Section 3.4
Climate Change

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This section discusses the proposed project's potential impacts relating to climate change, an evaluation of the significance of potential impacts, and feasible mitigation for significant impacts where appropriate. A summary of impacts and mitigation measures for impacts relating to climate change is presented in Table 3.4-1.

It is important to note that the concern about increasing greenhouse gas (GHG) emissions is, by its nature, a cumulative impact concern. There are literally billions of sources of individual anthropogenic (i.e., human created or caused) GHG emissions that are presently contributing to increased concentrations of GHGs in the atmosphere. This cumulative increase in atmospheric concentrations of CO_2 and other GHGs due to human-made emissions has been found by the majority of scientific research to be currently resulting in increasing temperatures globally and associated 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. As such, the focus of this section is to evaluate whether the proposed project's GHG emissions would contribute considerably to the significant cumulative impact of climate change.

This section also analyzes whether there are expected impacts on the proposed project due to localized effects of future climate change, such as sea level rise.

Table 3.4-1. Summary of Project Impacts on Climate Change

Project Impacts	Project Elements									
	PBL	SBI	COL-EQC	Area M MH	Area M MR	RES SUB	RD	TRA	INF	Cumulative
A. Contribute to Climate Change Impacts										
CC-A1. The proposed project would result in project-related greenhouse gas emissions, during construction and from operation that could considerably contribute to climate change impacts and be inconsistent with the goals of Assembly Bill 32.	◉ (Applies to proposed project as a whole)									
Mitigation Measures:	CC-A1. Implement best management practices for GHG emissions during construction. CC-A2-A. Reduce annual greenhouse gas emission by 26% relative to business as usual using a combination of design features, replanting, and/or offset purchases. OR CC-A2-B. Validate the greenhouse gas emission offset value of preserving Monterey Pine Forest designated for development using the Climate Action Registry Forest Project Protocol and preserve the lands in perpetuity.									
B. Effects of Climate Change										
CC-B1: The project would not result in significant exposure of persons or property to reasonably foreseeable impacts of climate change.	○ (Applies to proposed project as a whole)									

Notes:

● = Significant unavoidable impact.

◉ = Significant impact that can be reduced to less than significant.

○ = Less-than-significant impact.

— = No impact or not applicable to the development site.

PBL – The Lodge at Pebble Beach; **SBI** – The Inn at Spanish Bay; **COL-EQC** – Collins Field–Equestrian Center–Special Events Area; **MH** – Area M Spyglass Hill—New Resort Hotel (Option 1); **MR** – Area M Spyglass Hill—New Residential Lots (Option 2); **RES SUB** – Residential Lot Subdivisions; **RD** – Roadway Improvements; **TRA** – Trail Improvements; **INF** – Infrastructure Improvements; **Cumulative** – Proposed Project's Contribution to Cumulative Impacts

Regulatory Setting

This section describes the regulatory and environmental setting for climate change and GHGs, the effects on climate change that would result from the proposed project, and the mitigation measures that would reduce these effects.

Climate change has been recognized as an imminent threat to the global climate, economy, and population. Thus, the climate change regulatory setting—nationally, statewide, and locally—is complex and evolving. This section identifies key legislation, executive orders, and seminal court cases relevant to the environmental evaluation of project GHG emissions.

The key sources of data and information used in the preparation of this section are:

- 2005 Draft Unincorporated Monterey County Greenhouse Gas Emissions Inventory (AMBAG 2010).
- 2010 Monterey County General Plan Final EIR (Monterey County 2010).
- CEQA Air Quality Guidelines (Monterey Bay Unified Air Pollution Control District 2008a).
- Climate Change Scenarios and Sea Level Rise Estimates for California 2008 Climate Change Scenario Assessment (California Energy Commission 2009).
- Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (Intergovernmental Panel on Climate Change 2007).
- CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act (California Air Pollution Control Officers Association 2008).

Federal

To date, there are no federal standards regulating GHG emissions or climate change but regulations are currently in development by EPA that may be adopted pursuant to EPA's authority under the CAA in the next two years.

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 decision held that GHG emissions are pollutants within the meaning of the 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 compelled 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, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), perfluorinated carbons (PFCs), sulfur hexafluoride (SF_6), and hydrofluorocarbons (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 Administrator's findings were the first step toward future regulations that are currently under development.

Council on Environmental Quality Draft NEPA Guidance (2010)

On February 19, 2010, the Council on Environmental Quality (CEQ) issued draft NEPA guidance on the consideration of the effects of climate change and GHG emissions. This guidance advises federal agencies that they should consider opportunities to reduce GHG emissions caused by federal actions, adapt their actions to climate change impacts throughout the NEPA process, and address these issues in their agency NEPA procedures. Where applicable, the scope of the NEPA analysis should include identifying the GHG emissions from the proposed action (and alternatives being considered), environmental effects from the emissions, and the effect of climate change to the proposed action (and alternatives being considered).

Corporate Average Fuel Economy Standards (2010/2011)

The current Corporate Average Fuel Economy (CAFE) standards, which went into effect in 2010 for vehicles, incorporate stricter fuel economy standards equivalent to those previously promulgated by the State of California (see the discussion of Assembly Bill 1493, below) into one uniform federal standard. The changes are expected to reduce GHG emissions in new vehicles by roughly 25% by 2016 relative to business as usual (BAU).

EPA and ARB are currently working together on a joint rulemaking to establish GHG emissions standards for 2017 to 2025 model-year passenger vehicles. The Interim Joint Technical Assessment Report for the standards evaluated four potential future standards ranging from 47 to 62 miles per gallon in 2025 (U.S. Environmental Protection Agency et al. 2010). The official proposal was expected to be released in late 2011 but has not been released to date.

State

The following state policies, regulations, and agency action have occurred relative to climate change.

Executive Order S-3-05 (2005)

Signed by Governor Arnold Schwarzenegger on June 1, 2005, Executive Order S-3-05 asserts that California is vulnerable to the effects of climate change. To combat this concern, Executive Order S-3-05 established the following GHG emissions reduction targets for state agencies:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80% below 1990 levels.

It is important to note that, as an executive order, S-03-05 is not mandatory for local governments or private development.

Assembly Bill 32, California Climate Solutions Act of 2006 (2006)

In September 2006, the California State Legislature adopted the California Global Warming Solutions Act of 2006 (Assembly Bill 32). Assembly Bill 32 establishes a cap on statewide GHG emissions and sets forth the regulatory framework to achieve the corresponding reduction in statewide emission levels. Under Assembly Bill 32, ARB is required to take the following actions:

- Adopt early action measures to reduce GHG.
- Establish a statewide GHG emissions cap for 2020 based on 1990 emissions.
- Adopt mandatory report rules for significant GHG sources.
- Adopt a scoping plan indicating how emission reductions would be achieved through regulations, market mechanisms, and other actions.
- Adopt regulations needed to achieve the maximum technologically feasible and cost-effective reductions in GHGs.

California needs to reduce GHG emissions by approximately 29% of BAU projection (based on compliance with requirements in effect under applicable federal and state law) of year 2020 GHG emissions to achieve Assembly Bill 32's reduction goal.

Senate Bill 97 (2007)

Senate Bill 97 of 2007 requires that the State's Office of Planning and Research (OPR) prepare guidelines to submit to the California Natural Resources Agency regarding feasible mitigation of GHG emissions or the effects of GHG emissions as required by CEQA. The California Natural Resources Agency adopted amendments to the State CEQA Guidelines for GHG emissions on December 30, 2009. On February 16, 2010, the State's Office of Administrative Law approved the amendments and filed them with the Secretary of State for inclusion in the California Code of Regulations. The amendments became effective March 18, 2010. The two new CEQA guideline questions on GHG emissions added pursuant to the 2010 amendments are included in the significance criteria for evaluating the proposed project as discussed below.

Assembly Bill 32 Scoping Plan (2008)

On December 11, 2008, pursuant to Assembly Bill 32, ARB adopted the Climate Change Scoping Plan. This plan outlines how emissions reductions from significant sources of GHGs will be achieved via regulations, market mechanisms, and other actions. Six key elements, outlined in the scoping plan, are identified to achieve emissions reduction targets:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards.
- Achieving a statewide renewable energy mix of 33%.
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system.
- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets.

- Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the low carbon fuel standard (LCFS).
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gasses, and a fee to fund the administrative costs of the state's long-term commitment to Assembly Bill 32 implementation.

The Assembly Bill 32 Scoping Plan also describes recommended measures that were developed to reduce GHG emissions from key sources and activities while improving public health, promoting a cleaner environment, preserving our natural resources, and ensuring that the impacts of the reductions are equitable and do not disproportionately affect low-income and minority communities. The measures in the approved Climate Change Scoping Plan will be in place by January 1, 2012; some of these measures are discussed below.

California Energy Efficiency Standards for Residential and Non-Residential Buildings—Title 24 (2008)

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (proposed Part 11, Title 24) was adopted as part of the California Building Standards Code (24 CCR). Part 11 establishes voluntary standards that became mandatory in the 2010 edition of the code, including planning and design for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants. Effective January 1, 2011, all new buildings must comply with the 2010 California Green Building Standards Code.

Executive Order S-01-07 (2010)

Executive Order S-01-07, Low Carbon Fuel Standard, mandated: (1) that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10% by 2020; and (2) that an LCFS for transportation fuels be established in California. The 2008 Assembly Bill 32 Scoping Plan similarly called for a LCFS. ARB approved the LCFS on April 23, 2009 and the regulation became effective on January 12, 2010.

Landfill Methane Rule (2010)

In June 2010 the landfill methane control measure, an ARB regulation became effective. This regulation requires owners and operators of certain uncontrolled landfills to install methane gas capture technology and for owners and operators of landfills with existing control technology to upgrade and operate at specified performance level.

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

Senate Bill 1075 (2002) and Senate Bill 107 (2006) created the Renewable Energy Standard (RES) program, which required electric corporations to increase procurement from eligible renewable energy resources by at least 1% of their retail sales annually, until they reach 20% by 2010. Senate Bill 2X 1 (2011) requires a Renewable Portfolio Standard (RPS, functionally the same thing as the RES) of 33% by 2020.

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

Known as "Pavley I," Assembly Bill 1493 standards were the nation's first GHG standards for automobiles. Assembly Bill 1493 requires ARB to adopt vehicle standards that will lower GHG emissions from new light duty autos to the maximum extent feasible beginning in 2009. Additional strengthening of the Pavley standards (previously referenced as "Pavley II," currently referenced as the "Advanced Clean Cars" measure) has been proposed for vehicle model years 2017–2020. Together, the two standards are expected to increase average fuel economy to roughly 43 miles per gallon by 2020 and reduce GHG emissions from the transportation sector in California by approximately 14%. In June 2009, the EPA granted California's waiver request enabling the state to enforce its GHG emissions standards for new motor vehicles beginning with the current model year.

As noted above, EPA and ARB are currently working together on joint rulemaking to establish GHG emissions standards for 2017 to 2025 model-year passenger vehicles.

Other Vehicle Efficiency Measures from ARB

ARB has adopted or is pursuing additional measures to promote vehicle efficiency to reduce GHG emissions. In 2008, ARB adopted a measure concerning heavy duty vehicle aerodynamics. In 2009, ARB adopted regulations for tire pressure. ARB is also evaluating hybridization of medium-heavy vehicles and cool car design.

Cap and Trade (Forthcoming)

ARB is presently engaging in regulatory rule-making to adopt a cap and trade emissions trading system for California. ARB expects to first apply the system to large stationary sources of emissions (like power plants) in 2013 and then follow with requirements for transportation fuels in several years.

Local

Monterey Bay Unified Air Pollution Control District

The MBUAPCD currently has no guidance concerning CEQA evaluation of GHG emissions and no regulatory requirements.

Monterey County General Plan

A new General Plan for the inland areas of Monterey County was adopted in October 2010. The General Plan includes Policy OS-10.11, which adopted a GHG emissions reduction target of 15% below 2005 levels by 2020 and required development of a GHG reduction plan for the county by 2013. Although the 2010 General Plan was limited in legal effect to the inland area, it is expected that the County may choose to include the entirety of the County (both inland and coastal areas) in the forthcoming GHG Reduction Plan.

Monterey County Local Coastal Program

There are no policies in the existing LCP concerning GHG emissions or adaptation to climate change. However, the proposed LUP acknowledges in the section on Hazards that coastal erosion will be

accelerated due to sea level rise resultant from global climate change over time and includes requirements to avoid placement of structures along the coast where they would be subject to bluff top erosion and/or would require structural coastal protective structures.

Environmental Setting

The following considerations are relevant to climate change in the project area.

Background Information on Climate Change

The phenomenon known as the greenhouse effect keeps the atmosphere near the earth's surface warm enough for successful habitation by humans and other forms of life. GHGs present in the earth's lower atmosphere play a critical role in maintaining the earth's temperature because they trap some of the long wave infrared radiation emitted from the earth's surface which otherwise would have escaped to space.

The accelerated increase of fossil fuel combustion and deforestation since the industrial revolution of the nineteenth century has exponentially increased concentrations of GHGs in the atmosphere. Increases in the atmospheric concentrations of GHGs in excess of natural ambient concentrations contribute to the enhancement of the natural greenhouse effect.

This enhanced greenhouse effect has contributed to global warming, which is an increased rate of warming of the earth's surface temperature. Specifically, increases in GHGs lead to increased absorption of long wave infrared radiation by the earth's atmosphere and further warm the lower atmosphere, thereby increasing evaporation rates and temperatures near the surface. Warming of the earth's lower atmosphere induces large-scale changes in ocean circulation patterns, precipitation patterns, global ice cover, biological distributions, and other changes to the earth system that are collectively referred to as climate change.

The Intergovernmental Panel on Climate Change (IPCC) has been 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, its potential impacts, and options for adaptation and mitigation. The IPCC estimates that the average global temperature rise between the years 2000 and 2100 could range from 1.1° C (2° F), with no increase in GHG emissions above year 2000 levels, to 6.4° C (11.5° F), with substantial increase in GHG emissions (Intergovernmental Panel on Climate Change 2007a). Large increases in global temperatures could have massive deleterious impacts on the natural and human (built) environments.

Principal Greenhouse Gases

GHGs are gases that trap heat in the atmosphere. GHGs are both naturally occurring and artificial. Examples of GHGs that are produced both by natural processes and industry include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Examples of GHGs created and emitted primarily through human activities include hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF_6). The primary GHGs generated by the proposed project—carbon dioxide, methane, and nitrous oxide are discussed below.

The IPCC estimates that carbon dioxide accounts for more than 75% of all anthropogenic GHG emissions. Three quarters of anthropogenic carbon dioxide emissions are the result of fossil fuel burning, and approximately one quarter result from land use change (Intergovernmental Panel on Climate Change 2007a). Methane is the second largest contributor of anthropogenic GHG emissions and is primarily the result of growing rice, raising cattle, combustion, and mining coal (National Oceanic and Atmospheric Administration 2005). Nitrous oxide while not as abundant as carbon dioxide or methane is a powerful GHG. Sources of nitrous oxide include agricultural processes, nylon production, fuel-fired power plants, nitric acid production, and vehicle emissions.

To simplify reporting and analysis, methods have been set forth to describe emissions of GHGs in terms of a single metric. All GHGs do not have the same radiative (warming) potential or persistence in the atmosphere. In order to account for GHGs through a single total, the different GHGs are normalized by comparing their global warming potential (GWP). The most commonly accepted method to compare GHG emissions is the GWP methodology defined in the IPCC reference documents (Intergovernmental Panel on Climate Change 1996; 2001). The IPCC defines the GWP of various GHG emissions on a normalized scale over 100 years that recasts all GHG emissions in terms of CO_2 equivalent (CO_2e). GWP is a measure of a gas's heat-absorbing capacity and lifespan relative to a reference gas, CO_2 (CO_2 has a GWP of 1 by definition). For example, 21 metric tons of CO_2 would have the same GWP as one metric ton of methane over a 100-year period. Table 3.4-2 lists the GWP of CO_2, CH_4, and N_2O over a 100-year period.

Table 3.4-2. Lifetimes and Global Warming Potentials

GHG	Comparative Global Warming Potential (100 years)
Carbon Dioxide	1
Methane	21
Nitrous oxide	310

Source:
Intergovernmental Panel on Climate Change 2007a, 2007b.
Note:
The factors for methane and nitrous oxide are used in the CalEEMod emissions model (version 2011.11), which estimates construction-related GHG emissions.

Greenhouse Gas Emissions Inventories

A GHG inventory is a quantification of GHG emissions and sinks[1] within a selected physical and/or economic boundary over a specified time. GHG inventories can be performed on a large scale (i.e., for global and national entities) or on a small scale (i.e., for a particular building or person).

[1] A carbon sink is a land cover that removes carbon dioxide from the atmosphere through natural processes. Examples of sinks include forests, peat bogs, and ocean sediments, all of which sequester carbon from the atmosphere.

Many GHG emission and sink specifications are complicated to evaluate because natural processes may dominate the carbon cycle. Though some emission sources and processes are easily characterized and well understood, some components of the GHG budget (i.e., the balance of GHG sources and sinks) are not known with accuracy. Because protocols for quantifying GHG emissions from many sources are currently under development by international, national, State, and local agencies, ad-hoc tools have been developed to quantify emissions from certain sources and sinks in the interim.

To help contextualize the magnitude of potential project-related emissions, Table 3.4-3 and 3.4-4 outline the most recently available global, national, statewide, and local GHG inventories.

Table 3.4-3. Global, National, State, and Local GHG Emissions Inventories

Emissions Inventory	CO_2e (metric tons)
2004 IPCC Global GHG Emissions Inventory	49,000,000,000
2009 EPA National GHG Emissions Inventory	6,633,200,000
2008 ARB State (CA) GHG Emissions Inventory	477,700,000
2005 Monterey County GHG Emissions Inventory	1,713,227

Sources:
Intergovernmental Panel on Climate Change 2007a; U.S. Environmental Protection Agency 2010; California Air Resources Board 2009; Association of Monterey Bay Area Governments 2010.

Table 3.4-4. Monterey County GHG Emission Inventory by Sector

Sector	CO_2e (metric tons)
Residential	143,707
Commercial/Industrial	771,945
Transportation	711,808
Wastewater	8,850
Waste	50,973
2005 Monterey County GHG Emissions Inventory	1,713,227

Source:
Association of Monterey Bay Area Governments 2010.

Potential Effects of Climate Change in California

Climate change is a complex phenomenon that has the potential to alter local climatic patterns and meteorology. Although modeling indicates that climate change will result in sea level rise and changes in regional climate and rainfall, among other things, mean that a high degree of scientific uncertainty still exists with regard to characterizing future climate characteristics and predicting how various ecological and social systems will react to any changes in the existing climate at the local level. Regardless of this uncertainty, it is widely understood that some form of climate change is expected to occur in the future.

Several recent studies have attempted to characterize future climatic scenarios for the state. While specific estimates and statistics on the severity of changes vary, sources agree that the California coastline will witness higher sea levels, higher average annual temperatures, increased risk of coastal erosion, changes in rainfall and coastal fog patterns, and changes in wave height.

Climate change could affect the natural environment in California in the following ways, among others:

- Rising sea levels along the California coastline, particularly in San Francisco and the San Joaquin Delta due to ocean expansion.
- Extreme heat conditions, such as heat waves and very high temperatures, which could last longer and become more frequent.
- An increase in heat-related human deaths, infectious diseases and a higher risk of respiratory problems caused by deteriorating air quality.
- Reduced snow pack and stream flow in the Sierra Nevada mountains, affecting winter recreation and water supplies.
- Potential increase in the severity of winter storms, affecting peak stream flows and flooding.
- Changes in growing season conditions that could affect California agriculture, causing variations in crop quality and yield.
- Changes in distribution of plant and wildlife species due to changes in temperature, competition from colonizing species, changes in hydrologic cycles, changes in sea level, and other climate-related effects.

These changes in California's climate and ecosystems are occurring at a time when California's population is expected to increase from 34 million to 59 million by the year 2040 (California Energy Commission 2005). As such, the number of people potentially affected by climate change, as well as the amount of anthropogenic GHG emissions is expected to significantly increase. Changes similar to those noted for California also would occur in other parts of the world, with regional variations in resources affected and vulnerability to adverse effects.

Baseline Emissions for the Proposed Project

It is assumed that, other than existing tree stock and carbon sequestration,[2] operational baseline emissions are zero; analysis of project operational emissions is based on the net increase in development associated with the proposed project and trip generation data provided by the project traffic engineers in the traffic report (Fehr & Peers 2011).

Because the proposed project would change land use coverage and tree stock, which can serve as a sink for carbon, Table 3.4-5 presents GHG emissions associated with existing tree stock and carbon sequestration based on current land use coverage.

[2] Carbon emissions are sequestered by biological, chemical, or physical processes that embed the carbon in structures that hold the emissions and keep them out of the atmosphere.

Table 3.4-5. Existing Tree Stock and Carbon Sequestration in Current Land Cover Change

Development Site	Existing Stock ($MT CO_2e$)	Carbon Sequestration ($MT CO_2e$/year)
The Lodge at Pebble Beach [a]	0	4
The Inn at Spanish Bay [b]	849	18
Collins Field–Equestrian Center–Special Events Area [c]	548	17
Area M Spyglass Hill (either Option)	722	18
Residential Lot Subdivisions [d]	7,313	365
Residential Lot Subdivision (Corporation Yard)	0	0
Roadway Improvements [e]	81	3
Proposed Preservation Areas [f]	66,359	3,622
Total (either option)	**75,872**	**4,047**

Sources:

Tree Data and Forested Acres: WWD Corp., Biological Impact Calculations, September 21, 2011.

Carbon Stock and Sequestration Factors: ICF Calculations using CalEEMod (Appendix E).

Notes:

[a] Development sites are Meeting Facility Expansion, Fairway One Reconstruction, New Colton Building, and Parking and Circulation Reconstruction.

[b] Development sites are Conference Center Expansion, New Guest Cottages, and New Employee Parking.

[c] Development sites are Pebble Beach Driving Range Relocation from Area V to Collins Field, Equestrian Center Reconstruction, and Special Events Area Grading and Expansion.

[d] Areas F-2, I-2, J, K, L, U, V and Collins Residence, excluding proposed preservation areas.

[e] Development sites are SR 1/SR 68/17-Mile Drive Intersection Reconfiguration and four internal intersection improvements at Congress Road/Lopez Road, Congress Road/17-Mile Drive, Portola Road/Stevenson Drive, and Lopez Road/Sunridge Road.

[f] Part or all of Areas B, C, F-1, F-3, G, H, I-1, I-2, J, K, L, M, N, O, PQR, U, and V, and Corporation Yard.

Impact Analysis

Methodology

Approach

This evaluation of climate change is based on professional standards and information cited throughout the section. The key effects were identified and evaluated based on the environmental characteristics of the project area and the magnitude, intensity, and duration of activities related to the construction and operation of the proposed project.

Construction-Related Emissions

Construction of the proposed project 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 with the CalEEMod

emissions model (version 2011.1.1), which analyzes the type of construction equipment used and the duration of the construction period associated with construction of each of the land uses specified. A detailed inventory of construction equipment that will be used for the proposed project was not available, although a detailed estimate of the construction schedule for each project element was provided by the project applicant, by activity (i.e., grading/demolition, building construction, paving, and architectural coating), in addition to maximum daily area disturbed and cut/fill amounts. This data was input into the CalEEMod model to estimate construction equipment based on model default values.

Operation-Related Emissions

The two key permanent sources of GHG emissions are from project operation (additional motor vehicles and energy use) and land cover change (loss of carbon stock and sequestration from tree removal).

- Project operation would result in direct and indirect GHG emissions as a result of fuel combustion from on-road motor vehicles visiting the project facilities, natural gas combustion for space and water heating, electricity consumption, water consumption, wastewater generation, and solid waste generation.
    - Two types of direct GHG sources are expected during operation of the proposed project: area and mobile sources. Area sources are sources that can include area-wide, natural, and groups of stationary sources (such as dry cleaners and gas stations). At the proposed development sites, area sources include emissions from hearths, consumer products, area architectural coatings (e.g., paint), and landscaping equipment. Mobile sources are sources of emissions associated with vehicle trips and include employee, delivery, and maintenance activities. Area and mobile source GHG emissions were evaluated using the CalEEMod model for the existing year conditions to represent the worst-case emissions year.
    - Indirect operational GHG emissions were also estimated for project 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 are based on CalEEMod default values and land use data provided by the project applicant.
- Implementation of the proposed project would result in the loss of carbon stock and carbon sequestration due to removal of trees and other perennial vegetative matter due to development. These are referred to as land cover change emissions below.
    - Loss of carbon stock is a one-time emission due to removal of natural vegetation and soils. As the trees are unlikely to be used for commercial products and are more likely to be chipped (which eventually results in the release of carbon), it is assumed that tree removal results in loss of 100% of the carbon stock. These emissions were estimated by identifying the acreages of land cover change and then multiplying by factor values to the amount of estimated stock for that land cover.

- Loss of carbon sequestration is an annual emission due to conversion of naturally vegetated areas to urban uses.[3] Under existing conditions, the natural land covers uptake carbon which is sequestered in vegetative matter (wood) and soils. These emissions were estimated by identifying the acreages of land cover change and then multiplying by factor values to the amount of estimated annual carbon sequestration loss for that land cover.

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 impacts in this EIR is discussed below.

Contribute to Climate Change Impacts (Greenhouse Gas Emissions)

The State CEQA Guidelines do not define the amount of GHG emissions that would constitute a significant impact on the environment. Instead, they 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]).

The MBUAPCD has not yet established a threshold by which to evaluate impacts related to climate change. Consequently, impacts related to climate change are evaluated based on the project's consistency with the County's identified reduction goal and Assembly Bill 32 reduction goal.

Scientific studies (as best represented by the IPCC's periodic reports) demonstrate that climate change is already occurring due to past GHG emissions. Forecasting future growth and related GHG emissions under BAU[4] conditions indicates large increases in those GHG emissions worldwide accompanied by an increasing severity of changes in global climate. Thus, the best scientific evidence concludes that global emissions must be reduced below current levels.

On a state level, the Assembly Bill 32 Scoping Plan identified that an acceptable level of GHG emissions in California 2020 is 427 million metric tons (MT) of CO_2e, which is the same as 1990 GHG emissions level. This is approximately 11% less than 2005 California GHG emissions (477 million MT CO_2e) and was approximately 22% less than currently projected California 2020 BAU emissions (545 million MT CO_2e, not including the effect of state actions to reduce emissions.).

On the county level, the County has identified its 2020 target to be to reduce GHG emissions by 15% below 2005 levels by 2020. The County's 2005 emissions of approximately 1.71 million MT CO2e are projected to increase to 1.91 million MT CO_2e by 2020, which is an increase of approximately 11%. Using the draft inventory data, the county's target would correspond to 1.5 million MT CO_2e, which is approximately 24% below 2020 BAU conditions.

Thus, on a state and local level, if California and Monterey County can achieve these reductions, California as a whole will not contribute considerably to global GHG emissions. California's

[3] Sequestration is annual because living trees would continually sequester carbon, and carbon (i.e., CO_2e emissions are evaluated on a yearly basis (metric tons per year).

[4] BAU conditions are defined as population and economic growth in the future using current (2008) building practices. BAU conditions presume no improvements in average energy efficiency, water efficiency, or fuel efficiency beyond that existing today.

emissions in 2020 will still make a cumulative contribution to global GHG emissions, but relative to current baseline emissions will be substantively reduced.

To achieve these GHG reductions, there will have to be widespread reductions of GHG emissions from sources in many various sectors across the California economy including in Monterey County. Some of those reductions will need to come from the existing sources of emissions in the form of changes in vehicle emissions and mileage, changes in the sources of electricity, and increases in energy efficiency by existing residential, commercial, industrial, and agricultural development as well as other measures. While County action can help to promote GHG reductions from the existing economy, existing development is not under the discretionary land use authority of the County, and thus most of these reductions will come as the result of state and federal mandates. The remainder of the necessary GHG reductions will need to come from requiring new development to have a lower carbon intensity than BAU conditions. County land use discretion can substantially influence the GHG emissions from new development.

In terms of determining whether GHG emissions in Monterey County will be cumulatively considerable, one has to evaluate whether Monterey County is doing its part to ensure that California, as a whole, meets the Assembly Bill 32 target. As discussed above, the County's target is roughly consistent with the state target as a whole (and is actually a bit more conservative).

Thus, the simplest measure of whether Monterey County emissions will contribute considerably to GHG emissions in 2020 is whether the emissions are 24% less than BAU conditions. If they are, Monterey County would not contribute considerably to state or global GHG emissions and related climate change effects. In other words, if Monterey County emissions are greater than 76% of BAU GHG emissions, then the emissions of new development could contribute considerably to state and global GHG emissions and related climate change effects.

Climate Change Effects on the Proposed Project

A certain amount of environmental change is inevitable in Monterey County due to current GHG emissions and unavoidable future increases in GHG emissions worldwide. Change on a local basis to Monterey County agriculture, water supplies, flooding, wildfire potential, environmental health, and other areas is reasonably foreseeable, although not quantifiable in many aspects at present. New development could place persons and property at higher levels of risk to climate change effects if it does not anticipate reasonably foreseeable changes in environmental conditions.

Significance Criteria

For this CEQA analysis, 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.
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

Specifically, project-related GHG emissions are considered significant if they are more than 76% of their unmitigated emissions level; this represents a reduction in GHG emissions equal to 24% below

2020 BAU conditions, which would allow the County to meet its target to reduce GHG emissions by 15% below 2005 levels by 2020.

B. Effects of Climate Change

- 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.

Impacts and Mitigation Measures

The impact zone for climate change is the Monterey Peninsula and beyond. Climate change is inherently a cumulative impact concern and the analysis is entirely an analysis of the proposed project's potential contribution to cumulative GHG impacts.

A. Contribute to Climate Change Impacts

Impact CC-A1: The proposed project would result in project-related greenhouse gas emissions, during construction and from operation, that could considerably contribute to climate change impacts and be inconsistent with the goals of Assembly Bill 32. (Less than significant with mitigation)

Temporary Construction Emissions

Construction of the proposed project would result in project-related emissions, from fuel combustion of off- and on-road construction equipment and vehicles that contribute to GHG impacts.[5] Table 3.4-6 presents an estimate of GHG emissions associated with construction of project elements. This construction impact is considered significant but would be reduced to a less than significant level with implementation of Mitigation Measure CC-A1 because it would help to reduce construction-related GHG emissions.

Mitigation Measure CC-A1: 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 best management practices (BMPs) in the construction specifications, to the extent feasible, to reduce construction-related GHG emissions:

- Use alternative-fueled (e.g., biodiesel, electric) construction vehicles/equipment for at least 15% 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% of construction waste or demolition materials.

Prior to issuance of grading or building permits of any phase of this project, the project applicant will submit to Monterey County for review and approval a report of construction specifications demonstrating implementation of BMPs.

[5] The loss of vegetation and associated carbon stock and sequestration due to development is considered a permanent source of GHG emissions and is included in the operational analysis provided in this section.

Table 3.4-6. Estimated Construction GHG Emissions (metric tons/year)

Development Site	CO_2	CH_4	N_2O	CO_2e
PBL[a] Meeting Facility Expansion	90.73	0.01	0.00	90.96
PBL Fairway One Reconstruction	514.46	0.05	0.00	515.59
PBL New Colton Building	209.95	0.02	0.00	210.33
PBL Parking and Circulation Reconstruction	221.95	0.02	0.00	222.44
SBI[b] Conference Center Expansion (Ballroom)	290.16	0.02	0.00	290.63
SBI Conference Center Expansion (Meeting Rooms)	290.16	0.02	0.00	290.63
SBI New Guest Cottages	925.58	0.08	0.00	927.29
SBI New Employee Parking	221.95	0.02	0.00	222.44
Pebble Beach Driving Range Relocation from Area V to Collins Field	808.20	0.07	0.00	809.59
Equestrian Center Reconstruction and Special Events Area Grading and Expansion	504.75	0.04	0.00	505.70
Area M Spyglass Hill Option 1 (New Resort Hotel)	2,792.74	0.12	0.00	2,795.48
Area M Spyglass Hill Option 2 (New Residential Lots)	642.17	0.03	0.00	642.73
Residential Lot Subdivision (without Area V or Corporation Yard)	482.72	0.05	0.00	483.73
Residential Lot Subdivision (Corporation Yard)	844.61	0.05	0.00	845.64
Residential Lot Subdivision (Area V)	291.15	0.02	0.00	291.51
Congress Road/Lopez Road Intersection Improvement	2.35	0.00	0.00	2.37
SR 1/SR 68/17-Mile Dr Intersection Reconstruction	52.14	0.00	0.00	52.62
Congress Road/17-Mile Drive Intersection Improvement	0.08	0.00	0.00	0.08
Portola Road/Stevenson Drive Intersection Improvement	1.49	0.00	0.00	1.50
Lopez Road/Sunridge Road Intersection Improvement	0.13	0.00	0.00	0.13
Total Option 1 Area M Spyglass Hill New Resort Hotel	**8,545.30**	**0.59**	**0.00**	**8,558.66**
Total Option 2 Area M Spyglass Hill New Residential Lots	**6,394.73**	**0.50**	**0.00**	**6,405.91**

Source:
ICF calculations using CalEEMod (Appendix E of this EIR).
Notes:
[a] PBL: The Lodge at Pebble Beach.
[b] SBI: The Inn at Spanish Bay.

Permanent Emissions Sources

As discussed above, there are two key permanent sources of GHG emissions:

- Project operational emissions due to direct and indirect emissions associated with building energy, transportation, waste generation, and water.
- Loss of carbon stock and carbon sequestration due to removal of trees and other perennial vegetative matter due to development.

Operational Emissions

Table 3.4-7 presents the estimated GHG operational emissions without design features or measures to reduce GHG emissions.

Table 3.4-7. Unmitigated Operational GHG Emissions (metric tons/year)

Development Site	Sector	CO_2	CH_4	N_2O	CO_2e
PBL[a] Meeting Facility Expansion	Area	0.00	0.00	0.00	0.00
	Energy	13.97	0.00	0.00	14.06
	Mobile	23.16	0	0	23.2
	Waste	0.00	0.02	0.00	0.49
	Water	0.82	0.01	0.00	1.16
	Total	37.95	0.03	0.00	38.91
PBL Fairway One Reconstruction	Area	0.00	0.00	0.00	0.00
	Energy	250.56	0.01	0.00	252.11
	Mobile	204.73	0.02	0	205.1
	Waste	0.00	0.23	0.00	4.83
	Water	1.51	0.03	0.00	2.29
	Total	456.80	0.29	0.00	464.33
PBL New Colton Building	Area	0.00	0.00	0.00	0.00
	Energy	143.18	0.00	0.00	144.06
	Mobile	116.99	0.01	0	117.2
	Waste	0.00	0.13	0.00	2.76
	Water	0.86	0.02	0.00	1.31
	Total	261.03	0.16	0.00	265.33
SBI[b] Conference Center Expansion (Ballroom)	Area	0.00	0.00	0.00	0.00
	Energy	26.35	0.00	0.00	26.51
	Mobile	17.32	0	0	17.35
	Waste	0.00	0.04	0.00	0.92
	Water	1.56	0.02	0.00	2.18
	Total	45.23	0.06	0.00	46.96
SBI Conference Center Expansion (Meeting Rooms)	Area	0.00	0.00	0.00	0.00
	Energy	26.35	0.00	0.00	26.51
	Mobile	17.32	0	0	17.35
	Waste	0.00	0.04	0.00	0.92
	Water	1.56	0.02	0.00	2.18
	Total	45.23	0.06	0.00	46.96
SBI New Guest Cottages	Area	0.00	0.00	0.00	0.00
	Energy	286.35	0.01	0.01	288.12
	Mobile	233.98	0.02	0	234.4
	Waste	0.00	0.26	0.00	5.51
	Water	1.72	0.03	0.00	2.62
	Total	522.05	0.32	0.01	530.65

Development Site	Sector	CO_2	CH_4	N_2O	CO_2e
Area M Spyglass Hill Option 1 (New Resort Hotel)	Area	0.00	0.00	0.00	0.00
	Energy	715.88	0.02	0.01	720.30
	Mobile	934.64	0.08	0	936.31
	Waste	0.00	0.66	0.00	13.80
	Water	4.31	0.08	0.00	6.56
	Total	1,654.83	0.84	0.01	1,676.97
Area M Spyglass Hill Option 2 (New Residential Lots)	Area	13.12	0.01	0.00	13.63
	Energy	39.63	0.00	0.00	39.87
	Mobile	151.07	0.01	0	151.32
	Waste	0.00	0.15	0.00	3.21
	Water	1.45	0.02	0.00	2.03
	Total	205.27	0.19	0.00	210.06
Residential Lot Subdivisions (without Area V and Corporation Yard)	Area	83.96	0.06	0.01	87.21
	Energy	253.63	0.01	0.00	255.19
	Mobile	966.82	0.08	0	968.46
	Waste	0.00	0.97	0.00	20.29
	Water	9.29	0.13	0.00	13.00
	Total	1,313.70	1.25	0.01	1,344.15
Residential Lot Subdivisions (Area V)	Area	18.37	0.01	0.00	19.08
	Energy	55.48	0.00	0.00	55.82
	Mobile	211.49	0.02	0	211.85
	Waste	0.00	0.21	0.00	4.44
	Water	2.03	0.03	0.00	2.84
	Total	287.37	0.27	0.00	294.03
Residential Lot Subdivisions (Corporation Yard)	Area	13.12	0.01	0.00	13.63
	Energy	39.63	0.00	0.00	39.87
	Mobile	151.07	0.01	0	151.32
	Waste	0.00	0.15	0.00	3.21
	Water	1.45	0.02	0.00	2.03
	Total	205.27	0.19	0.00	210.06
Total Option 1 Area M Spyglass Hill New Resort Hotel	Area	115.45	0.08	0.01	119.92
	Energy	2,097.73	0.05	0.03	2,110.67
	Mobile	2,877.52	0.24	0.00	2,882.54
	Waste	0.00	2.97	0.00	62.68
	Water	26.83	0.42	0.00	38.79
	Total	5,117.53	3.76	0.04	5,214.60
Total Option 2 Area M Spyglass Hill New Residential Lots	Area	128.57	0.09	0.01	133.55
	Energy	1,421.48	0.04	0.02	1,430.24
	Mobile	2,093.95	0.17	0.00	2,097.55
	Waste	0.00	2.46	0.00	52.09
	Water	23.97	0.36	0.00	34.26

Development Site	Sector	CO_2	CH_4	N_2O	CO_2e
	Total	**3,667.97**	**3.12**	**0.03**	**3,747.69**

Source:
ICF calculations using CalEEMod (Appendix E of this EIR).
Notes:
[a] PBL: The Lodge at Pebble Beach.
[b] SBI: The Inn at Spanish Bay.
The PBL Parking and Circulation Reconstruction and SBI New Employee Parking are not reported because they are supporting facilities, and operational emissions from vehicles associated with these facilities are included in the other land use emissions. The estimates assume that the proposed development includes no mitigating features to reduce GHG emissions.

Effects of Land Cover Change on Emissions

Table 3.4-8 presents the estimated carbon stock emissions associated with land cover change, as well as loss of carbon sequestration associated with tree removal.

Table 3.4-8. GHG Emissions due to Tree Stock and Carbon Sequestration Associated with Land Cover Change

Development Site	Removed Stock (MT CO_2e)	Removed Sequestration (MT CO_2e/year)
The Lodge at Pebble Beach[a]	0	4
The Inn at Spanish Bay[b]	667	18
Collins Field–Equestrian Center–Special Events[c]	421	17
Area M Spyglass Hill Option 1 (New Resort Hotel)	555	12
Area M Spyglass Hill Option 2 (New Residential Lots)	270	7
Residential Lot Subdivisions	2,749	154
Residential Lot Subdivisions (Corporation Yard)	0	0
Roadway Improvements[d]	81	3
Total Option 1 Area M Spyglass Hill New Resort Hotel	**4,605**	**216**
Total Option 2 Area M Spyglass Hill New Residential Lots	**4,320**	**211**
Annualized totals (Stock removals averaged over 100 years)	**Removed Stock (MT CO_2e/year)**	**Removed Sequestration (MT CO_2e/year)**
Total Option 1 Area M Spyglass Hill New Resort Hotel	**46**	**216**
Total Option 2 Area M Spyglass Hill New Residential Lots	**43**	**211**

Source:
ICF Calculations using CalEEMod (Appendix E of this EIR).
Notes:
[a] Development sites include Meeting Facility Expansion, Fairway One Reconstruction, New Colton

Building, Parking and Circulation Reconstruction.

[b] Development sites include Conference Center Expansion, New Guest Cottages, New Employee Parking.

[c] Development sites include Pebble Beach Driving Range Relocation from Area V to Collins Field, Equestrian Center Reconstruction, Special Events Area Grading and Expansion.

[d] Development sites include the SR 1/SR 68/17-Mile Drive intersection reconfiguration and four internal intersection improvements at Congress Road/Lopez Road, Congress Road/17-Mile Drive, Portola Road/Stevenson Drive, and Lopez Road/Sunridge Road.

Total Project Emissions over Baseline

To characterize total net emissions associated with the proposed project, Table 3.4-9 presents total net unmitigated operational emissions, accounting for changes in carbon stock and sequestration emissions.

Table 3.4-9 Total Project Emissions over Baseline (MT CO2e/year)[a]

	Annual Operational Emissions	Annualized Carbon Stock/Sequestration Loss[b]	Net Annualized Operational Emissions
Total Option 1 Area M Spyglass Hill New Resort Hotel	5,206	262	5,468
Total Option 2 Area M Spyglass Hill New Residential Lots	3,801	255	4,056

Source:
ICF Calculations (Appendix E of this EIR).

Notes:

[a] This table presents net GHG emissions associated with the proposed project, accounting for emissions from carbon sequestration/stock loss emissions associated with operational project components (i.e., motor vehicles, energy consumption, waste generation).

[b] Includes carbon stock emissions associated with land cover change annualized over a 100-year period per The Climate Action Reserve (The Climate Action Reserve 2010). The annualized stock loss equates to 46 MT CO_2e/year for Option 1 and 43 MT CO_2e/year for Option 2 and is added to the annual sequestration loss for each option in Table 3.4-8.

On their own, these emissions would not result in climate change or global warming. However, climate change is a cumulative impact resultant from the collective emissions of the state, the country, and the planet as a whole. Without mitigation, these emissions would contribute to cumulative 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 Assembly Bill 32.

This operational impact is considered significant. Two different mitigation measures have been identified for this impact. Two measures are identified: one measure (CC-A2-A) relies on reduction of project emissions through design features and other measures; the second measure (CC-A2-B) is based on allowing a credit for forest preservation. The second measure is controversial because it would not result in a reduction of emissions compared to existing levels but would credit the value

of preserving an existing forest in comparison to the future potential to develop and remove the forest. For this EIR, the County has identified both ways of potentially mitigating this impact.

Mitigation Measure CC-A2-A 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. Either way, the County would not approve the development without having an overall plan in place or a plan for the next development in place.

Mitigation Measure CC-A2-B would credit forest preservation as providing sufficient mitigation of project emissions. This measure would require the applicant to validate the GHG emission offset value of preserving Monterey pine forest designated for development using the Climate Action Registry Forest Project Protocol and preserve the lands in perpetuity, and the credit for forest preservation would be equivalent to at least the same amount of mitigation provided by Mitigation Measure CC-A2-A.

Mitigation Measure CC-A2-A: Reduce annual greenhouse gas emission by 26% relative to business as usual 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 by 26% below the unmitigated emissions level of 5,468 and 4,056 MT CO_2e/year (Area M Options 1 and 2, respectively) identified for the proposed project. The GHG Reduction Plan will 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. The GHG Reduction Plan will identify the specific design measures proposed to reduce GHG emissions from the proposed project, their timing, and the responsible party. The effect of state measures, as applied to project development, may be counted toward the 26% reduction level.

The GHG Reduction Plan will demonstrate how the project-specific measures and the state measures will result in 2020 project emissions of no more than 4,047 MT CO_2e for Area M Spyglass Hill Option 1 (New Resort Hotel) and 3,001 CO_2e for Area M Spyglass Hill Option 2 (New Residential Lots).

The applicant will evaluate all of the following measures for potential inclusion in the GHG Reduction Plan.

<u>Building Energy Use</u>

- Exceed Title 24 building envelope energy efficiency standards (applicable at the time of the building permit issuance) by 20%.
- 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[6]

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

- Install green roofs.
- Install solar water heaters.
- Install tankless water heaters.
- Install solar panels.
- HVAC duct sealing.
- Increase roof/ceiling insulation.

Alternative Energy Generation[7]

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

Lighting

- Install high-efficiency area lighting.
- Limit outdoor lighting.
- Replace traffic lights with LED traffic lights.
- 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).

[7] On-site wind facilities are not to be included in any mitigation in order to avoid potential aesthetic impacts and impacts on coastal birds.

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.
- Off-site 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[8] to offset annual GHG emissions.
- Purchase offsets from a validated source to offset one-time carbon stock GHG emissions.

At this time, the applicant has not identified any specific design measures that would reduce GHG operational emissions from the proposed project. The GHG Reduction Plan will consist of the measures described below unless the applicant demonstrates that alternative measures will collectively meet the overall performance standard. The applicant will document the application of all final measures to proposed new development and demonstrate their effectiveness.

- State measures that will lower project emissions (compared to BAU conditions):
  - Renewable Portfolio Standard (23.9% reduction in energy emissions).
  - Vehicle efficiency measures (Pavley/Advanced Clean Cars) (19.5% reduction in mobile emissions).
  - Low Carbon Fuel Standard (7.6% reduction in mobile emissions).
- Project measures that could lower project emissions (compared to BAU conditions):
  - Features and measures to exceed Title 24 standards by 20%.
  - Installation of low-flow water fixtures and irrigation systems.
  - Expanding recycling and composting services to ensure recycling of 50% of materials.
  - Replanting of trees to replace those removed.

[8] 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 shown to be validated by protocols and methods equivalent to or more stringent than the CDM standards.

Table 3.4-10 below shows that if the state measures and project-level reductions noted above are incorporated into the design, operational GHG emissions could be reduced by approximately 34% relative to BAU for Option 1 and 37% relative to BAU for Option 2. While this scenario is hypothetical, it shows that reduction of emissions to below the significance criteria is feasible.

Table 3.4-10. Mitigated Scenario for Operational GHG Emissions (metric tons/year)

Phase	Sector	CO_2	CH_4	N_2O	CO_2e
PBL[a] New Colton Building	Area	0.00	0.00	0.00	0.00
	Energy	103.22	0.00	0.00	103.86
	Mobile	87.02	0.01	0.00	87.18
	Waste	0.00	0.07	0.00	1.38
	Water	0.70	0.01	0.00	1.06
	Total	**190.94**	**0.09**	**0.00**	**193.48**
PBL Fairway One Reconstruction	Area	0.00	0.00	0.00	0.00
	Energy	180.63	0.01	0.00	181.75
	Mobile	152.28	0.01	0.00	152.56
	Waste	0.00	0.11	0.00	2.42
	Water	1.22	0.02	0.00	1.85
	Total	**334.13**	**0.15**	**0.00**	**338.58**
PBL Meeting Facility Expansion	Area	0.00	0.00	0.00	0.00
	Energy	10.07	0.00	0.00	10.14
	Mobile	17.23	0.00	0.00	17.26
	Waste	0.00	0.01	0.00	0.24
	Water	0.69	0.01	0.00	0.96
	Total	**27.99**	**0.02**	**0.00**	**28.60**
Residential Lot Subdivision (Corporation Yard)	Area	13.12	0.01	0.00	13.63
	Energy	28.57	0.00	0.00	28.74
	Mobile	112.37	0.01	0.00	112.55
	Waste	0.00	0.08	0.00	1.63
	Water	1.22	0.02	0.00	1.68
	Total	**155.28**	**0.12**	**0.00**	**158.23**
Residential Lot Subdivisions (without Area V or Corporation Yard)	Area	83.96	0.06	0.01	87.21
	Energy	182.85	0.01	0.00	183.97
	Mobile	719.14	0.06	0.00	720.36
	Waste	0.00	0.48	0.00	10.14
	Water	7.80	0.10	0.00	10.77
	Total	**993.75**	**0.71**	**0.01**	**1,012.45**
Residential Lot Subdivision (Area V)	Area	18.37	0.01	0.00	19.08
	Energy	40.00	0.00	0.00	40.24
	Mobile	157.31	0.01	0.00	157.58
	Waste	0.00	0.11	0.00	2.21
	Water	1.71	0.02	0.00	2.36
	Total	**217.39**	**0.15**	**0.00**	**221.47**

Phase	Sector	CO_2	CH_4	N_2O	CO_2e
SBI[b] Conference Center Expansion (Ballroom)	Area	0.00	0.00	0.00	0.00
	Energy	19.00	0.00	0.00	19.11
	Mobile	12.88	0.00	0.00	12.91
	Waste	0.00	0.02	0.00	0.47
	Water	1.31	0.02	0.00	1.81
	Total	**33.19**	**0.04**	**0.00**	**34.30**
SBI Conference Center Expansion (Meeting Rooms)	Area	0.00	0.00	0.00	0.00
	Energy	19.00	0.00	0.00	19.11
	Mobile	12.88	0.00	0.00	12.91
	Waste	0.00	0.02	0.00	0.47
	Water	1.31	0.02	0.00	1.81
	Total	**33.19**	**0.04**	**0.00**	**34.30**
SBI New Guest Cottages	Area	0.00	0.00	0.00	0.00
	Energy	206.44	0.01	0.01	207.71
	Mobile	174.04	0.01	0.00	174.35
	Waste	0.00	0.13	0.00	2.76
	Water	1.39	0.02	0.00	2.11
	Total	**381.87**	**0.17**	**0.01**	**386.93**
Area M Spyglass Hill Option 1 (New Resort Hotel)	Area	0.00	0.00	0.00	0.00
	Energy	516.09	0.01	0.01	519.28
	Mobile	695.20	0.06	0.00	696.45
	Waste	0.00	0.66	0.00	13.80
	Water	3.49	0.06	0.00	5.29
	Total	**1,214.78**	**0.79**	**0.01**	**1,234.82**
Area M Spyglass Hill Option 2 (New Residential Lots)	Area	13.12	0.01	0.00	13.63
	Energy	28.57	0.00	0.00	28.74
	Mobile	112.37	0.01	0.00	112.55
	Waste	0.00	0.08	0.00	1.60
	Water	1.22	0.02	0.00	1.68
	Total	**155.28**	**0.12**	**0.00**	**158.20**
Tree Removal (All Areas, Option 1)	Trees (2020)	262			262
Tree Removal (All Areas, Option 2)	Trees (2020)	255			255
Tree Replanting (All Areas, Option 1)	Trees (2020)	-302	0.00	0.00	-302
Tree Replanting (All Areas, Option 2)	Trees (2020)	-297	0.00	0.00	-297
Total Option 1 Area M Spyglass Hill New Resort Hotel	Area	115.45	0.08	0.01	119.92
	Energy	1,305.87	0.04	0.01	1,313.92
	Mobile	2,140.36	0.18	0.00	2,144.09
	Waste	0.00	1.69	0.00	35.49
	Water	20.84	0.30	0.00	29.70
	Net Tree Sequestration[c]	-40			-40
	Total	3,542.52	2.29	0.02	3,603.12

Phase	Sector	CO_2	CH_4	N_2O	CO_2e
Total Option 2 Area M Spyglass Hill New Residential Lots	Area	128.57	0.09	0.00	133.55
	Energy	818.34	0.02	0.01	823.38
	Mobile	1,557.52	0.13	0.00	1,560.20
	Waste	0.00	1.11	0.00	23.29
	Water	18.57	0.26	0.00	26.09
	Net tree Sequestration[c]	-42			-42
	Total	2,481.00	1.61	0.01	2,524.5

Source:
ICF Calculations using CalEEmod (Appendix E of this EIR).
Notes:
[a] PBL: The Lodge at Pebble Beach.
[b] SBI: The Inn at Spanish Bay.
[c] This amount is the net change in annual sequestration taking into account the project tree removal (from Table 3.4-9) and the value of planting new trees noted in this table.
The PBL Parking and Circulation Reconstruction and SBI New Employee Parking are not reported because they are supporting facilities, and operational emissions from vehicles associated with these facilities are included in the other land use emissions. The estimates assume that the proposed development includes no mitigating features to reduce GHG emissions.

OR

Mitigation Measure CC-A2-B: Validate the greenhouse gas emission offset value of preserving Monterey Pine Forest designated for development using the Climate Action Registry Forest Project Protocol and preserve the lands in perpetuity.

The proposed project includes the preservation of 635 acres, which includes approximately 598 acres of Monterey pine forest in part or all of Areas B, C, F-1, F-3, I-1, I-2, J, K, L, N, O, PQR, U, V, and part of the Corporation Yard. The existing LCP designates most of these areas (approximately 437 acres) for either residential development or commercial development; the remainder is designated as open space forest. The Climate Action Reserve's (CAR's) Forest Project Protocol (version 3.2) indicates that this process of preservation may qualify as Avoided Conversion. Avoided Conversion involves the use of a conservation easement or transfer of lands to public ownership to prevent forest land being converted to non-forest land, with a preservation time commitment of 100 years (The Climate Action Reserve 2010). Lands that meet CAR's requirements for avoided conversion are then considered sinks and reservoirs for carbon due to the preservation and growth of forested lands that would otherwise be cleared to land uses that would be considered potential sources of carbon (i.e., non-forested lands).

For projects to qualify, it must be demonstrated that the project has a feasible and realistic potential for development and loss of the forested lands that would occur in the long run without the proposed preservation. Because the lands proposed for development have been and are currently designated for residential or commercial development and represent technically feasible locations for development, the County preliminarily finds that the lands proposed for preservation that are designated for development in the existing LUP (approximately 437 acres) meet the test for avoided deforestation in the Forest Project Protocol.

In order for this mitigation to be valid, the applicant will be required to submit an application to the Climate Action Reserve for the proposed preservation areas following the Forest Practices Protocol and will obtain third-party verification per the protocol to validate the use of such lands for mitigation credit. If the Reserve validates an amount of GHG mitigation offset greater than or equal to the predicted emissions of the proposed project described above, the County will accept preservation of land as mitigation of GHG emissions. If the applicant is unable to validate the preservation, the applicant will be required to implement Mitigation Measure CC-A2-A.

If validated, the project applicant will establish preservation areas to prohibit a minimum of 598 acres of forested land designated for development under the existing Coastal Plan from being developed into non-forested land. The preservation areas established by the project applicant will be consistent with the Climate Action Reserve's Forest Project Protocol and will ensure that the preservation areas are maintained for a minimum of 100 years.

As shown in Table 3.4-11, if the forest preservation offset credit is fully validated for the preservation lands designated for development in the existing LUP, then the project emissions would be reduced by far more than the significance threshold of 26% reduction, and in the Option 2 case, the proposed project would have a net reduction of GHG emissions. It should be noted that Table 3.4-11 does not take into account the effect of state GHG emission reduction measures, so the net project emissions would be even lower than shown in the table, if the offset credit is validated.

Table 3.4-11. Potential Mitigated GHG Emissions Assuming 100 Percent Validation of Forest Preservation Offset Credit for Preserved Forest Designated for Development in the Existing LUP

Development Site	Unmitigated Annualized Emissions (MT CO_2e)	Annualized Preserve Stock (MT CO_2e)	Annual Preserved Sequestration (MT CO_2e/ year)	Net Annual Project Emissions (MT CO_2e/ year)
Total Option 1 Area M Spyglass Hill New Resort Hotel	5,468	-485	-2,620	2,362
Total Option 2 Area M Spyglass Hill New Residential Lots	4,056	-485	-2,620	950

Source:

ICF Calculations using CalEEMod (Appendix E of this EIR).

Notes:

This table presents net GHG emissions associated with the proposed project, accounting for emissions and mitigation value of preservation, assuming the preservation is validated through the Climate Action Reserve's protocol.

Carbon stock preservation total for the preserved areas designated for development (~437 acres) was estimated as 48,528 MT CO_2e/year and was then annualized over a 100-year period per The Climate Action Reserve Forest Projects Protocol (The Climate Action Reserve 2010) to 485 MT CO_2e/year.

B. Effects of Climate Change

Impact CC-B1: The proposed project would not result in significant exposure of persons or property to reasonably foreseeable impacts of climate change. (Less than significant)

Climate change impacts resulting from past, present, and future GHG emissions could adversely affect the natural and built environment in Del Monte Forest regardless of the success of local, state, national, or international efforts to reduce future GHG emissions due to the existing concentrations of GHG emissions in the atmosphere and the inevitable additional emissions that would occur before future GHG reduction plans are implemented and effectively reduce emissions.

For climate specific changes for California coastal regions, summer temperatures are expected to rise by 1–3.3° C (2–11° F) by the end of this century (California Energy Commission 2009a:12). Warmer temperatures may 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 2009:67). 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 2007a; California Natural Resources Agency 2009; California Energy Commission 2009a, 2009b; Karkl and Roland-Holst 2008).

Sea-level rise has been identified as likely the greatest climate change–related risk to coastal regions. Sea level rise is expected to increase dramatically over historical rates. The California Energy Commission (CEC) predicts that sea level rise, relative to the 2000 level, could ranges from 11 to 17 inches (30 to 45 centimeters) by 2050 (California Energy Commission 2009). The California Natural Resources Agency estimates that sea level rise could reach up to 55 inches (1.4 meters) by 2100 (relative to 2000 levels), under certain global emissions scenarios (CNRA 2010).

In addition to the rocky and cliff-edged coastline, Pebble Beach (where the project area is located) is also lined by near-sea-level sandy coastline and, therefore, is susceptible to inundation from rising sea levels. Rising sea levels would also result in erosion at higher elevations from tidal activity along the coast. Although Monterey Bay was identified as having a high risk of coastline erosion along the state coastline, the USGS classified the coastline just south of Monterey, where the project area is located, as a low-risk area of coastal erosion[9] (US Geological Survey 2001).

While sea level rise could affect certain existing infrastructure, residences, golf courses, and visitor-serving areas located directly along the coast as erosion accelerates, none of the proposed project development sites is located close to any coastal bluffs or beaches. Proposed project development is located at elevations well above the predicted sea level for 2050 and 2100.[10] As a result, none of the proposed new development is considered particularly vulnerable to rising sea levels.

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 1–3.3° C (2–11° F) by the end of this century (California Energy Commission 2009a:12). Given the coastal location of the project area, while temperature changes

[9] While estimates of coastal erosion were not available for Northern California, a recent study for Southern California expects that erosion rates will accelerate by 20% for a 1 meter rise in sea level (CEC 2009b: 63).

[10] Elevations are approximately as follows: proposed development areas at The Lodge at Pebble Beach, 60 to 90 feet above sea level; proposed development at the Inn at Spanish Bay, 50 to 80 feet above sea level; proposed Area L residential, 70 feet above sea level (at the west end nearest the coast); proposed hotel or residential at Area M; 240 to 270 feet above sea level). All other areas are further inland.

could be substantial, they would not be likely to substantially increase heat stress days 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 2009:67).

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 2007a; California Natural Resources Agency 2009; California Energy Commission 2009a, 2009b; Karkl and Roland-Holst 2008). While changes in temperature, fog, water pollution, and disease vectors are possible, it is not feasible at this time to project the specific effect on the property and persons associated with the proposed project in Del Monte Forest. While these effects are considered potential (and thus not entirely speculative), it is not feasible to prepare for effects that have not been fully locally characterized yet. As such, this does not give rise to a significant effect.

As described in Section 3.12, Water Supply and Demand, the proposed project is likely to be provided potable water from the Carmel River through 2016, and may be provided from either the Carmel River or the regional water supply project (Regional Project) (or an equivalent) after 2016.

The primary source of water for the Regional Project is desalination of seawater. As discussed in Section 3.12, Water Supply and Demand, the Regional Project, although approved by the CPUC, is somewhat uncertain given unresolved issues concerning permits from the California Coastal Commission, costs, and governance, and may be delayed or possibly replaced by an alternative project. If the Monterey Peninsula utilizes desalination as its principle water source in the future, this is a source that would not ultimately be hindered by future climate changes in precipitation and river flows, and the proposed project would not be expected to be affected by climate change–induced changes in water supply in the very long run. However, in the absence of the Regional Project or an equivalent alternative reliant on desalination, the project would be reliant on the Carmel River, groundwater, the Salinas River, or recycled water or aquifer storage and retrieval that might be affected or limited in the long term by climate change. Currently, climate models have not been sufficiently downscaled to predict the effects of climate change on Carmel River flows. Therefore, the reliability of provision of water from the Carmel River in the long run is unknown.

As discussed in Section 3.12, Water Supply and Demand, because there is a potential for the project to intensify water rationing after 2016 in the event of inadequate regional water supply, this is considered a significant and unavoidable water supply impact and it may be further worsened if future regional water supplies are limited by climate change impacts. It is important to note that at this time there is insufficient evidence to conclude the precise effect of climate change on local water supplies; this disclosure errs on the conservative side by identifying a potential effect on regional riverine or groundwater sources other than desalination.

Proposed project development is not in an area that is vulnerable to rising sea levels and associated bluff-top erosion, and is not particularly vulnerable to a water supply interruption in the long run given that its water would in all likelihood be derived largely from desalination. While other climate change effects are also likely, at this time their local character 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. As noted above, there is the potential that the project's reliance directly or indirectly on new regional water supplies,

as discussed in Section 3.12, Water Supply and Demand, may be affected in the long term by climate change–related impacts, but there is insufficient information to currently conclude the nature of those effects.