11.0 GREENHOUSE GAS EMISSIONS

11.1 Regulatory Setting

While many federal, state, regional, and local plans, policies, and regulations pertaining to greenhouse gas (GHG) emissions do not directly apply to the implementation of the PWP, the information below is helpful for understanding the overall context for GHG emissions impacts and strategies to reduce GHG emissions.

11.1.1 Federal

11.1.1.1 U.S. Environmental Protection Agency "Endangerment" and "Cause or Contribute" Findings

On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the CAA:

- Endangerment Finding: The current and projected concentrations of the six key GHGs—CO_2, methane, nitrous oxide, hydrofluorocarbons, perfluorinated chemicals, and sulfur hexafluoride—in the atmosphere threaten the public health and welfare of current and future generations.

- Cause or Contribute Finding: The combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to GHG pollution, which threatens public health and welfare.

11.1.2 State

As described in Volume I, Section 2.2.7, "Climate Change and Sea-Level Rise," State Parks comprehensively evaluates the potential impacts of sea-level rise, coastal storm surge, and other extreme events on all new projects, facilities, and resource protection efforts in low-lying or susceptible areas of coastal park units. In addition, State Parks is currently undertaking a comprehensive update of its Sea Level Rise and Climate Change Policy, which is expected to be published in early 2021.

The State's legal framework for GHG emission reductions has come about through Executive Orders, legislation, regulations, and court decisions.

11.1.2.1 Statewide Emission Reduction Targets Pursuant to the California Global Warming Solutions Act of 2006 (Assembly Bill 32 and Senate Bill 32, and Executive Orders S-3-05 and B-30-15)

Executive Order S-3-*05 (2005) and Assembly Bill (AB) 32 (2006)*

Issued by the Governor in recognition of California's vulnerability to the effects of climate change, Executive Order (EO) S-3-05 established progressive GHG emission reduction targets for the State, as follows:

- By 2010, reduce GHG emission to the year 2000 level;

- By 2020, reduce GHG emissions to the year 1990 level; and,

- By 2050, reduce GHG emissions to 80 percent below the 1990 level.

The California Global Warming Solutions Act of 2006, commonly known as AB 32, further detailed and put into law the midterm GHG reduction target established in EO S-3-05 to reduce statewide GHG emissions to 1990 levels by 2020 and created a comprehensive, multi-year program to reduce GHG emissions in California. AB 32 also directed CARB to accomplish the following core tasks:

- Establish the statewide goal of reducing GHG emissions.
- Establish a mandatory reporting system to track and monitor emissions levels.
- Develop various compliance options and enforcement mechanisms.

EO *B-30-15 (2014) and Senate Bill 32*

EO B-30-15 established a statewide GHG reduction goal of 40 percent below 1990 levels by 2030. This emission reduction goal serves as an interim goal between the AB 32 target to achieve 1990 emission levels by 2020 and the long-term goal set by EO S-3-05 to reduce statewide emissions 80 percent below 1990 levels by 2050. In addition, the executive order aligned California's 2030 GHG reduction goal with the European Union's 2030 reduction target that was adopted in October 2014.

SB 32 signed into law the emissions goal of EO B-30-15, extending the provisions of AB 32 from 2020 to 2030 with the target of 40 percent below 1990 levels by 2030.

11.1.3 Executive Order B-55-18 (2018)

Executive Order B-55-18 acknowledges the environmental, community, and public health risks posed by future climate change. It further recognizes the climate stabilization goal adopted by 194 states and the European Union under the Paris Agreement. Based on the worldwide scientific agreement that carbon neutrality must be achieved by midcentury, EO B-55-18 establishes a new State goal to achieve carbon neutrality as soon as possible and no later than 2045, and to achieve and maintain net negative emissions thereafter. The EO charges CARB with developing a framework for implementing and tracking progress towards these goals.

11.1.4 Climate Change Scoping Plan

Pursuant to AB 32, CARB adopted the initial Climate Change Scoping Plan (Scoping Plan) in December 2008, identifying measures to meet the 2020 GHG reduction target.

ARB is required to update the Scoping Plan at least once every five years to evaluate progress and develop future inventories that may guide this process. The First Update to the Climate Change Scoping Plan: Building on the Framework (2014 Scoping Plan Update) determined that the state was on schedule to achieve the 2020 target. However, an accelerated reduction in GHG emissions would be required to achieve the EO S-3-05 emissions reduction target for 2050.

In November 2017, ARB released its second update to the Scoping Plan, California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target (2017 Scoping Plan Update) (ARB 2017). The 2030 target of a 40 percent reduction in GHG emissions below 1990 statewide GHG emissions (consistent with Executive Order B-30-15, which is outlined below) guides the 2017 Scoping Plan Update (ARB 2017). The 2017 Scoping Plan Update establishes a plan of action, consisting of a variety of strategies to be implemented

rather than a single solution, for California to reduce statewide emissions by 40 percent by 2030 compared to 1990 levels (ARB 2017).

11.1.5 Renewables Portfolio Standard

SB 1078, SB 107, EO S 14 08, and SB X1-2 have established increasingly stringent renewable portfolio standard (RPS) requirements for California's utility companies. RPS-eligible energy sources include wind, solar, geothermal, biomass, and small-scale hydro projects.

- SB 1078 required investor-owned utilities to provide at least 20 percent of their electricity from renewable resources by 2020.
- SB 107 accelerated the SB 1078 timeframe to take effect in 2010.
- EO-S-14-08, codified by SB X1-2, increased the RPS further to 33 percent by 2020.
- SB 350 increased the RPS to 50 percent by 2030.
- SB 100 increased the RPS to 60 percent by 2030 and required the State's electricity to come from carbon-free resources by 2045.

These requirements reduce the carbon content of electricity generation and reduce GHG emissions associated with both existing and new development.

11.1.6 California Code of Regulations, Title 20 and 24

New buildings constructed in California must comply with the standards contained in California Code of Regulations (CCR) Title 20, Energy Building Regulations, and Title 24, Energy Conservation Standards.

Title 20 standards range from power plant procedures and siting to energy efficiency standards for appliances, ensuring reliable energy sources are provided and diversified through energy efficiency and renewable energy resources. California's 2009 Appliance Efficiency Regulations (20 CCR 1601–1608) were adopted by the CEC on December 3, 2008, and approved by the California Office of Administrative Law on July 10, 2009. The regulations include standards for both federally regulated appliances and non-federally regulated appliances.

Title 24 requires the design of building shells and building components to conserve energy. The Energy Conservation Standards for new residential and nonresidential buildings were established by the CEC in June 1977 June 1977 and were most recently revised in 2019 (Title 24, Part 6 of the California Code of Regulations [Title 24]). Title 24 governs energy consumed by commercial and residential buildings in California. This includes the HVAC system; water heating; and some fixed lighting. Non-building energy use, or "plug-in" energy use, is not covered by Title 24. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. California's Building Energy Efficiency Standards are updated on an approximate three-year cycle. The most recent update was in 2019 and took effect July 1, 2020. Nonresidential buildings are anticipated to consume 30 percent less energy as compared to nonresidential buildings constructed under the 2016 California Energy Code, primarily through prescriptive requirements for high-efficiency lighting (CEC 2018).

11.1.7 Regional and Local

11.1.8 County Plans and Programs

In 2005, the SLOAPCD Board approved APCD staff's proposal to take actions locally to address climate change. Many of the air pollution programs already in place throughout the county reduce ozone forming pollutants and toxic air contaminant emissions, but also have ancillary benefits of reducing GHG emissions. The APCD's Climate Protection Program identifies particular actions that could be implemented to specifically address GHG emissions at the local level. These actions include but are not limited to: developing public education and outreach campaigns on climate change; targeting a percentage of mitigation grant funds for GHG emission reductions; encouraging and providing support for local governments to join the Cities for Climate Protection Program; and developing a partnership with California Polytechnic State University for addressing climate change.

While these plans have no direct bearing on the proposed PWP, San Luis Obispo County and seven incorporated cities throughout the region, including the City of Pismo Beach and City of Grover Beach, have developed climate action plans that are currently being implemented. In 2010, the County developed an Integrated Climate Change Adaptation Planning report to address climate adaptation strategies for the region. The report provides a suite of adaptation strategies that were developed by local leaders and experts during a series of workshops in 2009-2010. In its 2014 Climate Action Plan, the City set a target of reducing GHG emissions by 10 percent below 2005 levels by 2020. In its 2014 Climate Action Plan, the City of Grover Beach set a target of reducing GHG emissions by 15 percent below 2005 levels by 2020, consistent with AB 32.

In March 2012, the APCD approved thresholds for Greenhouse Gas (GHG) emission impacts, and these thresholds have been incorporated into the CEQA Air Quality Handbook. The Bright-Line Threshold of 1,150 Metric Tons CO_2/year (MT CO_2e/yr) is the most applicable GHG threshold for most projects. Table 1-1 in the APCD CEQA Air Quality Handbook provides a list of general land uses and the estimated sizes or capacity of those uses expected to exceed the GHG Bight Line Threshold of 1,150 MT CO_2/yr. However, for construction phase GHG evaluations, the APCD CEQA Air Quality Handbook stipulates that short-term GHG impacts from construction shall be amortized over the life of the project (50 years for residential or residential support facilities and 25 years for commercial or industrial facilities) and added to the annual average operational emissions for comparison to the operational thresholds.

11.2 Environmental Setting

Gases that trap heat in the atmosphere and affect regulation of the Earth's temperature are known as "greenhouse" gases (GHGs). GHGs that contribute to climate regulation are a different type of pollutant than criteria or hazardous air pollutants because climate regulation is global in scale, both in terms of causes and effects. Some GHG are emitted to the atmosphere naturally by biological and geological processes such as evaporation (water vapor), aerobic respiration (carbon dioxide), and off-gassing from low oxygen environments such as swamps or exposed permafrost (methane); however, GHG emissions from human activities such as fuel combustion (e.g., carbon dioxide) and refrigerants use (e.g., hydrofluorocarbons) significantly contribute to overall GHG concentrations in the atmosphere, climate regulation, and global climate change.

The following are the principal GHG pollutants that contribute to climate change and their primary emission sources:

- **Carbon Dioxide**: Natural sources of CO_2 include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; and evaporation from oceans. Anthropogenic (human) sources include burning of coal, oil, natural gas, and wood.
- **Methane**: CH_4 is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.
- **Nitrous Oxide**: Primary human-related sources of N_2O are agricultural soil management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic acid production, and nitric acid production. N_2O is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests.
- **Fluorinated gases**: These gases are typically emitted in smaller quantities, but because they are potent GHGs, they are sometimes called High Global Warming Potential (High GWP) gases. These High GWP gases include:
    - Chlorofluorocarbons (CFC)s: These GHGs are used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants.
    - Perfluorinated Chemicals (PFCs): PFCs are emitted as by-products of industrial processes and are also used in manufacturing.
    - Sulfur hexafluoride (SF_6): This is a strong GHG used primarily as an insulator in electrical transmission and distribution systems.
    - Hydrochlorofluorocarbons (HCFCs): These have been introduced as temporary replacements for CFCs and are also GHGs.
    - Hydrofluorocarbons (HFCs): These were introduced as alternatives to ozone-depleting substances in serving many industrial, commercial, and personal needs. HFCs are GHGs emitted as by-products of industrial processes and are also used in manufacturing.

GHGs are not monitored at local air pollution monitoring stations and do not represent a direct impact to human health. Rather, GHGs generated locally contribute to global concentrations of GHGs, which result in changes to the climate and environment.

Human production of GHG has increased steadily since pre-industrial times (approximately pre-1880) and atmospheric carbon dioxide concentrations have increased from a pre-industrial value of 280 parts per million in the early 1800s to 411 parts per million in March 2019 (NOAA 2020). The effects of increased GHG concentrations in the atmosphere include climate change (increasing temperature and shifts in precipitation patterns and amounts), reduced ice and snow cover, sea level rise, and acidification of oceans. These effects in turn will impact food and water supplies, infrastructure, ecosystems, and overall public health and welfare. GHGs can remain in the atmosphere long after they are emitted. The potential for a particular greenhouse gas to absorb and trap heat in the atmosphere is considered its global warming potential (GWP). The reference gas for measuring GWP is CO_2, which has a GWP of one. By comparison,

CH_4 has a GWP of 25, which means that one molecule of CH_4 has 25 times the effect on global warming as one molecule of CO_2.

In order to better understand the sources and magnitudes of GHG emissions, public and private entities at the federal, state, and local level are developing GHG inventories. The Assembly Bill (AB) 32 Scoping Plan (the Scoping Plan) identifies the primary GHG emission "sectors," or types of activities, that account for the majority of GHG emissions generated within California. A brief description of each of the GHG emission sectors is provided below.

- **Transportation**: GHG emissions associated with on-road motor vehicles, off-road equipment, recreational vehicles, aviation, ships, and rail. Transportation is the largest emissions sector for the state as a whole (and for San Luis Obispo County[1], as well).
- **Electricity**: GHG emissions associated with use and production of electrical energy. Approximately 25 percent of electricity consumed in California is imported; thus, GHG emissions associated with out-of-state electricity production are also included as part of this sector.
- **Industry**: GHG emissions associated with industrial land uses (e.g., manufacturing plants and refineries). Industrial sources are predominantly composed of stationary sources (e.g., boilers and engines) associated with process emissions.
- **Commercial and Residential**: Commercial and residential GHG emission sources include area sources such as landscape maintenance equipment, fireplaces, and natural gas consumption for space and water heating.
- **Agriculture**: GHG emissions associated with agricultural processes. Agricultural sources of GHG emissions include off-road farm equipment, irrigation pumps, residue burning, livestock, and fertilizer volatilization.
- **High Global Warming Potential**: This sector represents the generation of high GWP GHGs. Examples of high GWP GHG sources include refrigerants (e.g., hydrofluorocarbons [HFCs], chlorofluorocarbons [CFCs]) and electrical insulation (e.g., sulfur hexafluoride). Although these GHGs are typically generated in much smaller quantities than CO_2, their high GWP results in considerable CO_2e.
- **Recycling and Waste**: GHG emissions associated with waste management facilities and landfills.

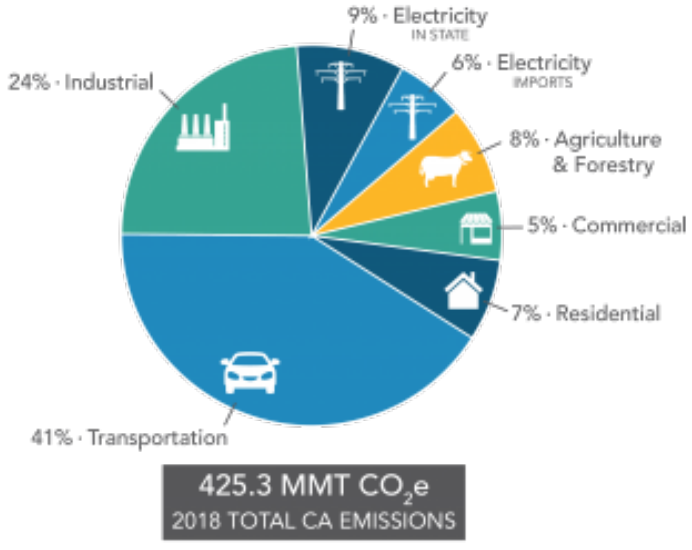
The ARB prepares an annual, statewide GHG emissions inventory, including an analysis of emissions by sector. As shown in Figure 11-1, California produced 425.3 million MT CO_2e in 2018 (the latest available full year of reporting). Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2018, accounting for 41 percent of total GHG emissions. Transportation was followed by industry, which accounted for 24 percent, and then the electricity sector (including in-state and out-of-state sources) accounted for 9 percent of total GHG emissions (ARB 2020).

[1] For more detail, please see the County's EnergyWise Plan, which includes a GHG emissions inventory in Chapter 3: https://www.slocounty.ca.gov/Departments/Planning-Building/Forms-Documents/Energy-and-Climate-Reports/EnergyWise-Plan.pdf.

California has implemented several programs and regulatory measures to reduce GHG emissions. Figure 11-2 demonstrates California's progress in achieving statewide GHG emissions reduction targets. Since 2007, California's GHG emissions have been declining; GHG emissions have continued to decline even as population and gross domestic product have increased.

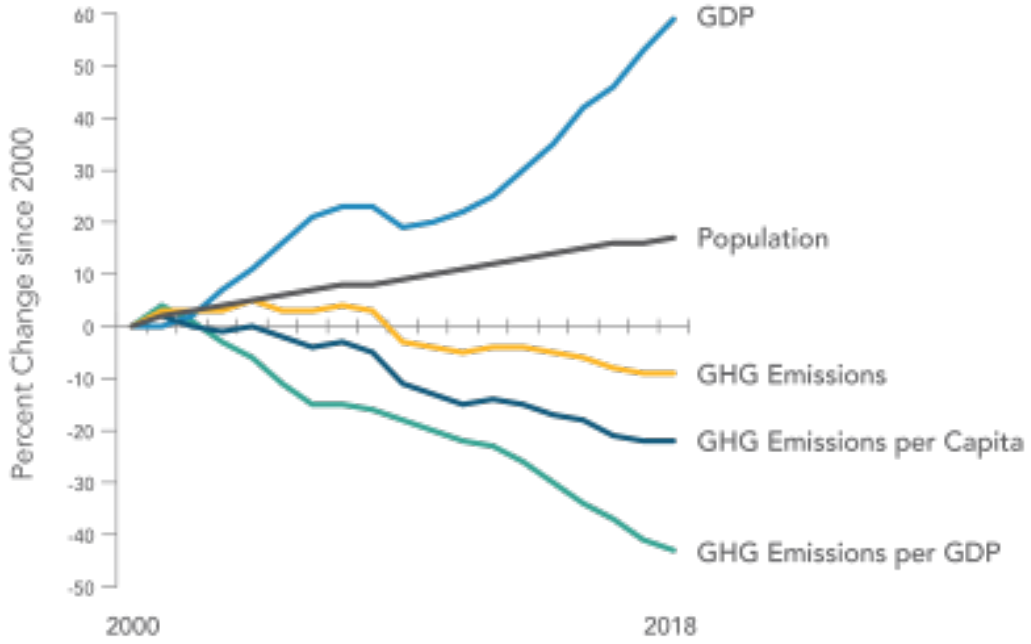
In 2010, the County of San Luis Obispo approved the 2006 Baseline GHG Emissions Inventory (Inventory) as part of the County's update of the Conservation and Open Space Element of the General Plan. The primary sectors of GHG emissions associated with unincorporated San Luis Obispo County were found to be transportation (40 percent), commercial and industrial energy (24 percent), agriculture (off-road equipment, livestock, and crops) (18 percent), residential energy (15 percent), waste (3 percent), and aircraft (less than 0.1 percent) (County of San Luis Obispo 2011).

As part of its 2014 Climate Action Plan, the City of Pismo Beach completed a 2005 baseline GHG emissions inventory, which estimated that 60 percent of communitywide emissions were associated with the transportation sector, while residential and non-residential energy demand accounted for another 34 percent of total emissions, which were 87,077 MT CO_2e. Government operations generated approximately 1,897 MT CO_2e in 2005 with 28 percent from wastewater facilities, 16 percent from use of the vehicle fleet, 12 percent from water delivery, and 9 percent from buildings and facilities (City of Pismo Beach 2014). Similarly, the City of Grover Beach completed a 2005 GHG emissions inventory as part of its 2014 Climate Action Plan. The City of Grover Beach estimated that 39 percent of communitywide emissions were associated with the transportation sector, while residential and non-residential energy demand accounted for another 46 percent of total emissions, which were 48,169 MT CO_2e. Government operations generated approximately 1,344 MT of CO_2e in 2005 with 71 percent from use of the vehicle fleet, 15 percent from water delivery, 7 percent from buildings and facilities, and 1 percent from wastewater facilities (City of Grover Beach 2014).



Source: ARB 2020

Figure 11-1. 2018 California GHG Emissions Inventory by Sector



Source: ARB 2020

Figure 11-2. Trends in California GHG Emissions (Years 2000 to 2018)

11.3 Project Impacts

Thresholds of Significance

Based on Appendix G of the CEQA Guidelines, implementation of the PWP would result in a potentially significant impact related to GHG emissions if it would:

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

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

The vast majority of individual projects do not generate sufficient GHG emissions to directly influence climate change. However, physical changes caused by a project can contribute incrementally to cumulative effects that are significant, even if individual changes resulting from a project are limited. The issue of climate change typically involves an analysis of whether a project's contribution towards an impact would be cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (CEQA Guidelines, Section 15064[h][1]).

CEQA Guidelines Section 15064.4(b) states that a lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:

- The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting.

- Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.

- The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions (see, e.g., section 15183.5(b)). Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project. In determining the significance of impacts, the lead agency may consider a project's consistency with the State's long-term climate goals or strategies, provided that substantial evidence supports the agency's analysis of how those goals or strategies address the project's incremental contribution to climate change and its conclusion that the project's incremental contribution is not cumulatively considerable.

In March 2012, the APCD adopted GHG thresholds in order to help lead agencies meet the GHG reduction goals of AB 32. The APCD's approach to developing a threshold of significance for GHG emissions was to identify the GHG emissions level for which a project would not be expected to substantially conflict with existing California legislation adopted at that time to reduce statewide GHG emissions; these thresholds have been incorporated into the CEQA Air Quality Handbook. The Bright-Line Threshold of 1,150 MT CO_2e/yr is the most applicable GHG threshold for most projects. Table 1-1 in the APCD CEQA Air Quality Handbook provides a list of general land uses and the estimated sizes or capacity of those uses expected to exceed the GHG Bight Line Threshold of 1,150 MT CO_2/yr. For construction phase GHG evaluations, the APCD CEQA Air Quality Handbook stipulates that short-term GHG impacts from construction shall be amortized over the life of the project (50 years for residential or residential support facilities and 25 years for commercial or industrial facilities) and added to the annual average operational emissions for comparison to the operational thresholds. The City of Pismo Beach and City of Grover Beach climate action plans both indicate that the emissions from construction-only projects should be amortized over the life of the subject project and compared to an adopted GHG Reduction Strategy or Bright-Line Threshold only.

The APCD thresholds were established for the purposes of meeting AB 32 GHG emissions targets for the year 2020. However, the site-specific projects would be developed post-2020. The Climate Action Plans adopted by the Cities of Pismo Beach and Grover Beach do not establish a GHG emissions reduction target for year 2030 consistent with the target set by SB 32. This analysis qualitatively evaluates the significance of the project's GHG emissions in light of the checklist questions from Appendix G of the CEQA Guidelines, as well as CEQA Guidelines Sections 15064.4(b)(1) and 15064.4(b)(3).

11.3.1 Impacts and Mitigation

11.3.1.1 Impacts from PWP Implementation

Implementation of the park management programs and plans under the proposed PWP would not result in a net increase in GHG emissions or any conflict with a policy or regulation adopted for the purpose of reducing the emissions of GHGs. Park facilities and grounds maintenance

activities, as well as the majority of the other programs and plans, under the proposed PWP have been occurring and presently occur in the PWP area, and, therefore, are considered part of the baseline conditions for this analysis; natural resource management programs, as described in Section 3.4.3, are covered under the draft Habitat Conservation Plan and EIR and, as demonstrated in that EIR, they do not increase emissions or conflict with any relevant policy or program. There will be no net increase in park user or staff vehicle activity or use of off-road maintenance equipment associated with implementation of the proposed PWP, and therefore no net increase in GHG emissions associated with PWP implementation; there is **no impact** associated with GHG emissions and implementation of the PWP.

11.3.1.2 Impacts from PWP Development and Small Development Projects

Impact 11-1. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment, or conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Project construction would generate temporary GHG emissions primarily from diesel-powered construction equipment, vehicles transporting construction workers, and heavy trucks transporting materials and construction equipment. Construction-related GHG emissions were estimated using the methodology discussed in Section 6, "Air Quality." Construction activities associated with the proposed Oso Flaco (Initial and Future) Improvement Projects, Park Corporation Yard Improvement Project, Oceano Campground Infrastructure Improvement Project, Pier and Grand Avenue Entrances and Lifeguard Towers Project, North Beach Campground Facility Improvements Project, Butterfly Grove Public Access Project, Pismo State Beach Boardwalk Project, Pismo Creek Estuary Seasonal (Floating) Bridge Installation, 40-Acre Riding Trail Installation, Replacement of the Safety and Education Center, Oso Flaco Boardwalk Replacement, Oceano Campground Campfire Center Replacement Project, and Trash Exclosure at Post 2/Beach Trash Management are anticipated to occur over approximately 8 years; a best available estimate of when each project would be constructed was used to estimate construction-related GHG emissions that would be generated by each site-specific project and in each year of construction.

In accordance with SLOAPCD guidance, annual GHG emissions were totaled and amortized; as there will be a range of project-types, an amortization period of 25 years was conservatively used. Average annual, as well as total and amortized, construction-related emissions are presented below in Table 11-1. As shown therein, total construction-related emissions would be approximately 3,067 MT CO_2e, or an average of 383 MT CO_2e per year over the approximately 8 years of construction. When total emissions are amortized over 25 years, amortized emissions come to approximately 123 MT CO_2e per year. Please refer to Appendix B for detailed modeling inputs and emissions calculations.

Table 11-1. Construction-Related GHG Emissions Summary

Development Project	Earliest Anticipated Construction Start Year	Approximate Construction Duration	Metric Tons CO_2e
Pier & Grand Avenue Entrances and Lifeguard Towers	2021	3 months	38
Trash Enclosure at Post 2 / Beach Trash Management	2021	3 months	32
North Beach Campground Facility Improvements	2022	6 months	47
Oceano Campground Campfire Center Replacement	2022	3 months	34
Replacement of the Safety and Education Center	2022	3 months	32
Pismo State Beach Boardwalk	2022	6 months	132
Butterfly Grove Public Access	2023	3 months	35
Oceano Campground Infrastructure Improvement	2024	9 months	217
40-Acre Riding Trail Installation	2024	6 months	59
Oso Flaco Boardwalk Replacement	2024	6 months	156
Park Corporation Yard Improvement (Phase 1)	2025	9 months	297
Park Corporation Yard Improvement (Phase 2)	2025	3 months	71
Oso Flaco (Initial) Improvement (Note that maximum quarterly assumes overlap of maximum quarter emissions for vegetation / trails model and other construction model)	2026	2 years	871
Oso Flaco (Future) Improvement	2028	3 years	1,040
Pismo Creek Estuary Seasonal (Floating) Bridge Installation	Twice Annually	3 days	6
Total Greenhouse Gas Emissions	–	–	**3,067**
Average Annual Greenhouse Gas Emissions	–	–	**383**
Amortized Greenhouse Gas Emissions (over 25 years)	–	–	**123**

Source: Estimated by AECOM, 2020, using CalEEMod Version 2016.3.2. See Appendix B for detailed modeling inputs, assumptions, and outputs.

The Development Projects are primarily construction-only projects and any building and utility construction would be for the purpose of replacing existing infrastructure that is several years old; the replacement infrastructure would meet current building standards, including energy standards, which would be more energy efficient and generate fewer GHG emissions than the current infrastructure. New buildings would be associated with implementation of the Oso Flaco (Initial) Improvement Project, Oso Flaco (Future) Improvement Project and the Park Corporation Yard Improvement. Implementation of the site-specific projects may shift overall user and staff traffic patterns, but are not anticipated to generate an increase in park users or staffing requirements, and therefore would not increase overall vehicle use or associated mobile-source GHG emissions. Total long-term annual GHG emissions, inclusive of operational and amortized construction-related emissions, are presented in Table 11-2.

Implementation of the PWP Development Projects and Small Development Projects would also result in some removal of vegetation, as detailed in Tables 7-1, and 7-2 "Habitat Impact Acreages on PWP Development and Small Development Projects," in Chapter 7, "Biological Resources," of this EIR. Although there would also be ongoing vegetation management and revegetation throughout the PWP area, the potential loss of carbon sequestration that could occur as a result of initial vegetation loss was estimated using CalEEMod, based on the vegetation type and acreages that would potentially be lost with each site-specific project. In total, approximately 1,168 MT CO_2e of sequestration potential could be lost due to vegetation loss over the duration of construction of site-specific improvement projects throughout the PWP area. These emissions were also amortized and incorporated in the total annual emissions estimates shown in Table 11-2.

Table 11-2. Combined Amortized Construction and Operational Annual Greenhouse Gas Emissions

Emissions Source	**Metric Tons CO_2e per Year**
Amortized Construction Emissions	123
Amortized Carbon Sequestration Loss	47
Operational	
Park Corporation Yard Phase 1	35.56
Area	*0.00*
Energy	*29.78*
Waste	*3.03*
Water	*2.74*
Park Corporation Yard Phase 2	30.95
Area	*0.00*
Energy	*23.41*
Waste	*3.96*
Water	*3.57*
Oso Flaco Initial Improvements	13.89
Area	*0.00*
Energy	*10.65*
Waste	*1.70*
Water	*1.54*
Oso Flaco Future Improvements	59.05
Area	*0.46*
Energy	*36.81*
Waste	*11.46*
Water	*10.32*
Total Operational Emissions	**139.45**
Total Annual Emissions (amortized construction + amortized carbon sequestration loss + operational)	**309**

Source: Estimated by AECOM, 2020, using CalEEMod Version 2016.3.2. See Appendix B for detailed modeling inputs, assumptions, and outputs.

The primary GHG emissions source associated with implementation of the Development Projects are construction-related emissions associated with heavy-duty equipment and construction-related vehicle trips, as well as energy requirements to support new, not replacement, facilities. With regard to construction, where feasible, activities would be completed by Parks staff and therefore the worker trip rate and distance used to estimate construction-related mobile source emissions would tend to overestimate the actual emissions associated with construction implementation. With regard to operations, new and replacement infrastructure would comply with increasingly stringent State building efficiency requirements under the California Building Standards Code. The replacement infrastructure, therefore, would be anticipated to be more energy efficient than the existing infrastructure and generate a net decrease in long-term operational emissions. In addition, electricity that would serve new and replacement facilities would be provided by PG&E, which is held to the State Renewable Portfolio Standards. PG&E is increasingly incorporating non-GHG generating energy sources in its power mix. The proposed site-specific improvement projects would be implemented over several years, but the utility CO_2 intensity factor used to estimate GHG emissions associated with energy use was based on the most current intensity factor as provided by PG&E for 2018 operations in their Corporate Responsibility and Sustainability Report (PG&E 2018). As such, the GHG emissions associated with long-term energy demand would actually decrease over time as the PG&E power mix becomes increasingly dependent on non-GHG emitting sources.

While the current district thresholds are not applicable to projects that would be implemented after the year 2020, they provide a point of reference for the magnitude of overall GHG emissions that would be generated by implementation of the proposed site-specific projects. As shown in Table 11-2, total long-term annual GHG emissions, considering amortized construction emissions, sequestration loss, and annual operational emissions, would be approximately 310 MT CO_2e per year, less than one-third of the current Bright-Line Threshold. In addition, as a point of reference, the Sacramento Metropolitan Air Quality Management District recently reevaluated its GHG thresholds to align with the 2030 State GHG emissions target and SB 32 – the approach, while administered in Sacramento County, would be applicable statewide, since the methodology is tied to the framework created by state legislation. In doing so, while the Sacramento Metropolitan Air Quality Management District operational thresholds were revised, the construction bright-line threshold of 1,100 MT CO_2e/year was upheld.

With consideration for the existing SLOAPCD emissions thresholds, the revised Sacramento Metropolitan Air Quality Management District thresholds, and the minor long-term net increase in emissions that could occur as a result of the construction of proposed site-specific projects, implementation of site-specific projects would not generate GHG emissions at a rate or in an amount that would directly or indirectly have a significant impact on the environment, or conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases; this impact is **less than cumulatively considerable**.

Note that the Phillips 66/Southern Entrance Project could involve additional construction activities and could result in additional operational emissions associated with future use. Construction would be temporary, and emissions would stop at the end of the construction duration. Construction would be anticipated to occur several years into the future, not likely concurrently with other Development Projects included in Table 11-2, and therefore not increase the average annual emissions but would increase the total GHG emissions over the extended construction timeline. Operational emissions could be generated if there would be an increase in vehicle activity associated with user and staff activity, energy demand associated

with building or ancillary facility operations, and any increase in water use or waste generation. However, there is not enough information available at the time of this analysis regarding anticipated construction requirements and future operations to support a detailed analysis. Additional environmental analysis, including additional detailed modelling would be conducted at the time that the project would moves forward and additional details become available.

Mitigation Measures: No mitigation is required

11.4 Cumulative Effects

The geographic scope for related projects considered in the cumulative effect analysis for GHG emissions is global because impacts of climate change are experienced on a global scale regardless of the location of GHG emission sources. It is unlikely that a single project will contribute significantly to climate change, but cumulative emissions from many projects could affect global GHG concentrations and the climate system, which is considered a significant cumulative effect. Therefore, the analysis of GHG emissions is by nature a cumulative analysis focused on whether an individual project's contribution to the significant impact of global climate change is cumulatively considerable. As described in the discussion of Impact 11-1 above implementation of the proposed PWP and site-specific projects would not result in the generation of GHG emissions at a rate or in an amount that would directly or indirectly have a significant impact on the environment, or conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. Therefore, the contribution of GHG emissions generated by the proposed PWP and site-specific projects would be that would be **less than cumulatively considerable.**