Chapter 3.13
Greenhouse Gas Emissions and Climate Change

Introduction

This chapter provides a discussion of the greenhouse gas (GHG) emissions and climate change issues related to the Proposed Project and the 130-Unit Alternative in Carmel Valley. This chapter provides a review of existing conditions based on available literature; a summary of applicable local, state, and federal policies and regulations related to GHG emissions and climate change; and an analysis of direct and indirect environmental impacts that could result from the Proposed Project and the 130-Unit Alternative. Where feasible, mitigation measures are recommended to reduce the level of significant impacts to a less than significant level.

Important to note is that increasing GHG emissions are inherently a cumulative impact concern. There are billions of sources of individual anthropogenic (i.e., human created or caused) GHG emissions that are currently contributing to increased concentrations of GHGs in the atmosphere. The majority of scientific research has found that this cumulative increase in atmospheric concentrations of carbon dioxide (CO_2) and other GHGs due to human-made emissions is currently resulting in increasing global temperatures and associated indicators of climate change.

Given the scale of the planet's atmosphere, an individual project's GHG emissions cannot change the atmospheric concentrations of GHGs in any meaningful way when considered in complete isolation from all other existing and future GHG emissions. However, the aggregation of cumulative existing and future sources of emissions, including a project's emissions, is significant based on the projections of current climate change research. Consequently, the focus of this section is to evaluate if the Proposed Project's and the 130-Unit Alternative's GHG emissions would contribute considerably to the significant cumulative impact of climate change.

This section also analyzes whether localized effects of future climate change, such as sea level rise, are expected to have impacts on the Project and 130-Unit Alternative, but this information is provided only for informational purposes as the impacts of the environment on the project are not impacts on the environment as defined under CEQA according to recent case law (California Supreme Court ruling in CBIA vs. BAAQMD case).

Impact Summary

Table 3.13-1 provides a summary of the potential GHG emissions and climate change impacts of the Proposed Project and the 130-Unit Alternative. As shown in **Table 3.13-1**, the Proposed Project and the 130-Unit Alternative would result in potentially significant impacts related to GHG emissions. However, with the implementation of mitigation measures described in this Recirculated Draft EIR, all GHG emissions impacts listed would be reduced to less-than-significant levels.

Table 3.13-1. Greenhouse Gas Emissions and Climate Change Impact Summary

Impact	Proposed Project Level of Significance	130-Unit Alternative Level of Significance	Mitigation Measure	Level of Significance After Mitigation
A. Contribute to Climate Change Impacts				
GHG-1: Result in Project-Related Greenhouse Gas Emissions, during Construction and Operation, that Could Contribute to Climate Change Impacts and be Inconsistent with the Goals of Assembly Bill 32	Potentially Significant	Potentially Significant	GHG-1: Implement Best Management Practices for Greenhouse Gas Emissions during Construction GHG-2: Reduce Annual Greenhouse Gas Emissions to below the Efficiency Threshold Using a Combination of Design Features, Replanting, and/or Offset Purchases	LTS
B. Effects of Climate Change				
GHG-2: Result in Significant Exposure of Persons or Property to Reasonably Foreseeable Impacts of Climate Change	Not applicable	Not Applicable	None Required	–

LTS = Less-than-Significant

– = not applicable

Environmental Setting

Research Methods

The following literature was reviewed to assess GHG emissions and climate change conditions in the project area.

- *2005 Draft Unincorporated Monterey County Greenhouse Gas Emissions Inventory* (Association of Monterey Bay Area Governments 2010).
- *2010 Monterey County General Plan Final EIR* (Monterey County 2010).
- CEQA Air Quality Guidelines (Monterey Bay Unified Air Pollution Control District 2008).
- *Our Changing Climate 2012: Vulnerability & Adaptation to the Increasing Risks from Climate Change in California* (California Energy Commission 2012).
- *Climate Change 2014: Synthesis Report* (Intergovernmental Panel on Climate Change 2013).

Background Information

Greenhouse Gas and Climate Change

According to the U.S. Environmental Protection Agency (EPA), a GHG is any gas that absorbs infrared radiation in the atmosphere. This absorption traps heat within the atmosphere, maintaining Earth's surface temperature at a level higher than would be the case in the absence of GHGs. GHGs include water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3), perfluorochemicals (PFCs), hydrofluorocarbon (HFCs), and halogenated chlorofluorocarbons. Naturally occurring GHGs include water vapor, CO_2, CH_4, N_2O, and O_3. Human activities add to the levels of most of these naturally occurring gases.

Increasing levels of GHGs in the atmosphere result in an increase in the temperature of Earth's lower atmosphere, a phenomenon that is commonly referred to as *global warming*. Warming of the Earth's lower atmosphere induces a suite of additional changes, including changes in global precipitation patterns; ocean circulation, temperature, and acidity; global mean sea level; species distribution and diversity; and the timing of biological processes. These large-scale changes are collectively referred to as *global climate change*.

The Intergovernmental Panel on Climate Change (IPCC) was established by the World Meteorological Organization and United Nations Environment Programme to assess scientific, technical, and socioeconomic information relevant to the understanding of climate change and its potential impacts and to provide options for adaptation and mitigation. As the leading authority on climate change science, IPCC's best estimates are that average global temperature rise between 2000 and 2100 could range from 0.5 °F to 8.6 °F (Intergovernmental Panel on Climate Change 2013). Large increases in global temperatures, as high as 8.6 °F, could have massive deleterious impacts on natural and human environments.

Since the Industrial Revolution began in approximately 1750, the concentration of CO_2 in Earth's atmosphere has increased from 270 parts per million (ppm) to roughly 391 ppm. Atmospheric concentrations of CH_4 and N_2O have similarly increased since the beginning of the industrial age. Since 1880, the global average surface temperature has increased by 1.5 °F, global average sea level has risen by nearly 190 millimeters (since 1901), and northern hemisphere snow cover (data available since 1920) has decreased by nearly 3 million square kilometers. These recently recorded changes can be attributed with a high degree of certainty to increased concentrations of GHGs in the atmosphere (Intergovernmental Panel on Climate Change 2013). Sinks of CO_2 (which remove rather than emit CO_2) include uptake by vegetation and dissolution into the ocean. Global GHG emissions greatly exceed the removal capacity of natural sinks.[1] As a result, concentrations of GHGs in the atmosphere are increasing (California Energy Commission 2006).

GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants (TACs). Criteria air pollutants and TACs occur locally or regionally, and local concentrations respond to locally implemented control measures. The long atmospheric lifetimes of GHGs allow them to be transported great distances from sources and become well-mixed, unlike criteria air pollutants, which typically exhibit strong concentration gradients away from point sources. GHGs and global

[1] A sink removes and stores GHGs in another form. For example, vegetation is a sink because it removes atmospheric CO_2 during photosynthesis and stores the gas as a chemical compound in its tissues.

climate change represent cumulative impacts. GHG emissions contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change.

Principal Greenhouse Gases

The GHGs listed by the IPCC include CO_2, CH_4, N_2O, HFCs, PFCs, and sulfur hexafluoride (SF_6) (Intergovernmental Panel on Climate Change 2013). California law and the State CEQA Guidelines contain a similar definition of GHGs (Health and Safety Code Section 38505[g]; 14 California Code of Regulations Section 15364.5). Water vapor, the most abundant GHG, is not included in this list because its natural concentrations and fluctuations far outweigh its anthropogenic sources.[2] The sources and sinks of each of these gases are discussed in detail below. Generally, GHG emissions are quantified and presented in terms of metric tons of carbon dioxide equivalent (CO_2e) emitted per year.

The primary GHGs associated with the Project are CO_2, CH_4, and N_2O. HFCs, PFCs, and SF_6 are associated primarily with industrial processes and, therefore, are not discussed in this chapter.

To simplify reporting and analysis, GHGs are commonly defined in terms of a global warming potential (GWP). The IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of CO_2e. The GWP of CO_2 is, by definition, 1. The GWP values used in this Recirculated Draft EIR are based on the IPCC Fifth Assessment Report (AR5) and United Nations Framework Convention on Climate Change (UNFCCC) reporting guidelines and are defined in **Table 3.13-2** (Intergovernmental Panel on Climate Change 2013). The AR5 GWP values are used in the California Air Resource Board's (ARB's) California inventory and Assembly Bill (AB) 32 Scoping Plan estimate update (Air Resources Board 2014).

Table 3.13-2. Lifetime, Global Warming Potential, and Abundance of Key Greenhouse Gas Emissions

Gas	Global Warming Potential (100 years)	Lifetime (years)[a]	2014 Atmospheric Abundance
CO_2 (ppm)	1	50–200	394
CH_4 (ppb)	28	9–15	1,893
N_2O (ppb)	265	121	326

Sources: Myhre et al. 2013; Air Resources Board 2014.
Notes:

[a] Defined as the half-life of the gas.

CH_4 = methane.

CO_2 = carbon dioxide.

N_2O = nitrous oxide.

ppb = parts per billion.

ppm = parts per million.

[2] Although water vapor plays a substantive role in the natural greenhouse effect, the change in GHGs in the atmosphere due to anthropogenic actions is enough to upset the radiative balance of the atmosphere and result in global warming.

Existing Conditions

Climate Change in California and Monterey County

Climate change is a complex phenomenon that has the potential to alter local climatic patterns and meteorology. Even with the efforts of jurisdictions throughout the state, a certain amount of climate change is inevitable due to existing and unavoidable future GHG emissions worldwide.

Climate change effects in California include, but are not limited to, sea level rise, extreme heat events, increase in infectious diseases and respiratory illnesses, and reduced snowpack and water supplies.

In the greater Monterey County area, including the project site, climate change effects are expected to result in the following conditions.

- A hotter climate, with average annual temperatures increasing by 2.9 to 4.9 °F in Monterey County by 2090, relative to baseline conditions (1961–1990) (California Energy Commission 2014).
- Increased sea level rise risk, with acreage vulnerable to a 100-year flood event increasing by 11 percent in Monterey County by 2100 (California Energy Commission 2014).
- More frequent and intense wildfires, with the area burned projected to increase by an estimated 10 to 15 percent in Monterey County by 2050 and 19 to 28 percent by 2100 (California Energy Commission 2014).
- Changes in growing season conditions and species distribution (PRBO Conservation Science 2011).
- Increased heat and decreased air quality, with the result that public health will be placed at risk, and native plant and animal species may be lost (PRBO Conservation Science 2011).

Emissions at Project Site

The project site's existing (baseline) emission sources include visitor vehicle trips, water consumption, waste generation, and landscaping as a result of the 18-hole golf course currently operating at the site. According to the Traffic Impact Study (TIS), the existing golf course attracts 414 trips per day. As described in Section 3.10, *Public Services and Utilities*, the golf course consumes an average of 204.8 acre-feet of irrigation per year, which results in indirect GHG emissions associated with electricity consumption to pump, treat, and supply the water. **Table 3.13-3** presents annual GHG emissions associated with existing activity at the project site.

Existing emissions are assumed to be replaced with implementation of either the Proposed Project or the 130-Unit Alternative.

Table 3.13-3. Existing Operational Greenhouse Gas Emission at Project Site

Emissions Category	CO_2	CH_4	N_2O	CO_2e
Area	<1	0.3	<0.0	<1
Mobile	368	<0.1	<0.1	368
Waste	<1	<0.1	<0.1	1
Water	45	0.6	<0.1	46
Existing GHG Emissions from Golf Course Operations	**413**	**<0.1**	**<0.1**	**415**

Source: CalEEMod Emissions Modeling (**Appendix F** to this Recirculated Draft EIR).

Notes:

CH_4 = methane.

CO_2 = carbon dioxide.

CO_2e = carbon dioxide equivalent.

GHG = greenhouse gas.

N_2O = nitrous oxide.

Regulatory Setting

Federal Policies and Regulations

Although climate change and GHG reductions are concerns at the federal level, no comprehensive federal legislation or regulations have been enacted related to GHG emissions reductions and climate change specifically. Foremost among past developments have been the U.S. Supreme Court's decision in *Massachusetts et al. v. U.S. Environmental Protection Agency*, the "Endangerment Finding," and the "Cause or Contribute Finding," which are described below. Despite these findings, the future of GHG regulation at the federal level remains uncertain and continues to evolve. Recent activity includes proposed standards for CO_2 emissions from new fossil fuel–fired electricity power plants by EPA. EPA and President Obama's Climate Action Plan aims to reduce GHG emissions in the United States by 26–28 percent below 2005 levels by 2025. In addition, EPA proposed the Clean Power Plan in 2014, which would be the first to establish national GHG limits for the electric power industry.

Massachusetts et al v. Environmental Protection Agency (2007)

In *Massachusetts et al. v. Environmental Protection Agency* 549 U.S. 497 (2007), the U.S. Supreme Court held that GHG emissions are pollutants within the meaning of the Clean Air Act (CAA). In issuing the opinion, the court also acknowledged that climate change results, in part, from anthropogenic causes. The Supreme Court's opinion in this case allowed EPA to regulate GHG emissions.

U.S. Environmental Protection Agency Endangerment Finding and Cause or Contribute Finding (2009)

On December 7, 2009, EPA signed the Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the CAA.

- Under the Endangerment Finding, EPA finds that the current and projected concentrations of the six key well-mixed GHGs, CO_2, CH_4, N_2O, PFCs, SF_6, and HFCs, in the atmosphere threaten the public health and welfare of current and future generations.
- Under the Cause or Contribute Findings, EPA finds that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.

Although EPA has yet to issue specific regulations regulating GHG emissions, the EPA Administrator's findings were the first step toward future regulations that are currently under development.

Corporate Average Fuel Economy Standards (2010/2011)

The current Corporate Average Fuel Economy (CAFE) standards for vehicles, which went into effect in 2012, incorporate stricter fuel economy standards into one uniform federal standard. The standards are equivalent to those previously promulgated by the State of California (see the Assembly Bill 1493 discussion below).

In October 2012, EPA and the National Highway Traffic Safety Administration (NHTSA) established the final rule for fleet-wide passenger car and light-truck model years 2017 to 2025. The new CAFE standards aim to reach an emissions rating of 163 grams of carbon monoxide (CO) per mile, or the equivalent of 54.5 miles per gallon (mpg), by model year 2025. Fleet-wide fuel economy standards will become more stringent with each subsequent model year through 2025. Because of a statutory requirement that requires NHTSA to set average fuel economy standards 5 model years at a time, NHTSA requires model years 2017 to 2022 to have an industry fleet-wide average of 40.3 to 41.0 mpg and estimates that 2025 model year vehicles will range from 48.7 to 49.7 mpg (U.S. Environmental Protection Agency 2012).

EPA Clean Power Plan (2014)

On June 2, 2014, EPA, under President Obama's Climate Action Plan, proposed a Clean Power Plan, which would be the first to establish national GHG limits for the electric power industry. The proposed rule contains state-specific emission-reduction goals and will help cut carbon pollution from the power sector by 30 percent from 2005 levels.

EPA and NHTSA Fuel Economy for Medium and Heavy Duty Engines and Vehicles (2011/2015)

On August 9, 2011, EPA and NHTSA announced a new national program to reduce GHG emissions and improve fuel economy for new medium- and heavy-duty engines and vehicles sold in the U.S. EPA and NHTSA finalized a joint rule (Phase 1) that established a national program consisting of new standards for engines in model years 2014 through 2018, which would reduce CO_2 emissions by about 270 million metric tons and save about 530 million barrels of oil over the life of vehicles built for the 2014 to 2018 model years.

EPA and NHTSA are currently working on Phase 2 standards, which would reduce CO_2 emissions associated with model year 2018 and beyond.

State Policies and Regulations

California has adopted statewide legislation to address issues related to various aspects of climate change and GHG emissions mitigation. Much of this legislation establishes a broad framework for the state's long-term GHG emissions-reduction and climate change adaptation program. Previous California Governors have also issued several executive orders related to the state's evolving climate change policy. Of particular importance to local governments is the direction provided by the 2008 AB 32 Scoping Plan, which recommends that local governments reduce their GHG emissions to a level consistent with state goals (i.e., 15 percent below current levels).

Absent federal regulations, GHG emissions are generally regulated at the state level and typically approached by setting emissions-reduction targets for existing sources of GHG emissions, establishing policies to promote renewable energy and increase energy efficiency, and developing statewide action plans. Summaries of key policies, legal cases, regulations, and legislation at the state level relevant to the County are provided below. Key statewide GHG regulations that are directly applicable to the Project are included.

Senate Bill 350

SB 350(De Leon, also known as the "Clean Energy and Pollution Reduction Act of 2015") was approved by the California legislature in September 2015 and by the Governor in October 2015. Its key provisions are to require the following by 2030: (1) a renewables portfolio standard of 50 percent and (2) a doubling of efficiency for existing buildings.

Assembly Bill 1493—Pavley Rules (2002, Amendments 2009)/Advanced Clean Cars (2011)

AB 1493 required ARB to develop and implement regulations to reduce automobile and light-truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009 model year. In June 2009, the EPA Administrator granted a CAA waiver of preemption to California. This waiver allowed California to implement its own GHG emissions standards for motor vehicles beginning with model year 2009. ARB approved joint rulemaking efforts to reduce GHG emissions from passenger cars (model years 2017 to 2025) on December 31, 2012 (Air Resources Board 2014).

Renewable Energy Standard/Renewable Portfolio Standard (2002/2006/2011)

Senate Bill (SB) 1078 (2002) and SB 107 (2006) created the Renewable Energy Standard (RES), which required electric utility companies to increase procurements from eligible renewable energy resources by at least 1 percent of their retail sales annually until reaching 20 percent by 2010. SB 2X 1 (2011) requires a Renewable Portfolio Standard (RPS), functionally the same thing as the RES, of 33 percent by 2020. In 2012, the statewide average for the three largest electrical suppliers (Pacific Gas and Electric, Southern California Edison, and San Diego Gas & Electric) was 20 percent.

Assembly Bill 32—The Global Warming Solutions Act of 2006

AB 32 codified the state's GHG emissions target by requiring California's global warming emissions to be reduced to 1990 levels by 2020. Since AB 32 was adopted, ARB, the California Energy Commission, the California Public Utilities Commission, and the California Building Standards

Commission have been developing regulations that will help the state meet the goals of AB 32 and Executive Order (EO) S-03-05 (described below). The scoping plan for AB 32 identifies specific measures to reduce GHG emissions to 1990 levels by 2020 and requires ARB and other state agencies to develop and enforce regulations and other initiatives to reduce GHG emissions. Specifically, the scoping plan articulates a key role for local governments by recommending that they establish GHG emissions-reduction goals for both their municipal operations and the community that are consistent with those of the state (i.e., approximately 15 percent below current levels) (Air Resources Board 2008).

ARB reevaluated its emissions forecast in light of the economic downturn and updated the projected 2020 emissions to 545 million MTs of carbon dioxide equivalent ($MMTCO_2e$). Two reduction measures (Pavley I and RPS [12 percent to 20 percent]) that were not previously included in the 2008 scoping plan baseline were incorporated into the updated baseline, further reducing the 2020 statewide emissions projection to 507 $MMTCO_2e$. The updated forecast of 507 $MMTCO_2e$ is referred to as the AB 32 2020 baseline. An estimated reduction of 80 $MMTCO_2e$ is necessary to lower statewide emissions to the AB 32 target of 427 $MMTCO_2e$ by 2020 (Air Resources Board 2011).

ARB approved the *First Update to the Scoping Plan* on May 22, 2014, and finalized the environmental analysis following public review on May 15, 2014 (Air Resources Board 2014). The first update includes both a 2020 element and a post-2020 element. The 2020 element focuses on the state, regional, and local initiatives that are being implemented now to help the state meet the 2020 goal. The post-2020 element provides a high-level view of the long-term strategy for meeting the 2050 GHG goals, consistent with the goals set forth in EO S-3-05 and EO B-16-2012 (described below).

Executive Order B-30-15 (2015)

EO B-30-15 established a medium-term goal for 2030 of reducing GHG emissions by 40 percent below 1990 levels and requires ARB to update its current AB 32 Scoping Plan to identify the measures to meet the 2030 target. The executive order supports EO S-3-05, described above, but is currently only binding on agencies.

Executive Order S-03-05 (2005) and Executive Order B-16-2012 (2012)

EO S-03-05 was designed to reduce California's GHG emissions to (1) 2000 levels by 2010, (2) 1990 levels by 2020, and (3) 80 percent below 1990 levels by 2050. EO B-16-2012 establishes benchmarks for reducing transportation-related GHG emissions. It requires agencies to implement the Plug-in Electric Vehicle Collaborative and California Fuel Cell Partnership by 2015 and sets forth targets specific to the transportation sector, including the goal of reducing transportation-related GHG emissions to 80 percent less than 1990 levels.

Executive Order S-01-07, Low-Carbon Fuel Standard (2007)

Former Governor Arnold Schwarzenegger set forth the low-carbon fuel standard (LCFS) for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020. On July 15, 2013, the Fifth District Court of Appeals ruled to allow LCFS regulations to remain operative while ARB analyzes the smog-related impacts of LCFS implementation, including formulation of appropriate enforceable mitigation measures, and subsequently completes a full CEQA review, provided ARB attempts to meet its statutory requirements in good faith (see *Poet, LLC et al. v. California Air Resources Board* et al.). The CEQA

process is currently under way. Additionally, on September 18, 2013, the Ninth Circuit Court of Appeals denied a petition for review *in Rocky Mountain Farmers Union v. Corey,* lending finality to the Ninth Circuit Court's decision that the LCFS does not facially violate the dormant Commerce Clause, which most likely removes the most substantial hurdle to the LCFS's constitutional validity under the dormant Commerce Clause (California Environmental Law Blog 2014).

Senate Bill 375, Statutes of 2008

Senate Bill (SB) 375 requires metropolitan planning organizations to incorporate a sustainable communities strategy (SCS) in their regional transportation plans that will achieve the GHG emissions-reduction targets set by ARB. In February 2011, ARB finalized the regional targets. SB 375 also includes provisions for streamlined CEQA review for some infill projects, such as transit-oriented development.

The Association of Monterey Bay Area Governments (AMBAG) is the metropolitan planning organization for the Monterey Bay Area. AMBAG adopted its regional transportation plan/sustainable communities strategy (RTP/SCS) in compliance with SB 375 in June 2014. The RTP/SCS calls for GHG emissions associated with the passenger and light-duty sector that match 2005 per capita levels in 2020 and that are 5 percent below 2005 per capita levels by 2035.

State CEQA Guidelines (2011)

The 2011 State CEQA Guidelines include a new section (Section 15064.4) that specifically discusses the significance of GHG emissions. Section 15064.4 calls for a good-faith effort when describing, calculating, or estimating GHG emissions. Section 15064.4 also states that a determination of the significance of GHG impacts should consider whether the project would increase or reduce GHG emissions, exceed a locally applicable threshold of significance, or comply with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. The revisions also state that a project may be found to have a less-than-significant impact if it complies with an adopted plan that includes specific measures to reduce GHG emissions sufficiently (Section 15064(h)(3)). However, the revised guidelines neither require nor recommend a specific analysis methodology or provide quantitative criteria for determining the significance of GHG emissions.

Cap and Trade (2012)

On October 20, 2011, ARB adopted the final cap-and-trade program for California. The California cap-and-trade program is a market-based system with an overall emissions limit for affected sectors. Examples of affected entities include carbon dioxide suppliers, in-state electricity-generators, hydrogen production, petroleum refining, and other large-scale manufacturers and fuel suppliers. The cap-and-trade program is currently regulating more than 85 percent of California's emissions. Compliance requirements began according to the following schedule: (1) electricity generation and large industrial sources (2012) and (2) fuel combustion and transportation (2015).

Local Policies and Regulations

Monterey Bay Unified Air Pollution Control District

As discussed in Section 3.8, *Air Quality*, Monterey Bay Unified Air Pollution Control District (MBUAPCD) has primary responsibility for developing and implementing rules and regulations to attain the national ambient air quality standards and California ambient air quality standards, permitting new or modified sources, developing air quality management plans, and adopting and enforcing air pollution regulations for all projects in Monterey County.

The AB 32 Scoping Plan does not provide an explicit role for local air districts with respect to implementing AB 32, but it does state that ARB will work actively with air districts in coordinating emissions reporting, encouraging and coordinating GHG reductions, and providing technical assistance in quantifying reductions. The ability of air districts to control emissions (both criteria pollutants and GHGs) is provided primarily through permitting, but also through their role as a CEQA lead or commenting agency, the establishment of CEQA thresholds, and the development of analytical requirements for CEQA documents (Monterey Bay Unified Air Pollution Control District 2008).

MBUAPCD drafted potential quantitative thresholds for projects undergoing CEQA review in February 2014. The draft thresholds include a 10,000-metric ton (MT) threshold for stationary sources and a tiered approach for land use projects, whereby one of the following is applied: a bright-line (numeric) of 2,000 MT; incorporation of mitigation measures to achieve 16 percent reduction from Business as Usual (BAU); or compliance with an adopted climate action plan (Monterey Bay Unified Air Pollution Control District 2014). However, MBUAPCD has not formally adopted these thresholds, and they remain in draft form. Additional consultation with MBUAPCD staff indicates use of these draft thresholds would be inappropriate for use in determining significance (Clymo pers. comm.). MBUAPCD staff has suggested potential use of the CEQA thresholds adopted by the San Luis Obispo Air Pollution Control District (SLOAPCD). However, the SLOAPCD's thresholds were specifically developed in the context of San Luis Obispo County, not Monterey County and, thus, use of its thresholds is not necessarily appropriate within Monterey County. Instead, as explained below, this Recirculated Draft EIR uses a different threshold that is related to the land use sector GHG efficiency. This threshold uses the same efficiency concept recommended by SLOAPCD, although the threshold used is slightly different for the reasons explained below.

Current County Plans and Policies

2010 Monterey County General Plan

The 2010 General Plan provides a general direction for future growth throughout the unincorporated areas of the County. The General Plan includes *Policy OS-10.11*, which adopted a GHG emissions reduction target of 15 percent below 2005 levels by 2020 and required development of a GHG reduction plan for the county by 2013. The 2010 General Plan *Policy OS-10.11* applies to Proposed Project and 130-Unit Alternative.

2013 Carmel Valley Master Plan

The 2013 *Carmel Valley Master Plan* contains no relevant policies pertaining to GHG emissions and climate change that are applicable to the Proposed Project and 130-Unit Alternative.

Prior County Plans and Policies

As stated in Chapter 1, *Introduction*, discussion pertaining to the 1982 Monterey County General Plan is provided for informational purposes only.

1982 Monterey County General Plan

The 1982 Monterey County General Plan contains no relevant policies pertaining to GHG emissions and climate change that are applicable to the Proposed Project and 130-Unit Alternative.

1986 Carmel Valley Master Plan

The 1986 Carmel Valley Master Plan contains no relevant policies pertaining to GHG emissions and climate change that are applicable to the Proposed Project and 130-Unit Alternative.

Impact Analysis

Methodology

This evaluation of GHG emissions and climate change is based on professional standards and information cited throughout this chapter. The key effects were identified and evaluated based on the environmental characteristics of the project site and the magnitude, intensity, and duration of activities related to the construction and operation of the Proposed Project and 130-Unit Alternative.

Construction-Related Emissions

Construction of the Proposed Project and 130-Unit Alternative would generate GHG emissions from mobile and stationary construction equipment exhaust and on-road vehicle exhaust associated with material deliveries and worker commute trips. Construction-related GHG emissions were estimated using a combination of emission factors within the CalEEMod emissions model (version 2013.2.2), emission factors from EMFAC 2014, a detailed inventory of construction phasing information for the Proposed Project and 130-Unit Alternative from the Project Applicant, and default assumptions for building construction within CalEEMod. A detailed inventory of construction phasing, equipment, and vehicle trips was obtained from the Project Applicant. A detailed inventory of data used to estimate construction-related emissions is presented in **Appendix F**.

Operation-Related Emissions

The Project site's existing (baseline) emission sources include visitor vehicle trips, water consumption, waste generation, and landscaping due to the 18-hole golf course currently operating at the site. Existing emissions, as shown in **Table 3.13-3**, are assumed to be replaced with implementation of either the Proposed Project or 130-Unit Alternative. Once constructed, the Proposed Project and 130-Unit Alternative would result in the long-term generation of GHG

emissions associated with residential motor vehicle travel, energy consumption, water consumption, and wastewater and solid waste generation.

GHG emissions associated with Proposed Project and 130-Unit Alternative operations were estimated using the CalEEMod model, based on motor vehicle trip generation data from the traffic impact analysis (**Appendix F**) and CalEEMod defaults for electricity, natural gas, water consumption, and wastewater and solid waste generation for the Proposed Project and 130-Unit Alternative land uses. Either alternative is assumed to be fully constructed and operational in 2016. Assuming a 2016 operational year represents a conservative assumption, in that emissions per rate of activity (e.g., per vehicle mile traveled) would decline over time through fleet turnover and modernization. Thus, the use of a 2016 operational year will slightly overstate the operational emissions.

With regard to emission sources, indirect operational GHG emissions were also estimated for the Proposed Project and 130-Unit Alternative operations. Indirect emission sources include energy, waste, and water and wastewater-related emissions. Energy emissions include emissions associated with building electricity and non-hearth natural gas usage. Water and wastewater GHG emissions are those associated with supplying and treating water and wastewater for land use facilities. Waste GHG emissions are those associated with disposal of solid waste into landfills. GHG emission factors and methodology used to calculate indirect GHG emissions associated with the Proposed Project and 130-Unit Alternative are based on CalEEMod default values for the proposed land uses.

Net emissions are presented at the annual time scale and are compared with the GHG thresholds discussed below.

Approach to Developing Significance Criteria

There are no established statewide, regional, or county significance criteria for evaluating GHG emissions or climate change impacts. The approach to developing significance criteria to evaluate climate change and GHG impacts in this Recirculated Draft EIR is discussed below. This section also addresses the approach to determining impacts of climate change on the Project and 130-Unit Alternative.

Project Contribution to Climate Change Impacts

The State CEQA Guidelines do not define the amount of GHG emissions that would constitute a significant impact on the environment. Instead, the guidelines leave the determination of the significance of GHG emissions up to the lead agency and authorize the lead agency to consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence (State CEQA Guidelines 15064.4[a], 15064.7[c]).

As noted above, MBUAPCD has not yet established a threshold by which to evaluate impacts related to climate change and does not recommend use of their draft thresholds. The County has adopted no GHG Reduction Plan for the community as a whole. Consequently, impacts related to climate change are evaluated based on the Project's and 130-Unit Alternative's consistency with the GHG efficiency necessary for the state's land use sector overall.

GHG emissions for the land use sector include those portions of the overall statewide inventory that are related to residential and commercial land uses. This is the portion of the statewide inventory

most related to the Proposed Project. It includes emissions associated with electricity, transportation, landfill disposal of solid waste, wastewater treatment, and direct fuel use of commercial and residential land uses. It excludes other parts of the statewide inventory that are not related to residential and commercial land uses such as aviation and marine transportation fuel use, industrial fuel use, industrial solid waste, industrial wastewater treatment, agricultural, and other non-related uses. Using this definition, land use sector GHG emissions in 1990 statewide were approximately 264.1 $MMTCO_2e$ (see **Appendix F**).

As noted above, the AB 32 target overall is for 2020 emissions to return to 1990 levels. In the land use sector, this would mean that the land use sector would need to return to 264.1 $MMTCO_2e$. However, there will be more residential and commercial activity in 2020 compared to 1990 due to population and economic growth. A common way to benchmark the GHG efficiency needed for land use development projects is by dividing the land use emissions by the "Service Population" (SP, which is the sum of population and employees. At a statewide level, the Department of Finance estimates that the 2020 estimated population would be 40,619,346 and the Employment Development Division (EDD) estimates that the 2020 estimated number of employees would be 18,223,080, for a 2020 SP of 58,842,426. Dividing the 2020 emissions for the land use sector consistent with AB 32 (264.1 $MMTCO_2e$) by the SP (58,842,426), the resultant necessary GHG efficiency for the land use sector is 4.5 $MTCO_2e$/SP. This is the threshold used for evaluating significance in this EIR.

This approach has been recommended by a number of regional air pollution control agencies including two air districts adjacent to the MBUAPCD. The Bay Area Air Quality Management District (BAAQMD) recommends a significance threshold of 4.6 $MMTCO_2e$/SP. The SLOAPCD recommends a significance threshold of 4.9 $MTCO_2e$/SP. Both BAAQMD and SLOAPCD calculated these thresholds using the exact same methodology as described above. However, BAAQMD and SLOAPCD used a slightly different estimate for the land use sector than noted above; specifically they did not exclude certain emissions that are excluded in the land use sector estimate noted above, so they have slightly higher estimates of the land use sector emissions. In addition, BAAQMD and SLOAPCD estimated their thresholds several years ago and the current estimates of 2020 population and employment are different than those used by BAAQMD and SLOAPCD. Since the methodology used by BAAQMD and SLOAPCD is the same, and only the data used to derive the threshold used in this EIR differs, the rationale used by BAAQMD and SLOAPCD for their efficiency threshold is hereby incorporated by reference as supporting evidence for the appropriateness of using an efficiency threshold for this EIR (BAAQMD 2011, SLOAPCD 2012). Furthermore, the proposed threshold used in this EIR is slightly more conservative than the threshold recommended by the two adjacent air districts using the adjusted land use inventory and current population and employment estimates.[3]

U.S. Supreme Court rulings (*Nollan vs. California Coastal Commission* and *Dolan vs. City of Tigard*) establish the principles that the U.S. Constitution limits exactions on new development to only those that have a "nexus" and "rough proportionality" to the impact actually caused by the new development. While there is a nexus for requiring GHG reductions for new development that results in new GHG emissions, the reductions mandated must be proportional to the impact caused by new development. As a result, it is proportional to require new development to meet the average statewide GHG efficiency, but requiring more than average levels of efficiency would be mitigating

[3] As noted above, MBUAPCD recommended the project utilize the SLOAPCD thresholds. While this EIR does not use SLOAPCD thresholds, this EIR does use a method consistent with the project-efficiency threshold recommended by SLOAPCD.

the effects of existing development by imposing requirements beyond the fair share of new development. As such, the efficiency threshold is an appropriate and fair threshold for evaluation of the significant of new land use development.

Climate Change Impacts on the Project

As described in the *Environmental Setting* section, at the local level, climate change effects on Monterey County water supplies, flooding, wildfire potential, environmental health, and other areas are reasonably foreseeable, although not quantifiable in many aspects at present. New development could expose persons and property to these effects. Developing strategies to adapt to foreseeable changes in climate would make new and existing development more resilient to future conditions. It should be noted that due to a number of recent appellate court rulings (most prominently *Ballona Wetlands Land Trust et al. v. City of Los Angeles* (2011) 201 Cal.App.4th 455 (*Ballona Wetlands*), and especially due to the 2015 California Supreme Court ruling in the California Building Industry Association vs. Bay Area Air Quality Management District (CBIA vs. BAAQMD), the general rule is that the impacts of the environment on a project, such as sea level rise due to climate change, are not CEQA impacts because they are not impacts of the project on the environment. This Recirculated Draft EIR provides an analysis for informational purposes only as such an analysis is not legally required under CEQA.

Criteria for Determining Significance

In accordance with CEQA, State CEQA Guidelines, 2010 General Plan plans and policies, and agency and professional standards, a project impact would be considered significant if the project would:

A. Contribute to Climate Change Impacts

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. Specifically, project-related GHG emissions are considered significant if they are more than 4.5 metric tons per Service Population. This level is the statewide average for land use development needed to meet AB 32 targets in 2020.
- Conflict with an applicable plan, policy, or regulation adopted for reducing the emissions of GHGs.

B. Effects of Climate Change (Informational Only)

- Result in new development that is unprepared for reasonably foreseeable environmental changes due to climate change and, thus, would subject property and persons to additional risk of physical harm related to flooding, public health, wildfire risk, and other impacts. As noted above, this analysis is provided for informational purposes only and no significance determination is provided.

Impacts and Mitigation Measures

A. Contribute to Climate Change Impacts

Impact GHG-1: Result in Project-Related Greenhouse Gas Emissions, during Construction and Operation That Could Contribute to Climate Change Impacts and be Inconsistent with the Goals of Assembly Bill 32 (less than significant with mitigation)

Proposed Project

As noted in **Table 3.13-3**, the current GHG emissions at the project site associated with the existing golf course are an estimated 415 MT of CO_2 per year. With construction and operation of the Proposed Project, the GHG emissions would change as existing operation of the golf course would be replaced with development associated with the Proposed Project.

Temporary Construction Emissions

Construction of the Proposed Project would result in emissions from fuel combustion of off- and on-road construction equipment and vehicles that contribute to GHG impacts. **Table 3.13-4** presents an estimate of GHG emissions associated with construction of the Proposed Project elements. This construction impact would be *potentially significant* but would be reduced to a less-than-significant level with implementation of **Mitigation Measure GHG-1**, which would help reduce construction-related GHG emissions.

Table 3.13-4. Proposed Project Construction Greenhouse Gas Emissions (metric tons)

Category	CO_2	CH_4	N_2O	CO_2e
Site Development	398	0.1	0.1	416
Building Construction	2,969	0.4	<0.1	2,979
Haul Trucks for Off-site Fill Import	605	<0.1	<0.1	605
Total Construction GHG Emissions	**3,972**	**0.5**	**0.1**	**4,000**

Source: ICF Emissions Modeling (**Appendix F** to this Recirculated Draft EIR).
Notes:
CH_4 = methane.
CO_2 = carbon dioxide.
CO_2e = carbon dioxide equivalent.
GHG = greenhouse gas.
N_2O = nitrous oxide.

Permanent Emissions Sources

Two key components would affect GHG emissions.

- Project operational emissions due to direct and indirect emissions associated with building energy, transportation, waste generation, and water.
- Increase in carbon sequestration due to new habitat creation.

As shown in **Table 3.13-5**, unmitigated long-term operations (assuming a 2016 operating year) of the Proposed Project would result in net increase of 5,151 $MTCO_2e$ per year over existing conditions. Also shown in **Table 3.13-5** is the estimated additional carbon sequestration associated with new habitat to be created as part of the Proposed Project and the one-time carbon stock loss associated with removal of the existing trees.

Table 3.13-5. Proposed Project Operational Greenhouse Gas Emissions Increases over Existing Conditions (metric tons/year)

Emissions Category	CO_2	CH_4	N_2O	CO_2e
Area	417	0.3	<0.0	430
Electricity	332	<0.1	<0.1	334
Natural Gas	446	<0.1	<0.1	448
Mobile	4,234	0.2	<0.1	4,240
Waste	56	3.3	<0.1	148
Water	35	0.6	<0.1	56
Sequestration from new habitat	*-88*	*<0.1*	*<0.1*	*-88*
Gross Annual Emissions	5,431	4.4	0.1	**5,556**
Existing Emissions from Golf Course Operations	413	<0.1	<0.1	415
Existing Trees Removed	*11*	*<0.1*	*<0.1*	*11*
Net Annual Emissions[1]	5,029	4.4	<0.1	**5,152**
Service Population				*849*
Net Annual Emissions/Service Population				**6.07**

Source: CalEEMod Emissions Modeling (**Appendix F** of this Recirculated Draft EIR).

Notes:

CH_4 = methane.

CO_2 = carbon dioxide.

CO_2e = carbon dioxide equivalent.

GHG = greenhouse gas.

N_2O = nitrous oxide.

[1] Gross annual emissions – existing golf course emissions + existing removed tree emissions.

Alone, the Proposed Project–related emissions would not result in climate change or global warming. However, climate change is a cumulative impact resulting from the collective emissions of the state, the country, and the planet as a whole. These emissions would contribute cumulatively to Monterey County, California, and global emissions that would result in significant changes to the local, state, national, and global physical environment. Without mitigation, these emissions would also have an adverse effect on the ability of California as a whole to meet the reduction targets in AB 32 because they would exceed the GHG efficiency needed overall in the land use sector.

This operational impact would be *potentially significant*. **Mitigation Measure GHG-2** would mitigate emissions to a *less-than-significant* level through a combination of design features (such as energy efficiency or renewable energy), tree replanting, and/or offset purchases sufficient to achieve necessary emission reductions. The County would apply this mitigation in whole or by phases and the County will not approve the development without having an overall plan in place or a plan for the next development in place.

Table 3.13-6 below shows that if the state measures and project-level mitigation noted above are incorporated into the design, operational GHG emissions would be less than the significance threshold. The table shows the results of statewide measures (Pavley, Advanced Clean Cars, LCFS, RPS, Title 24) as well as project-level mitigation (GHG-2). Although this scenario is hypothetical in relation to the project-level, it shows that reduction of emissions to below the significance criterion is feasible.

Table 3.13-6. Proposed Project Operational Greenhouse Gas Emissions Increases over Existing Conditions with State Measures and Potential Project Mitigation (metric tons/year)

Emissions Category	CO_2	CH_4	N_2O	CO_2e
Area	203	<0.1	<0.1	204
Electricity	247	<0.1	<0.1	249
Natural Gas	371	<0.1	<0.1	373
Mobile	3,332	0.2	<0.1	3,336
Waste	28	1.6	<0.1	69
Water	27	0.5	<0.1	42
Sequestration from new habitat	*-88*	*<0.1*	*<0.1*	*-88*
Gross Annual Emissions (with mitigation)	4,119	2.3	<0.1	**4,185**
Existing Emissions from Golf Course	413	<0.1	<0.1	415
Existing Trees Removed	*11*	*<0.1*	*<0.1*	*11*
Net Annual Emissions (with mitigation)[1]	3,717	2.3	<0.1	**3,781**
Service Population				*849*
Net Annual Emissions/Service Population				**4.45**

Source: CalEEMod Emissions Modeling (**Appendix F** of this Recirculated Draft EIR). Assumes implementation of state measures and project-specific measures (described under GHG-2).

Notes:

CH_4 = methane.

CO_2 = carbon dioxide.

CO_2e = carbon dioxide equivalent.

GHG = greenhouse gas.

N_2O = nitrous oxide.

[1] Gross annual emissions – existing golf course emissions + existing removed tree emissions

[2] See **Table 3.13-5**.

130-Unit Alternative

As noted in **Table 3.13-3**, the current GHG emissions at the project site associated with the existing golf course are an estimated 415 MT of CO_2 per year. With construction and operation of the 130-Unit Alternative, the GHG emissions would change as the existing operation of the golf course would be replaced with development associated with the 130-Unit Alternative.

Temporary Construction Emissions

Construction of the130-Unit Alternative, including Lot 130, would result in emissions from fuel combustion of off- and on-road construction equipment and vehicles that contribute to GHG

impacts, but in quantities different from those for the Proposed Project. **Table 3.13-7** presents an estimate of GHG emissions associated with construction of 130-Unit Alternative. This construction impact would be *potentially significant* but would be reduced to a *less-than-significant* level with implementation of **Mitigation Measure GHG-1**, which would help reduce construction-related GHG emissions.

Table 3.13-7. 130-Unit Alternative Construction GHG Emissions (metric tons)

Category	CO_2	CH_4	N_2O	CO_2e
Site Development	365	0,1	<0.1	381
Building Construction	1,485	0.2	<0.1	1,490
Total Construction GHG Emissions	1,850	0.3	<0.1	1,871

Source: CalEEMod Emissions Modeling (**Appendix F** of this Recirculated Draft EIR).

Notes:

CH_4 = methane.

CO_2 = carbon dioxide.

CO_2e = carbon dioxide equivalent.

GHG = greenhouse gas.

N_2O = nitrous oxide.

Permanent Emissions Sources

Similar to the Proposed Project, for the 130-Unit Alternative, two key components would affect GHG emissions.

- Project operational emissions due to direct and indirect emissions associated with building energy, transportation, waste generation, and water.
- Increase in carbon sequestration due to new habitat creation.

As shown in **Table 3.13-8**, unmitigated long-term operations (assuming a 2016 operating year) of the 130-Unit Alternative would result in a net increase of 2,501 $MTCO_2e$ over existing conditions. Also shown in **Table 3.13-8** is the estimated additional carbon sequestration associated with new habitat to be created as part of the 130-Unit Alternative, which is assumed the same as for the Proposed Project.

Table 3.13-8. 130-Unit Alternative Operational GHG Emissions Increases over Existing Conditions (metric tons/year)

Emissions Category	CO_2	CH_4	N_2O	CO_2e
130-Unit Alternative				
Area	193	0.1	<0.1	199
Electricity	172	<0.1	<0.1	173
Natural Gas	235	<0.1	<0.1	236
Mobile	2,280	0.1	<0.1	2,283
Waste	31	1.8	<0.1	77
Water	17	0.3	<0.1	25
Sequestration from new habitat	*-88*	*<0.1*	*<0.1*	*-88*
Gross Annual Emissions	2,839	2.4	<0.1	**2,906**
Existing Emissions from Golf Course Operations	*413*	*<0.1*	*<0.1*	*415*
Existing Trees Removed	*11*	*<0.1*	*<0.1*	*11*
Net Annual Emissions[1]	2,437	2.3	0.1	**2,501**
Service Population				*393*
Net Annual emissions/Service Population				**6.36**

Source: CalEEMod Emissions Modeling (**Appendix F** of this Recirculated Draft EIR).

Notes:

CH_4 = methane.

CO_2 = carbon dioxide.

CO_2e = carbon dioxide equivalent.

GHG = greenhouse gas.

N_2O = nitrous oxide.

[1] Gross annual emissions – existing golf course emissions + existing removed tree emissions.

The 130-Unit Alternative emissions would not result in climate change or global warming. However, climate change is a cumulative impact resulting from the collective emissions of the state, the country, and the planet as a whole. These emissions would contribute cumulatively to Monterey County, California, and global emissions that would result in significant changes to the local, state, national, and global physical environment. Without mitigation, these emissions would also have an adverse effect on the ability of California as a whole to meet the reduction targets in AB 32 because they would exceed the land use sector GHG efficiency needed overall.

This operational impact would be *potentially significant*. **Mitigation Measure GHG-2** would mitigate emissions to a *less-than-significant* level through a combination of design features (such as energy efficiency or renewable energy), tree replanting, and/or offset purchases sufficient to achieve necessary emission reductions. The County would apply this mitigation in whole or by phases, and the County would not approve the development without having an overall plan in place or a plan for the next development in place.

Table 3.13-9 below shows that if the state measures and project-level mitigation noted above are incorporated into the design, operational GHG emissions could be reduced to below the significance threshold. The table shows the results of statewide measures (Pavley, Advanced Clean Cars, LCFS, RPS, Title 24) as well as example project mitigation (described under GHG-2).

Table 3.13-9. 130-Unit Alternative Operational Greenhouse Gas Emissions Increases over Existing Conditions with State Measures and Potential Project Mitigation (metric tons/year)

Emissions Category	CO_2	CH_4	N_2O	CO_2e
130-Unit Alternative				
Area	94	<0.1	<0.1	94
Electricity	125	<0.1	<0.1	126
Natural Gas	195	<0.1	<0.1	197
Mobile	1,786	0.1	<0.1	1,788
Waste	16	0.9	<0.1	39
Water	11	0.2	<0.1	18
Sequestration from new habitat	*-88*	*<0.1*	*<0.1*	*-88*
Gross Annual Emissions	2,139	1.3	<0.1	**2,174**
Existing Emissions from Golf Course	*413*	*0.1*	*<0.1*	*415*
Existing Trees Removed	*11*	*<0.1*	*<0.1*	*11*
Net Annual Emissions (130-Unit Alternative)[1]	1,736	1.2	<0.1	**1,770**
Service Population				*393*
Net Annual Emissions/Service Population				***4.50***

Source: CalEEMod Emissions Modeling (**Appendix F** of this Recirculated EIR). Assumes implementation of state measures and project-specific measures (described under GHG-2).

Notes:

CH_4 = methane.

CO_2 = carbon dioxide.

CO_2e = carbon dioxide equivalent.

GHG = greenhouse gas.

N_2O = nitrous oxide.

[1] Gross annual emissions – existing golf course emissions + existing removed tree emissions.

[2] See **Table 3.13-8**.

Mitigation Measure GHG-1: Implement Best Management Practices for GHG Emissions during Construction

Prior to starting construction activities, the Project Applicant will ensure the construction contractor includes the following BMPs in the construction specifications, to the extent feasible, to reduce construction-related GHG emissions. The contractor will implement the following measures.

- Use alternative-fueled (e.g., biodiesel, electric) construction vehicles/equipment for at least 15 percent of the fleet.
- Use local building materials where reasonably available (i.e., within the general Monterey Bay area defined as Monterey County, Santa Cruz County, and San Benito County).
- Recycle at least 50 percent of construction waste or demolition materials.

Prior to issuance of grading or building permits of any phase of this Project or the 130-Unit Alternative, the Project Applicant would submit to Monterey County for review and approval a report of construction specifications demonstrating implementation of BMPs.

Mitigation Measure GHG-2: Reduce Annual Greenhouse Gas Emissions to below the Efficiency Threshold Using a Combination of Design Features, Replanting, and/or Offset Purchases

The Project Applicant will develop and implement a GHG Reduction Plan to reduce annual emissions of the Proposed Project to 3,820$MTCO_2e$ per year for the Proposed Project or 1,770 $MTCO_2e$ per year for the 130-Unit Alternative. The GHG Reduction Plan would be provided to Monterey County for review and approval prior to grading, or ground disturbance or vegetation removal for any phase of the Proposed Project or 130-Unit Alternative. The GHG Reduction Plan would identify the specific design measures proposed to reduce GHG emissions from the Proposed Project or 130-Unit Alternative, their timing, and the responsible party.

The GHG Reduction Plan could include the following measures.

Building Energy Use

- Exceed Title 24 building envelope energy efficiency standards (applicable at the time of the building permit issuance) by 20 percent.
- Install programmable thermostat timers and smart meters.
- Obtain third-party heating, ventilation, and air conditioning commissioning and verification of energy savings.
- Install energy-efficient appliances.
- Require cool roof materials.[4]
- Install green roofs.
- Install solar water heaters.
- Install tankless water heaters.
- Install solar panels.
- HVAC duct sealing.
- Increase roof/ceiling insulation.

Alternative Energy Generation[5]

- Install onsite solar facilities.
- Utilize a combined heat and power system for commercial facilities.

Lighting

- Install high-efficiency area lighting to reduce indoor and outdoor lighting energy use by 40 percent.
- Limit outdoor lighting.
- Replace traffic lights with LED traffic lights.

[4] Per EPA ENERGY STAR requirements, cool roofs should have albedo >= 0.25 for sloped roofs and >= 0.65 for low-slope roofs.

[5] Onsite wind facilities are not to be included in any mitigation to avoid potential aesthetic impacts and impacts on coastal birds.

- Maximize interior day light.

Transportation

- Provide electric vehicle charging stations.
- Provide preferred electric vehicle parking.
- Implement transit access improvements.
- Expand transit network.
- Provide local shuttle service to and from visitor-serving areas using a hybrid electric, electric, or alternative-fueled shuttle.
- Provide free transit passes for facility employees.

Water

- Install low-flow water fixtures.
- Design water-efficient landscapes and landscape irrigation systems.
- Install rainwater collection systems.
- Install low-water use appliances and fixtures.
- Restrict the use of water for cleaning outdoor surfaces and prohibit systems that apply water to non-vegetated surfaces.

Area Landscaping

- Use only electric-powered landscaping equipment (not gas powered).

Solid Waste

- Institute or extend recycling and composting services.

Carbon Sequestration

- Plant trees to replace trees removed by the Proposed Project.

Off-Site Mitigation

- Off-site mitigation could take many forms, including:
  - Paying for energy-efficiency upgrades of existing homes and business.
  - Installing off-site renewable energy.
  - Paying for off-site water efficiency.
  - Paying for off-site waste reduction.
  - Other methods.
- Offsite mitigation must be maintained in perpetuity to match the length of project operations to provide ongoing annual emission reductions.

Carbon Offsets

- Purchase offsets from a validated source[6] to offset annual GHG emissions.
- Purchase offsets from a validated source to offset one-time carbon stock GHG emissions.

The GHG Reduction Plan would consist of the measures described below unless the Project Applicant demonstrates that alternative measures will collectively meet the overall performance standard. The Project Applicant will document the application of all final measures to proposed new development and demonstrate their effectiveness.

- State measures that would lower Project emissions (compared to unmitigated conditions):
  - Renewable Portfolio Standard (9.2-percent reduction in electricity emissions).
  - Vehicle efficiency measures (Pavley/Advanced Clean Cars) (17.3-percent reduction in mobile emissions).
- Project measures that could lower Project emissions (compared to unmitigated conditions):
  - Features and measures to exceed Title 24 standards by 20 percent.
  - Features and measures to reduce lighting energy by 40 percent.
  - Features and measures to reduce indoor water usage and consumption by at least 20 percent.
  - Features and measures to reduce outdoor water usage and consumption by at least 44 percent.
  - Expanding recycling and composting services to ensure recycling of 50 percent of materials.
  - Generate 10 percent of energy needs via on-site renewable energy.
  - VMT reductions associated with the inclusion of 140 affordable (below-market) units for the proposed project and 25 units for the 130-unit alternative, consistent with California Air Pollution Control Officers Association (CAPCOA 2010).
  - Other VMT reductions include increased transit accessibility (0.25% VMT reduction) and implement neighborhood electric vehicle (NEV) network (0.01% VMT reduction).

B. Effects of Climate Change

Impact GHG-2: Result in Significant Exposure of Persons or Property to Reasonably Foreseeable Impacts of Climate Change (informational only)

Proposed Project

As noted above, in light of the *Ballona Wetlands* appellate court ruling and the CBIA vs. BAAQMD supreme court ruling, current CEQA court precedent has indicated that analysis of the

[6] Validated sources are carbon-offset sources that follow approved protocols and use third-party verification. At this time, appropriate offset providers include only those that have been validated using the protocols and methods of the Climate Action Registry, the Gold Standard, or the Clean Development Mechanism (CDM) of the Kyoto Protocol. Credits from other sources will not be allowed unless they are validated by protocols and methods equivalent to or more stringent than the CDM standards.

environment's impact on a project, including the effects of climate change, is not required. Nevertheless, this Recirculated Draft EIR provides this analysis for informational purposes only.

Climate change impacts in California and Monterey County include sea level rise, extreme heat events, increase in infectious diseases and respiratory illnesses, and reduced snowpack and water supplies. Localized effects at the project site could include increased temperatures and heat stress days.

Because of its geographic location and site elevations ranging from 25 to 40 feet above mean sea level, the project site is not expected to be inundated by the most extreme predicted sea level rise of up to 65.7 inches by 2100 (California Coastal Commission 2013).

In addition, residents and visitors to the project area could be subjected to a range of other potential effects of climate change. For climate-specific changes for California coastal regions, summer temperatures are expected to rise by 1 ° to 3.3 °C (2 ° to 11 °F) by the end of this century (California Energy Commission 2009a:12). Given the coastal location of the project area, while temperature changes could be substantial, they would not be likely to increase the number of heat stress days substantially due to the relatively cooler coastal temperatures. Warmer temperatures may also lead to reduction in coastal fog, which is essential to providing moisture for maintaining the terrestrial ecosystem along the California coastline (California Natural Resources Agency 2009).

Studies also suggest that such decreases in precipitation could result in increased risk of water pollution and spread of infectious diseases in water and seafood (Intergovernmental Panel on Climate Change 2007; California Natural Resources Agency 2009; California Energy Commission 2009a, 2009b; Kahrl and Roland-Holst 2008). Although changes in temperature, fog, water pollution, and disease vectors are possible, projecting the specific effect on the property and persons associated with the Proposed Project is not feasible at this time. While these effects are considered possible at some point in the future (and thus not entirely speculative), preparing for effects that have not been fully locally characterized yet is not feasible. As such, this does not give rise to a significant effect.

Although other climate change effects are also likely, at this time their local characteristics and extent cannot be specifically estimated with any accuracy. Thus, based on current understanding of climate change effects, the Proposed Project does not appear to result in a significant vulnerability to reasonably foreseeable effects of climate change such that undue risks to persons or property would occur.

130-Unit Alternative

Similar to the Proposed Project, because of its geographic location and elevation, the 130-Unit Alternative site is not expected to be inundated by the most extreme predicted sea level rise of up to 65.7 inches by 2100 (California Coastal Commission 2013).

The 130-Unit Alternative, including Lot 130, would not exacerbate climate change effects nor create a particular hazard to those potential effects.