4.8 GREENHOUSE GAS EMISSIONS

4.8.1 INTRODUCTION

This section describes the existing greenhouse gas (GHG) conditions and analyzes the potential GHG emissions that would result from implementation of the Hyatt Place project (project), and outlines standard conditions of project approval. The information in this section is based on the following sources:

- California Air Resources Board, *Climate Change Scoping Plan* 2014
- California Air Resources Board, *Clean Car Standards – Pavley, Assembly Bill 1493,* 2017
- California Air Resources Board, *California Greenhouse Gas Emissions Inventory for 2000-2016*, 2018
- Bay Area Air Quality Management District (BAAQMD), *Inventory Summary Report: Greenhouse Gases (Base Year 2011),* 2015
- BAAQMD, *California Environmental Quality Act Air Quality Guidelines (May 2017),* 2017
- *Hyatt Hotel Air Quality, Greenhouse Gas and Energy Assessment* (Illingworth and Rodkin, Inc., 2020) Included in this EIR as **Appendix C**

Project consistency with the 2021 Local Coastal Land Use Plan (LCLUP) is analyzed in this draft EIR where applicable. The LCLUP was updated and adopted by City Council in October 2020 and certified by the California Coastal Commission (CCC) in April 2021. The updated LCLUP comprises the City's reexamined and updated policy approach for carrying out the Coastal Act in a manner that addresses changed conditions since certification of the 1996 LCLUP.

All documents referenced in the draft EIR are available via CD or weblink upon request. The location of the other reference materials is cited at the end of this section. Hard copies of the draft EIR are located at the City of Half Moon Bay, Planning Division, 501 Main St, Half Moon Bay, CA 94019.

Comments were submitted in response to the Notice of Preparation for this Environmental Impact Report (EIR), comments were regarding the project's potential to generate GHG emissions that would either directly or indirectly cause a significant impact on the environment. These comments include:

- Concerns that the project would directly contribute enough GHG emissions through electricity and natural gas usage to significantly impact the environment
- Concerns that other effects of the project such as increased vehicle trips and growth would indirectly lead to significant GHG emissions impacts
- Concerns that the project would conflict with an applicable plan, policy, or regulation regarding GHG emissions

4.8.2 EXISTING CONDITIONS

GHGs trap heat in the atmosphere, preventing it from dissipating into outer space. The accumulation of GHGs in the atmosphere has been implicated as a driving force for global climate change. Definitions of climate change vary between regulatory authorities and the scientific community, but in general can be described as the changing of the earth's climate caused by natural fluctuations and anthropogenic activities that alter the composition of the global atmosphere.

Individual projects contribute to the cumulative effects of climate change by emitting GHGs during demolition, construction, and operational phases. The principal GHGs are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3), and water vapor. While the primary GHGs in the atmosphere are naturally occurring CO_2, CH_4, and N_2O are largely emitted from human activities, accelerating the rate at which these compounds occur within the earth's atmosphere.

Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from offgassing associated with agricultural practices and landfills. Other GHGs, such as hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride have much greater heat absorption potential than CO_2 and are generated in certain industrial processes.

There are international scientific consensus that human-caused increases in atmospheric GHG concentrations have contributed and will continue to contribute to global warming, although there is uncertainty concerning the magnitude and rate of the warming. Potential global warming impacts in California may include, but are not limited to, loss in snowpack, sea-level rise, more extreme heat days per year, more high ozone days, more large wildland fires, and more drought years. Secondary effects are likely to include global rise in sea-level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity.

The California Air Resources Board (CARB) estimated that in 2016 California produced about 429 million gross metric tons of carbon dioxide equivalent (CO_2e) emissions.[1] The CARB found that transportation is the source of 41 percent of the State's GHG emissions, followed by industrial sources at 23 percent, and electricity generation at 16 percent.[2]

In the San Francisco Bay Area (Bay Area), fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) is the single largest source of GHG emissions, accounting for approximately 39.7 percent of the Bay Area's GHG emissions in 2011. Industrial and commercial sources (including office and retail uses) were the second largest contributors of GHG emissions with about 35.7 percent of total emissions. Electricity production accounts for almost 14 percent of the Bay Area's GHG emissions, followed by domestic sources (e.g., home water heaters, furnaces, etc.) at approximately 7.7 percent. Off-road equipment and farming account for approximately 1.5 percent of the total Bay Area GHG emissions.[3]

4.8.3 REGULATORY SETTING

Federal

United States Environmental Protection Agency

The U.S. Environmental Protection Agency (EPA) enforces the Federal Clean Air Act (CAA), which, among other criteria pollutants and toxic air pollutants, regulates GHG emissions. EPA also manages the Mandatory Greenhouse Gas Reporting Rule and other federal laws and regulations pertaining to air quality, but not necessarily GHG emissions.

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[1] The effect of a project on global climate change is calculated by quantifying project emissions of GHG. CO_2 is the "reference gas" for climate change, meaning that emissions of GHGs are typically reported in CO_2e.

[2] California Air Resources Board, 2018. California Greenhouse Gas Emissions Inventory for 2000-2016. Available: https://www.arb.ca.gov/cc/inventory/pubs/reports/2000_2016/ghg_inventory_trends_00-16.pdf. Accessed: January 2022.

[3] Bay Area Air Quality Management District, 2015. Bay Area Emissions Inventory Summary Report: Greenhouse Gases (Base Year 2011). Available:http://www.baaqmd.gov/~/media/files/planning-and-research/emission-inventory/by2011_ghgsummary.pdf. Accessed: January 2022.

Project Consistency

The project would be required to comply with Federal regulations and standards set by the EPA.

Endangerment and Cause or Contribute Findings for Greenhouse Gases under Clean Air Act Section 202(a)

In December 2009, in response to a US Supreme Court ruling, the EPA made a finding under the CAA that current and projected atmospheric concentrations of the six generally recognized GHGs (CO_2, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) "threaten the public health and welfare of current and future generations," and that emissions of these gases from new cars and trucks "contribute to the greenhouse gas pollution which threatens public health and welfare."[3]

In conjunction with EPA, the National Highway Traffic Safety Administration of US Department of Transportation (DOT) developed the National Program for Greenhouse Gas emissions. The first phase rulemaking applies to light duty cars and trucks in model years 2012-2016 and requires an average fuel economy standard of 32.6 miles per gallon (mpg) in 2015 and 34.1 mpg in 2016. If the automotive industry were to meet this CO_2 level entirely through fuel economy improvements, the total CO_2 emissions reductions would be approximately 1.8 billion barrels of oil savings between 2012 and 2016.[4] Between 2004 and 2019, CO_2 emissions have decreased 23 percent, and fuel economy has increased 29 percent.[5]

Project Consistency

The project would be required to comply with Federal regulations and standards set by the EPA, including the CAA.

State

California has been at the vanguard of State efforts to regulate and reduce GHG emissions and to plan for the effects of global climate change. The State recognizes that "there appears to be a close relationship between the concentration of greenhouse gases in the atmosphere and global

[4] United States Environmental Protection Agency, 2021. *Regulations for Greenhouse Gas Emissions from Passenger Cars and Trucks.* Available: https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-emissions-passenger-cars-and. Accessed: January 2022.

[5] United States Environmental Protection Agency, 2021. *Highlights of the Automotive Trends Report.* Available: https://www.epa.gov/automotive-trends/highlights-automotive-trends-report#Highlight1. Accessed: January 2022.

temperatures" and that "the "evidence for climate change is overwhelming."[6] The effects of climate change on California remain uncertain. According to a 2009 California Climate Adaptation Strategy final discussion report prepared by the California Climate Action Team Report, the following climate change effects and conditions can be expected to occur in California over the course of the next century:

- A change in the timing of precipitation, with more falling as rain and less as snow, resulting in a diminishing Sierra Nevada snowpack that would threaten the State's water supply.
- Increased average temperatures of up to 4.0-9.0 degree Fahrenheit (°F).
- A 25 to 35 percent increase in the number of days ozone pollution levels are exceeded in most urban areas.
- Increased vulnerability of forests to wildfires due to pest infestation, increased temperatures, and lighting storms without precipitation.
- Increased challenges for the State's important agricultural industry from water shortages, increasing temperatures, and saltwater intrusion into the Delta.
- Increased electricity demand, particularly in the hot summer months.
- Sea-level rise of 12 to 18 inches by 2050 and 21 to 55 inches by 2100

Assembly Bill 1493 (AB 1493, Pavley) (2002)

Authored by Assembly Member Fran Pavley and enacted on July 22, 2002, these standards are intended to reduce GHG emissions for passenger vehicles, light duty trucks, and other vehicles whose primary use is noncommercial personal transportation manufactured in and after 2009. However, they also have the associated benefit of reducing energy consumption from the transportation sector by improving fuel economy and reducing fuel consumption to reduce emissions. Referred to as the Pavley standards, implementation of AB 1493 was delayed due to litigation, but ultimately upheld by the Supreme Court. The standards established tailpipe GHG emissions standards for model year 2012 through 2016 light-duty vehicles under Phase I and model year 2017 through 2025 light-duty vehicles under Phase II.

EPA and DOT adopted federal equivalent standards for model year 2012 through 2016 light-duty vehicles and model year 2017 through 2025 light-duty

[6] Governor's Office of Planning and Research, 2022. *Common Denier Arguments.* Available: https://opr.ca.gov/facts/common-denier-arguments.html. Accessed: January 2022.

vehicles. The federal standards are slightly different from the Pavley Phase I and Phase II standards, but the State of California has agreed not to contest these standards, in part due to the fact that while the national standard would achieve slightly lower reductions in California, it would achieve greater reductions nationally and is stringent enough to meet state GHG emission reduction goals.[7] On November 15, 2012, CARB approved an amendment that allows manufacturers to comply with the national standards to meet state law.

Project Consistency

Construction-related light-duty trucks would be required to meet state GHG emission laws either through adherence to the Pavley standards or federal standards.

Executive Order (EO) S-3-05

In June 2005, in recognition of California's vulnerability to the effects of climate change, Governor Schwarzenegger established Executive Order S-3-05, which sets forth a series of target dates by which statewide emission of GHGs would be progressively reduced, as follows: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels.

Project Consistency

The project would be required to comply with State regulations pertaining to GHG emissions. Additionally, by complying with the local regulations described below, project activities would not conflict with reducing GHG emissions to the 2020 and 2050 standards.

Assembly Bill (AB) 32 Climate Change Scoping Plan and First Update to the Scoping Plan

In 2006, California passed the California Global Warming Solutions Act of 2006 (AB 32), which requires the CARB to design and implement emission limits, regulations, and other measures, such that feasible and cost-effective statewide GHG emissions are reduced to 1990 levels by 2020 (representing a 25 percent reduction in emissions).

AB 32 establishes a timetable for the CARB to adopt emission limits, rules, and regulations designed to achieve the intent of the Act. In November 2017, CARB released an updated Scoping Plan to meet the GHG reduction limits

[7] California Air Resources Board, 2017. Clean Car Standards – Pavley, Assembly Bill 1493. Available: https://ww3.arb.ca.gov/cc/ccms/ccms.htm. Accessed: January 2022.

for 2020 and beyond outlined in AB 32. According to the 2017 Scoping Plan, California was on track to exceed its 2020 climate target. The Scoping Plan estimates a reduction of 174 million metric tons (about 191 million US tons) of CO_2e.[8] EO B-30-15 (see detailed discussion below) and SB 32 extended the goals of AB 32 and set a 2030 goal of reducing emissions by 40 percent from 2020 levels.[9]

Transportation Sector Reductions

Approximately one-third of the emissions reductions strategies fall within the transportation sector and include the following: California Light-Duty Vehicle GHG standards, the Low Carbon Fuel Standard, Heavy-Duty Vehicle GHG emission reductions and energy efficiency, and medium and heavy-duty vehicle hybridization, high speed rail, and efficiency improvements in goods movement.

Energy Sector Reductions

Emissions from the energy sector are expected to reduce another 25 million metric tons of CO_2e. Reductions from the electricity sector include building and appliance energy efficiency and conservation, increased combined heat and power, solar water heating (AB 1470), the renewable energy portfolio standard (33 percent renewable energy by 2020), and the existing million solar roofs program.

Other Reductions

Other reductions are expected from industrial sources, agriculture, forestry, recycling and waste, water, and emissions reductions from cap-and-trade programs. Regional GHG targets are also expected to yield a reduction of 23 million metric tons of CO_2e.

Project Consistency

The project would be required to comply with State regulations pertaining to GHG emissions as set forth by CARB.

[8] California Air Resources Board, 2014. Climate Change Scoping Plan. Available: https://www.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf. Accessed: January 2022.

[9] California's 2017 Climate Change Scoping Plan. 2017. Available here: https://ww2.arb.ca.gov/sites/default/files/classic//cc/scopingplan/scoping_plan_2017_es.pdf. Accessed: January 2022.

EO B-30-15

Governor Jerry Brown signed Executive Order B-30-15s on April 29, 2015. The following are major provisions of the Executive Order:

1. A new interim statewide greenhouse gas emission reduction target to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030 is established in order to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050.
2. All state agencies with jurisdiction over sources of greenhouse gas emissions shall implement measures, pursuant to statutory authority, to achieve reductions of greenhouse gas emissions to meet the 2030 and 2050 greenhouse gas emissions reductions targets.
3. The California Air Resources Board shall update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent.

In November 2017 CARB issued *California's 2017 Climate Change Scoping Plan*. While the State is on track to exceed the AB 32 Scoping Plan 2020 targets, this plan is an update to reflect the enacted SB 32 reduction target.

The new Scoping Plan establishes a strategy that will reduce GHG emissions in California to meet the 2030 target (note that the AB 32 Scoping Plan only addressed 2020 targets and a long-term goal). Key features of this plan are:

- Cap and Trade program places a firm limit on 80 percent of the State's emissions;
- Achieving a 50-percent Renewable Portfolio Standard by 2030 (currently at about 29 percent statewide);
- Increase energy efficiency in existing buildings;
- Develop fuels with an 18-percent reduction in carbon intensity;
- Develop more high-density, transit-oriented housing;
- Develop walkable and bikeable communities
- Greatly increase the number of electric vehicles on the road and reduce oil demand in half;
- Increase zero-emissions transit so that 100 percent of new buses are zero emissions;

- Reduce freight-related emissions by transitioning to zero emissions where feasible and near-zero emissions with renewable fuels everywhere else; and
- Reduce "super pollutants" by reducing methane and hydrofluorocarbons or HFCs by 40 percent.

In the updated Scoping Plan, CARB recommends statewide targets of no more than 6 metric tons CO_2e per capita (statewide) by 2030 and no more than 2 metric tons CO_2e per capita by 2050. The statewide per capita targets account for all emissions sectors in the State, statewide population forecasts, and the statewide reductions necessary to achieve the 2030 statewide target under SB 32 and the longer-term State emissions reduction goal of 80 percent below 1990 levels by 2050.

Project Consistency

The project would be required to comply with State regulations pertaining to GHG emissions as set forth by CARB. In addition, limits set at the State level also inform regional air quality authorities to ensure vertical consistency among plans, including thresholds of significance for CEQA.

Local

BAAQMD Climate Protection Program

In June 2005, BAAQMD established a Climate Protection Program to reduce pollutants that contribute to global climate change and affect air quality in the Bay Area. The climate protection program includes measures that promote energy efficiency, reduce vehicle miles traveled, and develop alternative sources of energy all of which assist in reducing emissions of GHG and in reducing air pollutants that affect the health of residents. BAAQMD also seeks to support current climate protection programs in the region and to stimulate additional efforts through public education and outreach, technical assistance to local governments and other interested parties, and promotion of collaborative efforts among stakeholders.

Project Consistency

By using renewable energy from Peninsula Clean Energy and applying energy-saving measures included in the LEED Checklist, such as offering shuttling services and creating bike lanes, the project would reduce energy use and GHG emissions.

BAAQMD CEQA Guidelines

In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA. These thresholds were designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA and were posted on BAAQMD's website and included in BAAQMD 2017 updated CEQA Guidelines.[10]

BAAQMD's adoption of the thresholds was called into question by an order issued March 5, 2012, *in California Building Industry Association v. BAAQMD* (Alameda Superior Court Case No. RGI0548693). The order required BAAQMD to set aside its approval of the thresholds until it has conducted environmental review under CEQA. The claims made in the case concerned the environmental impacts of adopting the thresholds, that is, how the thresholds would indirectly affect land use development patterns. Those issues are not relevant to the scientific basis of BAAQMD's analysis of what levels of pollutants should be deemed significant. In August 2013, the First District Court of Appeal held the adoption of the thresholds was not a "project" subject to CEQA review. Then in December 2013, the California Supreme Court granted a petition to review the question of whether the guidelines could compel evaluation of impacts of the environment on a project (i.e., "CEQA in reverse"). In December 2015, the Court held that CEQA generally does not require such an analysis. This analysis considers the science informing the thresholds as being supported by substantial evidence. Scientific information supporting the thresholds was documented in BAAQMD's proposed thresholds of significance analysis. This analysis herein uses the thresholds and methodologies from BAAQMD's May 2017 CEQA Air Quality Guidelines to determine the potential impacts of the project on the existing environment.

BAAQMD framework is designed to implement AB 32. To derive its significance thresholds, BAAQMD estimated the growth in statewide GHG emissions between 1990 and 2020 attributable to "land use" related planning. These planning considerations include transportation, electric power, commercial and residential configurations (influencing vehicle miles traveled), and recycling and waste. BAAQMD documents show that a 26.2 percent reduction from statewide land use related greenhouse gas emissions would be necessary to meet the AB 32 goals. To affect these reductions, BAAQMD adopted an efficiency threshold

[10] Bay Area Air Quality Management District, 2017. California Environmental Quality Act Air Quality Guidelines (May 2017). Available: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed January 2022.

(i.e., 4.6 metric tons of carbon dioxide equivalent emissions per member of a project service population) to achieve California's 2030 GHG target.

Project Consistency

This EIR evaluates potential project construction impacts and mitigates where necessary to achieve the BAAQMD thresholds of significance for GHG emissions.

Half Moon Bay General Plan

Half Moon Bay's General Plan adopted elements for Noise, Safety, Parks and Recreation, Circulation, and Housing from the year 1991 to 2023. There is no element addressing air quality or GHG emissions, and no policies that apply to these topics.

Plan Half Moon Bay– Local Coastal Program & Land Use Plan

The Half Moon Bay LCLUP and the Local Coastal Implementation Plan (IP) together constitute the "Local Coastal Program" (LCP) for the city. The LCLUP, which is the policy component of the Local Coastal Program, does not contain policies regarding air quality or GHG emissions. The policies described in **Table 4.8-1** are relevant to energy consumption. In addition, the City is in the process of preparing a Climate Action and Adaptation Plan (CAAP) to address sustainability at a policy level.

Building Electrification Ordinance

Adopted in early 2022, Half Moon Bay's Title 14 of the Half Moon Bay Municipal Code Building Electrification Ordinance will assist the State in reaching Senate Bill 32 goals. The Building Electrification Ordinance requires all new building constructions to be electric-only, with no gas or propane used in the new construction. Additionally, the Building Electrification Ordinance would require electric retrofits for various types of remodels, and require fuel gas lines to be capped/decommissioned in existing buildings by 2045.

4.8.4 IMPACTS AND MITIGATION MEASURES

Thresholds of Significance

The following thresholds of significance for GHG emissions were derived from the *Environmental Checklist in the California Environmental Quality Act (CEQA) Guidelines Appendix G*. These thresholds of significance have been amended or supplemented, as appropriate, to address lead agency requirements and the full range of potential impacts related to this project.

An impact of the project would be considered significant and would require mitigation if it would meet one of the following thresholds of significance:

GHG a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment;

GHG b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Methodology

CalEEMod Modeling

CalEEMod was used to predict GHG emissions from operation of the site assuming full build-out of the project. The project land use types and size and other project-specific information were input to the model, as described above. The CalEEMod output is included in **Appendix B**.

Substantial Progress Metric

In addition to the questions in the *CEQA Guidelines, Appendix G* related to GHG, other indicators were used to determine significance. Refer to **Table 4.8-1** for BAAQMD's CEQA Air Quality Guidelines recommend a GHG threshold of 1,100 metric tons or 4.6 metric tons (MT) per capita. These thresholds were developed based on meeting the 2020 GHG targets set in the scoping plan that addressed AB 32. Because development of the project would occur in 2020 or later, the project must meet the threshold set forth in the updated 2017 Scoping Plan because BAAQMD does not have recommendations for post-2020. For post-2020, this assessment uses a "Substantial Progress" efficiency metric of 2.6 MT CO_2e/year/service population and a bright-line threshold of 660 MT CO_{2e}/year based on the GHG reduction goals of EO B-30-15 and the new Scoping Plan. The 2030 bright-line threshold is a 40 percent reduction of the 2020 1,100 MT CO_2e/year threshold, which reflects the goal of SB 32.

Table 4.8-1 Greenhouse Gas Emissions Significance Thresholds

BAAQMD CEQA Guidelines Significance Thresholds (May 2017)	
Land Use Projects – direct and indirect emissions	Compliance with a Qualified GHG Reduction Strategy OR 1,100 metric tons annually or 4.6 metric tons per capita (for 2020) 660 metric tons annually or 2.8 metric tons per capita (for 2030)*

Note: GHG = greenhouse gases. *BAAQMD does not have a recommended post-2020 GHG threshold.

Source: BAAQMD, Guidelines for Greenhouse Gas Emissions Significance Thresholds, 2017.

Discussion of Impacts

GHG a-1) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Construction

Less than Significant. GHG emissions associated with development of the project would occur during short-term construction activities. These would consist primarily of emissions from on-site operation of construction equipment, vendor and hauling truck trips, and worker trips.

GHG emissions associated with construction would be approximately 493 MT of CO_2e for the total construction period. These are the emissions from on-site operation of construction equipment, vendor and hauling truck trips, and worker trips. Neither Half Moon Bay nor BAAQMD have adopted thresholds of significance for construction related GHG emissions, although BAAQMD recommends quantifying emissions and disclosing that GHG emissions would occur during construction. However, project construction does not exceed the "Substantial Progress" threshold of 660 MT of CO_2e/year, as described in the Methodology above. BAAQMD also encourages the incorporation of best management practices to reduce GHG emissions during construction where feasible and applicable.

As discussed in **Section 4.2, Air Quality**, the project would also implement **Standard Condition AQ-1** and **Mitigation Measure AQ-2**, intended to further reduce criteria air pollutant emissions, which includes measures to control construction exhaust. Reducing construction vehicle emissions would also reduce the output of GHGs as a result of project construction. See **Section 4.2, Air Quality,** for the full text of **Standard Condition AQ-1** and **Mitigation Measure AQ-2**.

GHG a-2) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Operation

Less than Significant. Long-term operational emissions would be associated with vehicular traffic within the project vicinity, energy and water usage, and solid waste disposal.

The CalEEMod model and the project vehicle trip generation rates were used to estimate daily emissions associated with full operation of the hotel and its amenities. As shown in **Table 4.8-2,** annual project operational emissions are predicted to be 609 MT of CO_2e in the year 2022 and 548 MT of CO_2e in the year 2030. The project would not exceed the 660 MT CO2e/year bright-line threshold in either the opening or future years. Therefore, the project's GHG emissions would not be an exceedance. This would be considered a less-than-significant impact.

Table 4.8-2 Annual Project GHG Emissions (CO_{2e}) in Metric Tons

Source Category	Project Emissions (2022)	Project Emissions (2030)
Area	<1	<1
Energy Consumption	207	207
Mobile	363	302
Solid Waste Generation	35	35
Water Usage	3	3
Total	**609**	**548**
Significance Threshold	*660 MT CO_{2e}/year*	
Significant?	***No***	***No***

Source: Calculations done by Illingworth & Rodkin using CalEEMod, 2020.

Note: The CalEEMod emissions projections decrease between 2022 and 2030 because the model assumes that over time technology (e.g., vehicles) improves and energy is produced from cleaner sources.

To achieve the "Substantial Progress" thresholds, the project would need at least a 32-percent reduction in the year 2022 and a 22-percent reduction in the year 2030 assuming implementation of all other project designs (such as the LEED sustainability measures). Therefore, the project has a less than significant impact related to GHG emissions in both 2022 and 2030.

In addition, the project would be in compliance with all applicable sustainability regulations in the Green Building Code because it would include

the following elements which reduce GHGs for individual project and implement the State and regional GHG reduction plans:

- Glass solar panels which would generate approximately three percent of the electricity used on-site
- High-efficiency lighting throughout the site (i.e., LED lighting fixtures)
- A variable refrigerant flow (VRF) heating/air conditioning system into the project (results in an average of 39-percent in energy savings compared to conventional HVAC systems)
- Use of grey water for outdoor landscaping
- Low-flow plumbing fixtures
- Use of water-efficient irrigation systems and landscaping

GHG b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less than Significant. As discussed above, BQAAQMD does not have an adopted threshold of significance for construction related GHG emissions. Project operation would also not exceed the BAAQMD "Substantial Progress" threshold for its operational emissions. Additionally, the project would comply with the City's Electrification ordinance, as defined in **Standard Condition ENG-1** and will not use natural gas or propane in the building construction. For the full text of **Standard Condition ENG-1**, see **Section 4.7**, **Energy**. Therefore, the project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs and this impact would be less than significant.

4.8.5 CUMULATIVE IMPACTS

Cumulative impacts occur when two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. Other projects in the area include past and present planned residential, commercial, and infrastructure development projects. See **Chapter 4.0, Setting, Impacts, and Mitigation Measures**, for the full list of cumulative projects within Half Moon Bay.

Less than Significant. Long-term operational emissions associated with vehicular traffic within the project vicinity, energy and water usage, and solid waste disposal would contribute to the cumulative GHG emissions in Half Moon Bay.

The project would include glass solar panels and these panels would generate approximately three percent of the electricity used on-site based on

LEED renewable energy production point system. The project would install high-efficiency lighting throughout the site (i.e., LED lighting fixtures). A VRF heating / Air Conditioning System would be incorporated into the project and would result in an average of 39-percent in energy savings compared to conventional HVAC systems. Additionally, the project would use grey water for outdoor landscaping, install low-flow plumbing fixtures, and use water-efficient irrigation systems. This sustainability measures were applied to the CalEEMod model and are reflected in the GHG emissions. As such, long-term operational GHG emissions would not generate emissions in exceedance of the "Substantial Progress" threshold of 660 MT of CO_{2e}/yearr. and the project's emissions would result in a less than cumulatively considerable contribution to GHG emissions applying the bright-line threshold and also applying the GHG reduction regulations to the project that are identified in assisting the State and the region in meeting it GHG reduction goals as outlined in CARB's *2017 Climate Change Scoping Plan*.

4.8.6 REFERENCES

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