lead agency shall have discretion to determine, in the context of a particular project, whether to:

(1) Quantify greenhouse gas emissions resulting from a project; and/or
(2) Rely on a qualitative analysis or performance based standards.

(b) In determining the significance of a project's greenhouse gas emissions, the lead agency should focus its analysis on the reasonably foreseeable incremental contribution of the project's emissions to the effects of climate change. A project's incremental contribution may be cumulatively considerable even if it appears relatively small compared to statewide, national or global emissions. The agency's analysis should consider a timeframe that is appropriate for the project. The agency's analysis also must reasonably reflect evolving scientific knowledge and state regulatory schemes. A lead agency should consider the following factors, among others, when determining the significance of impacts from greenhouse gas emissions on the environment:

(1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;
(2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
(3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions (see, e.g., section 15183.5(b)). Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there

is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project. In determining the significance of impacts, the lead agency may consider a project's consistency with the State's long-term climate goals or strategies, provided that substantial evidence supports the agency's analysis of how those goals or strategies address the project's incremental contribution to climate change and its conclusion that the project's incremental contribution is not cumulatively considerable.

(c) A lead agency may use a model or methodology to estimate greenhouse gas emissions resulting from a project. The lead agency has discretion to select the model or methodology it considers most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change. The lead agency must support its selection of a model or methodology with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use.

Determination of Significance Evaluation Methodology

The 2019 Emissions Inventory and unincorporated County GHG emission targets consistent with SB 32 and AB 1279 state goals for the years 2030 (43.6% below 2019 levels) and 2045 (85.4% below 2019 levels) are provided in the CAP (County 2023). These emissions targets were based on emissions reductions required to align future County GHG emissions with the State 2030 and 2045 mandates and goals. The CAP also provides emissions forecasts for the unincorporated county based on projected population and employment data. For unincorporated San Diego County, the 2019 residential population was 526,890 and the 2030 population forecast is 539,701 (County of San Diego, 2023). Based on the adjusted 2019 inventory, CAP emission targets, and population estimates, the County's efficiency metrics are calculated to be 5.29 MT CO_2e per resident per year for 2019 and 2.91 MT CO_2e per resident per year for 2030. (Helix, 2024)

The Project's GHG emissions, however, are evaluated against a Project-specific efficiency metric threshold for the Project's buildout year that was developed for the Project based on the 2019 Emissions Inventory and targets based on consistency with SB 32 and AB 1279 goals for 2030 and 2045. An efficiency metric threshold is calculated by dividing the allowable GHG emissions in a selected calendar year by the population, which then leads to the identification of a quantity of emissions that can be permitted on a per person basis without significantly impacting the environment. This approach focuses on the overall GHG efficiency of a project relative to regulatory GHG reduction goals. (Helix, 2024). Here, the Project's efficiency metric was calculated based on 2029 emissions level (the first full year of Project operations) and the Project's population (the number of residents provided by the Project). (Helix, 2024)

To develop the Project-specific population efficiency threshold, land use-related sectors in the County's 2019 Emissions Inventory were identified and GHG emissions were separated to tailor the inventory to emission sources that were relevant to the Project. For example, emissions associated with mining, airport ground support equipment, and other emissions sources not associated with residential land use activities were excluded. With these adjustments, Project-specific emissions in future years

could be compared with the State targets for 2030 and 2045 and the County's own 2030 and 2045 targets in the CAP (which are consistent with the State targets for 2030 and 2045) for the relevant land uses. (Helix, 2024)

The first full year of operation for the Project is anticipated to be 2029. Accordingly, a threshold reduced by 5.28 percent for each year starting in 2019 would meet the County's SB 32 target by 2030. The Project-specific GHG emissions efficiency threshold for the year 2029 was calculated to be 3.07 MT CO_2e per resident per year. Comparing the Project' GHG emissions per population to this 2029 efficiency threshold would demonstrate progress towards achieving the County's 2030 and 2045 GHG emissions target consistent with SB 32 and AB 1279, respectively. The threshold calculation sheets are included as Appendix C to the GHG Report (*Appendix G* to this EIR). (Helix, 2024)

Analysis

Construction

GHG emissions would be associated with the construction phases of the Project through the use of off-road heavy equipment, haul trucks, and vehicle trips from construction worker commutes. Emissions of GHGs related to the construction of the Project would be temporary and would occur within an approximately 27-month period. As shown in Table 2.3-3, *Construction GHG Emission*, total GHG emissions associated with construction of the Project are estimated at 894 MT CO_2e. For construction emissions, South Coast Air Quality Management District (SCAQMD) guidance recommends that the emissions be amortized (i.e., averaged) over 30 years and added to operational emissions. Amortized over 30 years, the proposed construction activities would contribute approximately 30 MT CO_2e emissions per year. (Helix, 2024)

Operational

Operational sources of GHG emissions include: (1) energy use (electricity); (2) area sources (landscaping equipment and consumer products); (3) vehicle use; (4) solid waste generation; (5) water conveyance and treatment, (6) refrigerant leaks, and (7) change in carbon sequestered in vegetation. The emissions per capita threshold calculated for the proposed Project totals 3.07 MT CO_2e per year. The Project's calculated GHG emissions inventory is shown in Table 2.3-4, *Estimated Project Annual GHG Emissions*. The complete modeling output is included in Appendix A to the GHG Report (*Appendix G* to this EIR).

The Project includes project design features (PDFs) to reduce GHG emissions. Specifically, the Project is designed to include all electric appliances and end uses (i.e., the Project will not include natural gas infrastructure). Using electric instead of natural gas-powered appliances and end uses replaces a more emissions-intensive fossil fuel source of energy with a less emissions-intensive source of energy, as electricity from the grid is increasingly transitioning to renewable sources. The Project will include 299 trees, which would assist with carbon sequestration on-site. Additionally, the Project is required to meet 2022 Title 24 Part 6 energy efficiency standards and Part 11, CALGreen standards, including the requirement for on-site photovoltaic (solar) energy generation for new residential buildings three

or fewer stories high and cool/green roofs. The current Title 24 energy efficiency standards include requirements for installation of electric vehicle (EV) chargers, and use of low-flow water appliances. The Project also would be required to comply with 2025 Title 24 energy efficiency standards, as building permits for the proposed Project would most likely be issued during the upcoming Title 24 cycle.

A soft surface trail is already provided along the Project site's frontage with San Elijo Road. There are existing Class II bicycle lanes directly adjacent to the Project site along San Elijo Road, which is consistent with the City of San Marcos Bicycle and Pedestrian Master Plan (May 2015). The nearest transit stop to the Project site is located approximately one mile from the site. The North County Transit District (NCTD) is the decision-making body for additional transit facility stops and routes, which are added based on demand in an area. The NCTD does not have any planned transit facility stops within the Project study area (CR Associates, 2024). The Project is providing a new trail connection from a proposed parking lot to the Copper Creek Trail to increase pedestrian connection.

It should be noted that mobile sources represent the majority (approximately 86 percent) of the Project's total emissions. Thus, implementation of vehicle miles traveled (VMT) = reduction measures would also lead to a reduction in GHG emissions. The CAPCOA GHG Handbook provides several mitigation measures for land use projects. The comprehensive list of transportation demand management (TDM) measures from the CAPCOA GHG Handbook is provided in Appendix A of the Project's Transportation Impact Study, *Appendix L1 of this EIR*) for reference. (See also Table 2.5.4, *Feasibility of Project TDM Measures & VMT Reduction* and Table 2.5.5, *Feasibility of Project TDM Measures & VMT Reduction* for more information.) As explained in more detail in Section 2.5, none of the potentially applicable measures are quantifiable or feasible, with the exception of short-term bicycle racks on site, which would be implemented on the Project site.

For instance, non-quantifiable TDM measures from the Project's Transportation Impact Study include:

- Implement Commute Trip Reduction Marketing - This measure implements a voluntary commute trip reduction (CTR) program. However, it is not applicable as this measure is aimed at employment projects.

- Provide End-of-Trip Bicycle Facility - This measure calls for the installation and maintenance of end-of-trip facilities. The Project would provide short term bicycle racks at the Neighborhood Park. Since these racks will likely be utilized by residents in nearby communities, no VMT reduction was taken for these amenities. Moreover, this measure is not applicable as it aimed at employment projects.

- Integrate Affordable and Below Market Rate Housing - This measure requires below market rate (BMR) housing. The Project is providing seven affordable homes on the site. However, no VMT reduction was taken for these units to ensure a conservative, worst-case analysis.

As shown in Table 2.3-4, the Project would result in GHG emissions of 763 MTCO_2e per year, and 3.58 MT CO_2e per capita per year, based on a population of 213 (2.8 persons per household multiplied by 76 residences). The amount of Project GHG emissions includes addition of the amortized construction emissions and loss of sequestered carbon from the removal of trees and vegetation required as part of Project-related grading activities This would exceed the Project-specific 2029 GHG efficiency metric threshold of 3.07 MT CO_2e. Therefore, the Project would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. As such, the Project would have a cumulatively considerable significant impact on global climate change **(Significant Cumulatively Considerable Impact GHG-1)**. (Helix, 2024)

2.3.2.2 Conflicts with Local Plans Adopted for the Purpose of Reducing GHG Emissions

Guidelines for the Determination of Significance

A significant global climate change impact would occur if implementation of the Project would do the following:

- Conflicts with local plans adopted for the purpose of reducing GHG emissions

Guidelines Source

Because there is no approved CAP in San Diego County and the CAP Checklist cannot be used to determine the significance of a project's cumulative GHG emissions impacts until such time as it is reapproved in compliance with CEQA, the analysis is based on guidance provided in CEQA Guidelines Appendix G and CEQA Guidelines Section 15064.4.

Analysis

There are numerous State plans, policies, and regulations adopted for the purpose of reducing GHG emissions. The principal overall State initiatives are SB 32 and AB 1279, as implemented by the CARB Climate Change Scoping Plan. As shown in Table 2.3-4, the Project would result in a 3.58 MT CO_2e per capita per year efficiency, which would exceed the Project-specific emissions metric threshold based on the 2019 Emissions Inventory and targets based on consistency with SB 32 and AB 1279 goals for 2030 and 2045. As such, the Project would be inconsistent with the Statewide goals established by SB 32 and AB 1279. The Project would have a cumulatively considerable and significant impact on global climate change due to inconsistency with State goals that were established for the purpose of reducing GHG emissions to reduce adverse effects on global climate change.

CARB's 2022 Scoping Plan lays out a path to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels no later than 2045, as directed by AB 1279. Per the 2022 Scoping Plan Appendix D, *Local Actions*, local jurisdictions should focus on three priority areas: transportation electrification, VMT reduction, and building decarbonization (CARB 2022). The Project's consistency with these priority areas is provided in Table 2.3-5, *CARB Scoping*

Plan Priority Area Consistency. As shown therein, the Project would be consistent with all but one applicable priority area. Because the Project would not result in a regional decrease in VMT for unincorporated County residents, the Project would be inconsistent with the VMT Reduction priority area.

Additional plans and regulations are being implemented at the statewide level, and compliance on a project-specific level is not addressed. A number of prominent statewide plans and regulations (e.g., AB 1493 and the LCFS), as well as the Regional Plan aimed at reducing GHG emissions focus on reducing transportation source emissions. The Regional Plan includes three goals: 1) the efficient movement of goods and people, 2) access to affordable, reliable, and safe mobility options for everyone, and 3) healthier air and reduced GHG emission regionwide. A reduction in regional VMT (and VMT-related GHG emissions) is a primary objective of the Regional Plan as the San Diego County RTP/SCS in accordance with the mandates of SB 375. Implementation of the RTP/SCS plans in the State's metropolitan areas to reduce VMT is a key component of the mobile source GHG emissions reduction policies and control measures in the CARB 2022 Scoping Plan. The Transportation Impact Study (included as *Technical Appendix L1* to this EIR) analyzed a list of TDM measures aimed at reducing VMT. As explained above; none of the measures were applicable and/or quantifiable. Most importantly, the Project will result in a significant and unavoidable transportation impact (CR Associates, 2023). Because the Project would not result in a regional decrease in VMT for unincorporated County residents, the Project would be inconsistent with the Regional Plan. **(Significant Cumulatively Considerable Impact GHG-2)**

2.3.3 Cumulative Impact Analysis

Given the relatively small levels of emissions generated by a typical project in relationship to the total amount of GHG emissions generated on a national or global basis, individual projects are not expected to result in significant, direct impacts with respect to climate change. However, given the magnitude of the impact of GHG emissions on the global climate, GHG emissions from individual projects could result in significant, cumulative impacts with respect to climate change. Thus, the potential for a significant GHG impact is limited to cumulative impacts. As described above, the Project's maximum annual GHG emissions of 3.58 MT CO_2e per capita per year would exceed the 2029 GHG efficiency metric threshold of 3.07 MT CO_2e, and the Project would conflict with the goals established by SB 32 and AB 1279, as well as with CARB's 2022 Scoping Plan and the Regional Plan. Therefore, the Project's GHG emissions impacts would be cumulatively considerable and by extension, the Project's inconsistency with goals and policies established for reducing GHG emissions also would be significant and cumulatively considerable **(Significant Cumulatively Considerable Impacts GHG-1 and GHG-2)**.

2.3.4 Significance of Impacts Prior to Mitigation

***Significant Cumulatively Considerable Impact GHG-1*:** The Project would result in GHG emissions of 763 MT CO_2e per year, and 3.58 MT CO_2e per capita per year, based on a population of 213 (2.8 persons per household multiplied by 76 residences). This would exceed the 2029 GHG efficiency metric threshold calculated for the Project to be 3.07 MT CO_2e per service population per year. As such, the Project would have a cumulatively considerable significant impact on global climate change.

***Significant Cumulatively Considerable Impact GHG-2*:** Because the Project would emit 3.58 MT CO_2e per capita per year, which would exceed the 2029 GHG efficiency metric threshold calculated for the Project to be 3.07 MT CO_2e per population per year, and because the Project also would conflict with the goals established by SB 32, AB 1279, the CARB 2022 Scoping Plan, and the Regional Plan. Therefore, the Project would have a cumulatively considerable significant impact on global climate change.

2.3.5 Mitigation

No feasible mitigation measures are available.

2.3.6 Conclusion

***Significant and Unavoidable Impacts GHG-1 and GHG-2*:** The Project's design and construction is required to comply with the California Green Building Standards Code (CALGreen; CCR Title 24, Part 11), which includes mandatory requirements for new residential buildings throughout California intended to (1) cause a reduction in GHG emissions from buildings; (2) promote environmentally responsible, cost-effective, healthier places to live and work; (3) reduce energy and water consumption; and (4) respond to the directives by the Governor. In addition, CCR Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings is mandatory. The most significant efficiency improvements to the residential standards include improvements for attics, walls, water heating, and lighting, and the requirement for on-site photovoltaic (solar) energy generation. Further, the Project is designed to power homes only with electric.

In regard to reducing VMT, none of the measures provided in the Project's Transportation Impact Study (*Appendix L1*) are readily quantifiable because it is not possible to accurately predict human behavior responses to VMT reduction strategies. The Project's VMT impact was thus found to be significant and unavoidable. As explained in Section 2.5, there is no feasible mitigation to reduce the mobile source GHG emissions. Although the vehicle fleet in California is transitioning from gas to electric and zero-emission vehicles, it cannot be assured how many residents of the Project will use electric or zero-emission vehicles. Therefore, the conclusion that the Project would result in a significant GHG impact is based on SCAQMD recommended modeling and does not account for the continued progression toward an electric and zero-emission vehicle fleet. Because the Project would result in GHG emissions of 3.58 MT CO_2e per capita per year, which exceeds the 2029 GHG efficiency metric threshold calculated for the Project to be 3.07 MT CO2e, and VMT reduction strategies to reduce GHG emissions are not quantifiable and not feasible because it is unknown what type of vehicles Project residents would own at this time. The Project would have a cumulatively considerable significant impact on global climate change that is significant and unavoidable.

Table 2.3-1 Global Warming Potentials and Atmospheric Lifetimes

Greenhouse Gas	Atmospheric Lifetime (years)	Global Warming Potential (100-year time horizon)
Carbon Dioxide (CO_2)	50-200	1
Methane (CH_4)	12	25
Nitrous Oxide (N_2O)	114	298
HFC-134a	14	1,430
PFC: Tetraflouromethane (CF_4)	50,000	7,390
PFC: Hexafluoroethane (C_2F_6)	10,000	12,200
Sulfur Hexafluoride (SF_6)	3,200	22,800

Source: IPCC 2007
HFC: hydrofluorocarbon; PFC: perfluorocarbon
(Helix, 2024)

Table 2.3-2 GHG Emissions by Category

Emissions Category	2019 GHG Emissions (MT CO_2e)	Percent of Total (%)
On-road Transportation	1,331,000	45
Electricity	599,000	20
Natural Gas	478,000	16
Solid Waste	193,000	6
Agriculture	134,000	4
Propane	121,000	4
Off-road Transportation	71,000	2
Water	39,000	1
Wastewater	18,000	1
Total	**2,984,000**	**100**

Table 2.3-3 Construction GHG Emissions

Year	Emissions (MT CO_2e)
2026	530
2027	337
2028	27
Total	894
Amortized Construction Emissions[1]	30

Source: CalEEMod (output data is provided in Appendix A)
Note: Values rounded to the nearest whole number.
[1] Construction emissions are amortized over 30 years consistent with SCAQMD guidance.
MT = metric tons; CO_2e = carbon dioxide equivalent
(Helix, 2024)

Table 2.3-4 Estimated Project Annual GHG Emissions

Emission Sources	Emissions ($MT CO_2e$/year)
Area Sources	1
Energy Sources	10
Vehicular (Mobile) Sources	656
Solid Waste Sources	11
Water Sources	6
Refrigerants	<0.5
Loss of Sequestered Carbon	49
Amortized Construction	30
Total	**763**
Emissions per Capita	**3.58**
Calculated GHG efficiency Threshold ($MT CO_2e$ per capita per year)	*3.07*
Exceed Threshold?	**Yes**

Source: CalEEMod output data is provided in Appendix A
MT = metric tons; CO_2e = carbon dioxide equivalent
(Helix, 2024)

Table 2.3-5 CARB Scoping Plan Priority Area Consistency

Priority Area	Project Consistency
Transportation Electrification	The Project would be designed to meet the CALGreen standards in effect at construction including the requirements of Section A4.106.8 requiring new construction provide EV supply equipment to facilitate future installation and use of EV chargers.
VMT Reduction	According to the Project Transportation Impact Study, the regional average VMT per resident is 18.9 miles per day. Project residents would have a VMT of 24.1 miles per day (CR Associates, 2023). Therefore, the Project would not result in a regional decrease in VMT for unincorporated County residents.
Building Decarbonization	The Project would be designed to meet the latest applicable version, currently 2022, of the CALGreen standards, including the requirement for on-site photovoltaic (solar) energy generation for new residential buildings three or fewer stories high and cool/green roofs, (CEC 2022; CBSC 2022). Additionally, the Project would be designed to include all electric appliances and end uses. Using electric instead of natural gas replaces a more emissions-intensive fossil fuel source of energy with a less emissions-intensive source of energy, as electricity from the grid is increasingly transitioning to renewable sources.