

10. Greenhouse Gas Emissions and Climate Change

This chapter describes existing conditions related to greenhouse gas (GHG) emissions and global climate change and evaluates the potential impacts that could result from implementing the proposed project under Plan Concept 1 and Plan Concept 2 of the Renewable Placer: Waste Action Plan. The methodology used to estimate GHG emissions associated with construction and operation of the proposed project elements is described; the current state of climate change science and GHG emission sources in California and Placer County are discussed; applicable regulations are summarized; and impacts are evaluated. Where the analysis indicates significant impacts would result from project implementation, mitigation measures are recommended to reduce impacts. The environmental and regulatory settings for GHGs in the project area have been described previously in the Sunset Area Plan (SAP) Draft and Final Environmental Impact Report (Placer County 2018 and 2019, respectively). The descriptions of the environmental and regulatory settings for GHGs in this chapter have been adapted from those references, with updates of pertinent information for the proposed project.

The methods of analysis for GHG emissions are consistent with guidance from the Placer County Air Pollution Control District (PCAPCD), the California Air Resources Board (CARB), and U.S. Environmental Protection Agency (EPA). The analysis addresses pertinent comments from the public and agency scoping period, including general concerns from the Placer County Office of the Executive about air and cumulative impacts.

10.1 Methodology

With implementation of project design measures, the proposed project would generate construction and operational emissions of GHGs, including carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). The methods used to estimate GHG emissions and assess potential impacts for the proposed project are consistent with the PCAPCD 2017 *California Environmental Quality Act (CEQA) Air Quality Handbook* (PCAPCD 2017) and accepted industry standards. The two separate plan concepts associated with the proposed project have been analyzed at an equal level. Plan Concept 1 and Plan Concept 2 would include similar project elements, but the locations, timing, and characteristics of the elements would differ. The Methodology for Air Quality and Greenhouse Gas Impact Analysis, presented in Appendix C.1 provides additional details regarding the PCAPCD-approved methods used to quantify and analyze potential impacts associated with project-related GHG emissions from construction and operations, as well as fugitive emissions. Emission calculations quantifying GHG emissions estimates for the proposed project are presented in Appendix C.2. LandGEM modeling results showing predicted annual landfill gas (LFG) generation values for the proposed project are included in Appendix C.3.

GHG emissions have been estimated for the incremental increases in activity over time associated with the proposed project; emissions have not been calculated for existing facility operations. Baseline activity levels in 2018 and future activity levels forecasted for 2050 have been quantified to assess the changes in activity levels associated with each plan concept. Some activities, such as landfilling, are expected to extend beyond the project timeframe, but the analysis focuses on impacts through 2050 as the project period, because of uncertainty associated with operations occurring more than 30 years in the future.

Project-related GHG emissions are evaluated in terms of carbon dioxide equivalent (CO₂e) emissions. The 2017 PCAPCD CEQA Handbook defines CO₂e as a “metric used to compare emissions of various greenhouse gases. It is the mass of carbon dioxide that would produce the same estimated radiative forcing as a given mass of another greenhouse gas. Carbon dioxide equivalents are computed by multiplying the mass of the gas emitted by its global warming potential” (PCAPCD, 2017). GHG impacts

for the proposed project were estimated by using global warming potential (GWP) values from the United Nations Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (SAR5). Therefore, a GWP of 28 was used for CH₄ (methane), and a GWP of 265 was used for emissions of N₂O when estimating project-related CO₂e emissions.

To answer the CEQA questions and evaluate the significance of GHG impacts, estimates of total project-related construction emissions and estimated net changes in total operational emissions have been compared with the PCAPCD CEQA significance thresholds for GHG emissions, as described in the 2017 CEQA Air Quality Handbook (PCAPCD 2017).

For impacts identified as significant or potentially significant, mitigation measures have been identified. If feasible, the effectiveness of mitigation measures has been assessed and results qualitatively compared with the applicable thresholds of significance.

As described in the Methodology for Air Quality and Greenhouse Gas Impact Analysis, presented in Appendix C.1, methodologies were developed and used to estimate GHGs for the following existing and proposed sources of emissions:

- Construction Emissions, including GHG emissions associated with combustion of fuels in off-road equipment and off-road and on-road vehicles. Emissions would be generated as a result of construction of new and updated facilities and infrastructure for solid waste elements, complementary and programmatic elements,³⁴ and supporting elements.
- Operation Emissions, including GHG emissions from fuel combustion in vehicles, equipment, and stationary sources, fugitive LFG, and compost facility process emissions. Operational activities for the proposed project would include incremental increases in the following:
 - Fugitive LFG
 - Operation of the LFG-to-energy plant and flare(s)
 - Compost facility processes
 - Onsite and offsite vehicle trips, including waste haul truck trips and worker commute trips
 - Equipment used to place and cover waste in the landfill modules
 - Equipment and processes to operate updated facilities for materials recovery, composting, construction and demolition waste management, and the public waste and household hazardous waste drop-off areas
 - Electricity generation and consumption
 - Operation of complementary and programmatic elements.³⁵

³⁴ Complementary and programmatic elements will include proposed compatible manufacturing, pilot study area, University research area, and LFG to compressed natural gas area. These are all defined under a variety of light-industrial, laboratory research, and manufacturing land uses. The associated construction emissions were calculated by using CalEEMod with the defined manufacturing land-use type and building footprint area. Construction of 300,000 square feet of building space and 300,000 square feet of parking and roads for complementary elements was analyzed quantitatively. This analysis did not quantitatively evaluate the timing or impacts of full buildout of complementary programmatic elements (1,900,000 square feet of building space and associated parking and roads), nor does it provide project-level analysis of the air quality impacts of construction of specific types of industrial activities. Additional project-level analysis and air permits from PCAPCD may be required prior to construction.

³⁵ Operation of 300,000 square feet of building space and 300,000 square feet of parking and roads for complementary elements was analyzed quantitatively by using CalEEMod with the defined manufacturing land-use type and building footprint area. This analysis does not provide project-level analysis of the air quality impacts of operation of specific types of industrial activities. Additional project-level analysis and air permits from PCAPCD may be required.

Additional information regarding current site operations can be found in Chapter 1: Introduction. Detailed descriptions of proposed changes associated with Plan Concept 1 and Plan Concept 2 can be found in Chapter 3: Project Description.

As part of the methodology, current emission reduction measures implemented at the Western Placer Waste Management Authority (WPWMA) facilities were identified, and additional best management practices (BMPs) were developed to reduce GHG emissions during construction and operation. These current emission reduction measures and additional BMPs, listed in Table 10-1, would be incorporated into the proposed project as project design measures. Emission reduction benefits are referenced and reflected in the construction and operation emissions calculations provided in Appendix C.2.

Table 10-1. Current Greenhouse Gas Emission Reduction Measures and Best Management Practices Incorporated as Project Design Measures

<p>Current Emission Reduction Measures: The WPWMA currently implements the following emissions reductions measures on an ongoing basis, and these measures would continue to be implemented during construction and operation of the proposed project:</p> <ul style="list-style-type: none"> ▪ Onsite vehicles are routed along the most direct, feasible routes (while also considering safety). ▪ Electrically powered equipment is used to the extent feasible. ▪ Speed limits of 25 mph on paved roads and 15 mph on unpaved roads are currently enforced. Speed limits of 15 mph on paved and unpaved roads will be enforced under the proposed project. ▪ Odor mitigation measures outlined in Chapter 6 are implemented, and many also reduce GHG emissions.
<p>Construction Emission Reduction Best Management Practices:</p> <ul style="list-style-type: none"> ▪ The WPWMA would require the following Construction BMPs and include them as specifications for project-related construction and building contracts and Standard Notes on Grading and Improvement Plans submitted for construction: <ul style="list-style-type: none"> – Maintain equipment per manufacturer's specifications – Exhaust emissions cannot exceed PCAPCD Rule 202 visible emissions limits; if exceeded, operations must cease and equipment must be repaired within 72 hours – Fuel all off-road and portable diesel equipment with CARB-certified diesel fuel – Minimize idling time to less than 5 minutes for all diesel equipment. Signs shall be posted in the designated queuing areas or job sites to remind drivers and operators of the 5-minute idling limit – No diesel engine idling, or staging or queuing areas, within 1,000 feet of any sensitive receptor – No use or manufacture of cutback or emulsified asphalts unless compliant with PCAPCD Rule 217 – Use electrical engines and equipment or clean fuels in generators rather than temporary diesel generators to the degree practical – Obtain air permits for any device or process that emits 2 pounds per day or more of pollutants, prior to construction or building permit issuance (PCAPCD Rule 501) ▪ Contractors must certify compliance with the State Off-Road Diesel Regulation, and all diesel construction equipment must meet CARB's Tier 4 standards for off-road heavy-duty diesel engines, if feasible. ▪ Contractors must certify compliance with the State On-Road Diesel Regulation, and all on-road heavy-duty diesel trucks must meet CARB's Tier 3 standards for on-road heavy-duty diesel engines, or better, if feasible. ▪ Building contractors must provide the following at truck loading/unloading facilities: <ul style="list-style-type: none"> – Power outlets (one 110/208-volt power outlet for every two dock doors or truck parking spaces) – Signage to indicate no idling of diesel engines for longer than 5 minutes – Posted instructions for idling trucks to connect to outlets to run auxiliary equipment

Table 10-1. Current Greenhouse Gas Emission Reduction Measures and Best Management Practices Incorporated as Project Design Measures (continued)

<ul style="list-style-type: none"> ▪ Commercial buildings must be designed to meet Green Building Standards, including the following:^a <ul style="list-style-type: none"> – Achieve 10 percent or greater reduction in energy use compared with 2016 Title 24 code-compliant building through energy efficiency measures or onsite renewable energy systems – Cool roofs – Water efficiency and conservation – Accessible 100-volt electrical receptacles for powering of landscaping equipment and alternatives to fossil fuel generators ▪ Buildings must meet 2019 Title 24 energy efficiency standards (effective on January 1, 2020) (CEC 2018).^a ▪ Contractors must include the following as conditions of building permits:^a <ul style="list-style-type: none"> – 10 percent of parking spaces to provide electric vehicle service (charging) equipment (EVSE), or a minimum of 2 EVSE spaces for building with 2 to 10 spaces – If more than 20 parking spaces, provide 5 percent of spaces as clearly marked, dedicated preferential parking spaces for carpools and zero-emission vehicles – Bicycle parking areas near entrances
<p>Operation Emissions Reduction BMPs:</p> <ul style="list-style-type: none"> ▪ The WPWMA would require the following Operational BMPs and include them as specifications on project-related contracts: <ul style="list-style-type: none"> – Implement emission reduction BMPs from previously listed Construction Emission Reduction BMPs, to the extent appropriate and feasible for solid waste elements – Design landscaped areas with native drought-resistant plants (ground covers, shrubs and trees) with particular consideration in plantings that are not reliant on gas-powered landscape maintenance equipment.^a ▪ Fully transition composting process from windrows to aerated static piles (ASP), including the following: <ul style="list-style-type: none"> – Composting operations are to be performed in a manner consistent with the 2020 SWOP (Appendix C.6) based on weather predictions and odor risk management results. – Grinding, management, mixing, pile construction and maintenance, curing of green waste, food waste, and ASP composting materials, and storage of finished product will be conducted according to required schedules from the 2020 SWOP (Appendix C.6). – A biofilter cover composed of 12 inches of finished compost shall be applied over ASP piles. – ASP surface areas will be washed down daily to remove leachate. – Leachate and compost pond aeration systems will be managed, monitored, and periodically cleaned to maintain proper operating conditions. ▪ Where feasible and practical, perform onsite material management with electronic conveyors or trucks equipped with Tier 4 engines. ▪ Provide or use power outlets (one 110/208-volt power outlet for every two dock doors or truck parking spaces) at truck loading and unloading facilities. ▪ Comply with posted signage indicating no idling of diesel engines for more than 5 minutes. ▪ Comply with posted instructions for idling trucks to connect to outlets to run auxiliary equipment. ▪ Optimize efficiency of LFG collection system. ▪ Optimize use of remaining LFG-to-energy plant capacity to produce electricity from collected LFG and to minimize flaring of collected LFG.

^a Project Design Measure for buildings constructed or operated as part of the proposed project or complementary and programmatic elements.

10.2 Environmental Setting

10.2.1 Physical Science Basis

Certain gases in the Earth’s atmosphere, classified as GHGs, play a critical role in determining the Earth’s surface temperature. Solar radiation enters the Earth’s atmosphere from space. A portion of the radiation

is absorbed by the Earth's surface, and a smaller portion of this radiation is reflected toward space. This absorbed radiation is then emitted from the Earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. Earth has a much lower temperature than the sun; therefore, the Earth emits lower frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on Earth.

Prominent GHGs contributing to the greenhouse effect are CO₂, methane CH₄, nitrous oxide N₂O, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Human-caused emissions of these GHGs in excess of natural ambient concentrations are found to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the Earth's climate, known as global climate change or global warming. It is "extremely likely" that most of the observed increase in global average surface temperatures from 1951 to 2010 was caused by the anthropogenic increase in GHG concentrations and other anthropogenic forcing (IPCC 2014).

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. GHGs have long atmospheric lifetimes (1,000 to several thousand years). GHGs persist in the atmosphere long enough to be dispersed around the globe. Although the lifetime of any GHG molecule depends on multiple variables and cannot be determined with any certainty, it is understood that more CO₂ is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO₂ emissions, approximately 55 percent is estimated to be sequestered through ocean and land uptake every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO₂ emissions remains stored in the atmosphere (IPCC 2013).

The quantity of GHGs in the atmosphere that ultimately result in climate change is not precisely known, but it is unlikely that any single project would measurably contribute to an incremental change in the global average temperature or to global or local climates or to microclimates. Thus, from the standpoint of CEQA, GHG impacts relative to global climate change are inherently cumulative.

10.2.2 Greenhouse Gas Emission Sources

GHG emissions are attributable in large part to human activities associated with the transportation, industrial and manufacturing, utility, residential, commercial, and agricultural emissions sectors (CARB 2014a, 2020). In 2018, human activities in California released 425 million metric tons (MMT) of CO₂e, which is 6 MMT below the 2020 GHG limit of 431 MMT CO₂e. The primary source of GHGs in California is transportation, contributing 39.9 percent of the state's total GHG emissions. Industrial emissions were the second-largest source, contributing 21.0 percent of the state's GHG emissions (CARB 2020). Emissions from the recycling and waste sector include CO₂, CH₄, and N₂O emissions from landfills and from commercial-scale composting. Emissions from recycling and waste, which comprise 2 percent of California's GHG inventory, have grown by 19 percent since 2000 (CARB 2020).

The Placer County Community-Wide and County Operations 2015 Greenhouse Gas Emission Inventories document was prepared by Sierra Business Council and Pacific Gas and Electric Company, updated January 2018 (Placer 2018). This inventory provides the most recent GHG inventory for unincorporated Placer County community-wide activities and sources, and County operations. Total community-wide GHG emissions were reported as 1,181,915 metric tons (MT) of CO₂e for 2015. While solid waste related operations represent one of the lowest community-wide sources of GHG (7.4 percent of the total community-wide GHG emissions), the solid waste sector is the most significant contributor of emissions attributed to County-related operations (for example, buildings, facilities and lighting; vehicle and transit

fleet operations, and County employee vehicle commutes) inventory because of the high GWP of the CH₄ emitted at the Western Regional Sanitary Landfill (WRSL).

10.2.3 Effects of Climate Change on the Environment

According to the IPCC, which was established in 1988 by the World Meteorological Organization and the United Nations Environment Programme, global average temperature is expected to increase by 3 to 7 degrees Fahrenheit (°F) by the end of the century, depending on future GHG emission scenarios (IPCC 2014). According to the California Natural Resources Agency (CNRA), temperatures in California are projected to increase by 2 to 5°F by 2050 and by 4 to 9°F by 2100 (CNRA 2009).

Other environmental resources could be indirectly affected by the accumulation of GHG emissions and resulting rise in global average temperature. In recent years, California has been marked by extreme weather and its effects. According to CNRA's draft report Safeguarding California Plan: 2017 Update (CNRA 2017), California experienced the driest 4-year statewide precipitation on record from 2012 through 2015; the warmest years on average in 2014, 2015, and 2016; and the smallest and second-smallest Sierra snowpack on record in 2015 and 2014 (CNRA 2017). In contrast, the northern Sierra Nevada experienced its wettest year on record in 2016 (CNRA 2017). The changes in precipitation exacerbate wildfires throughout California with increasing frequency, size, and devastation. As temperatures increase, the increase in precipitation falling as rain rather than snow also could lead to increased potential for floods because water that would normally be held in the snowpack of the Sierra Nevada and Cascade Range until spring would flow into the Central Valley concurrently with winter rainstorm events (CNRA 2017). Furthermore, in an extreme scenario involving the rapid loss of the Antarctic ice sheet, sea levels along California's coastline could rise by 10 feet by 2100, which is approximately 30 to 40 times faster than sea level rise experienced over the last century (CNRA 2017).

Changes in temperature, precipitation patterns, extreme weather events, and sea level rise have the potential to affect and decrease the efficiency of thermal power plants and substations, decrease the capacity of transmission lines, disrupt electrical demand, and threaten energy infrastructure with the increased risk of flooding (CNRA 2017).

Water availability and changing temperatures, which affect the prevalence of pests, disease, and species, directly affect crop development and livestock production. Other environmental concerns include decline in water quality, groundwater security, and soil health (CNRA 2017). Vulnerabilities of water resources also include risks of degradation of watersheds, alteration of ecosystems and loss of habitat, impacts on coastal areas, and ocean acidification (CNRA 2017). The ocean absorbs approximately one-third of the CO₂ released into the atmosphere every year from industrial and agricultural activities, changing the chemistry of the ocean by decreasing the pH of seawater. This ocean acidification is harmful to marine organisms, especially calcifying species, such as oysters, clams, sea urchins, and corals (CNRA 2017).

10.3 Regulatory Setting

All levels of government have some responsibility for protecting air quality, and each level (international, federal, state, and regional or local) has specific responsibilities relating to air quality regulation. GHG emissions and GHG regulation are relatively new components of air quality.

10.3.1 International and Federal

GHG emissions are addressed at both the international and federal levels. In 1988, the United Nations and the World Meteorological Organization established the IPCC to assess the scientific, technical, and socioeconomic information relevant to understanding the scientific basis for human-induced climate

change, its potential impacts, and options for adaptation and mitigation. The most recent IPCC reports have emphasized the scientific consensus that real and measurable changes to the climate are occurring, that they are caused by human activity, and that significant adverse impacts on the environment, the economy, and human health and welfare are unavoidable.

On March 21, 1994, the United States joined a number of countries around the world in signing the United Nations Framework Convention on Climate Change. Under the Convention, governments agreed to gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of global climate change. In the 2007 court case of *Massachusetts et al. v. the Environmental Protection Agency et al.*, 549 C.S. 497, the United States Supreme Court declared that the EPA does have the ability to regulate GHG emissions. In addition to the national and international efforts noted previously, many local jurisdictions have adopted climate change policies and programs.

Massachusetts v. EPA Endangerment Finding. On April 2, 2007, in *Massachusetts v. EPA*, the Supreme Court directed the EPA Administrator to determine whether GHG emissions from new motor vehicles threaten public health and welfare. On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under section 202(a) of the Clean Air Act:

- **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases – CO₂, CH₄, N₂O, HFCs [hydrofluorocarbons], PFCs [perfluorocarbons], and SF₆ [sulfur hexafluoride] – in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The Administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare.

The endangerment findings do not themselves impose any requirements on industry or other entities. However, this action was a prerequisite to finalizing the EPA's GHG emission standards for light-duty vehicles, which were jointly proposed by EPA and the Department of Transportation's (DOT's) National Highway Safety Administration on September 15, 2009.

Mandatory GHG Reporting Rule. On March 10, 2009, the EPA proposed a rule that requires mandatory reporting of GHGs from large sources in the United States. On September 22, 2009, the Final Mandatory Reporting of Greenhouse Gases Rule was signed and was published in the Federal Register on October 30, 2009. The rule became effective on December 29, 2009. The rule requires submittal to EPA of accurate and comprehensive emissions data to inform future policy decisions.

EPA requires facilities that emit 25,000 MT or more per year of GHG emissions to submit annual reports. The gases covered by the proposed rule are CO₂, CH₄, N₂O, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, and other fluorinated gases. Landfill operators must collect emission data, calculate GHGs and report to EPA. This law is based on CH₄ generated (not necessarily emitted). Landfill operations include the landfill, gas collection systems, and flares. Report data must include total volumetric flow of LFG collected for destruction via flares, location of flares, annual quantity of CH₄ recovered, description of the gas collection system (manufactured, capacity, number of wells, etc.), and collection efficiency assumptions used in calculations, among other items.

Federal Vehicle Standards. In 2007, the Bush Administration issued Executive Order 13432 titled "Strengthening Federal Environmental, Energy and Transportation Management." The order directed EPA, DOT, and the Department of Energy to establish regulations that reduce GHG emissions from motor

vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the National Highway Traffic Safety Administration (NHTSA) issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011; in 2010, EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012– 2016 (NHTSA 2012).

In addition to the regulations applicable to cars and light-duty trucks, in 2011, EPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018. The standards for CO₂ emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to EPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6 to 23 percent over the 2010 baselines.

The Corporate Average Fuel Economy standards are standards that have been adopted by DOT and EPA. These standards are therefore federal standards and apply to vehicles throughout the United States.

The final phase two program promotes a new generation of cleaner, more fuel-efficient trucks by encouraging the development and deployment of new and advanced cost-effective technologies (NHTSA 2016). New vehicle and engine performance standards would cover model years 2018–2027. The federal law is expected to lower CO₂ emissions by approximately 1.1 billion MT over the lifetime of vehicles sold under the program.

Municipal Solid Waste Landfills: New Source Performance Standards (NSPS). On March 12, 1996, EPA promulgated a regulation entitled “Standards of Performance for Stationary Sources and Guidelines for Control of Existing Sources: MSW Landfills.” It includes both NSPS that regulate emissions from new landfills and Emission Guidelines that regulate emissions from existing landfills. The proposed project is subject to an existing NSPS regulation, 40 CFR Part 60 Subpart WWW (Standards of Performance for Municipal Waste Landfills).

On August 29, 2016, EPA finalized a new subpart under section 111(b) of the Clean Air Act for new, modified, and reconstructed municipal solid waste (MSW) landfills under 40 CFR Part 60, Subpart XXX (81 FR 59332) effective October 28, 2016. The new NSPS applies to landfills built after July 17, 2014. Local air districts will implement NSPS provisions under their stationary source authority. The goal is to reduce CH₄ emissions from MSW landfills.

EPA also issued updated emission guidelines for reducing emissions from existing MSW landfills under section 111(d) of the Clean Air Act. These guidelines also became effective in October 2016. Although a stay was placed on the federal standards in 2017, CARB submitted a plan to EPA on May 30, 2017, demonstrating that California landfills would be regulated by these standards. On October 30, 2018, EPA issued a proposed rule to align state plan timing requirements with those proposed in the Affordable Clean Energy rule. California has committed to working with EPA during the stay to confirm the Emissions Guidelines are protective of public health and the environment.

10.3.2 State

Executive Order (EO) S-3-05, signed by Governor Arnold Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra Nevada snowpack, further exacerbate California’s air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the EO established total GHG emission targets for the state. Specifically, emissions are to be reduced to the 2000 level by 2010, to the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006, establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. In December 2008, CARB adopted its first version of its Climate Change Scoping Plan, which contained the main strategies California will implement to achieve the mandate of AB 32 to reduce statewide GHG emissions to 1990 levels by 2020. In May 2014, CARB released and subsequently adopted the First Update to the Climate Change Scoping Plan to identify the next steps in reaching the goals of AB 32 and evaluate the progress made between 2000 and 2012 (CARB 2014b). After releasing multiple versions of proposed updates in 2017, CARB adopted the final version, titled *California's 2017 Climate Change Scoping Plan (2017 Scoping Plan)* in December. The 2017 Scoping Plan indicates that California is on track to achieve the 2020 statewide GHG target mandated by AB 32. It also lays out the framework for achieving the SB 32 mandate to reduce statewide GHG emissions to at least 40 percent below 1990 levels by the end of 2030 (CARB 2017). The 2017 Scoping Plan identifies the GHG reductions needed by each emissions sector.

The 2017 Scoping Plan also identifies how GHGs associated with proposed projects could be evaluated under CEQA. Specifically, it states that achieving “no net increase” in GHG emissions is an appropriate overall objective of projects evaluated under CEQA if conformity with an applicable local GHG reduction plan cannot be demonstrated. CARB recognizes that it may not be appropriate or feasible for every development project to mitigate its GHG emissions to zero and that an increase in GHG emissions because of a project may not necessarily imply a substantial contribution to the cumulatively significant environmental impact of climate change (CARB 2017).

On October 20, 2011, as part of its ongoing implementation of AB 32, CARB adopted regulations to implement a cap-and-trade program for GHG emissions (CARB 2011). CARB has specifically exempted, from any compliance obligation, a series of listed fuel types that have been demonstrated to be carbon neutral or carbon negative. Biomethane and biogas from landfills is a listed exempt fuel type.

Senate Bill (SB) 97, CEQA: Greenhouse Gas Emissions, enacted in 2007, amends the CEQA statute to clearly establish that GHG emissions and the effects of GHG emissions are appropriate subjects for CEQA analysis. It directs the Governor’s Office of Planning and Research (OPR) to develop draft CEQA Guidelines “for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions” by July 1, 2009, and directs the Resources Agency to certify and adopt the CEQA Guidelines by January 1, 2010.

OPR published a technical advisory on CEQA and Climate Change on June 19, 2008. The guidance did not include a suggested threshold. OPR does recommend that CEQA analyses identify GHG emissions, determine significance, and mitigate impacts. In April 2009, the OPR published its proposed revisions to CEQA to address GHG emissions. The amendments to CEQA indicate the following:

- Climate action plans and other GHG reduction plans can be used to determine whether a project has significant impacts, based on its compliance with the plan.
- Local governments are encouraged to quantify the GHG emissions of proposed projects, noting that they have the freedom to select the models and methodologies that best meet their needs and circumstances. OPR does not set or dictate specific thresholds of significance. Consistent with existing CEQA Guidelines, OPR encourages local governments to develop and publish their own thresholds of significance for GHG impacts assessment.
- OPR is clear to state that “to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation.”

- Environmental Impact Reports (EIRs) must specifically consider a project's energy use and energy efficiency potential.

On July 3, 2009, CNRA published proposed regulatory amendments based on OPR's proposed revisions to CEQA to address GHG emissions. On December 28, 2018, The California Office of Administrative Law completed the rulemaking process and approved amendments and additions to the CEQA Guidelines contained in Title 14 of the CCR, beginning with Section 15000.

SB 375, signed by Governor Schwarzenegger in September 2008, aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires metropolitan planning organizations (MPOs) to adopt a Sustainable Communities Strategy (SCS) or Alternative Planning Strategy, showing prescribed land-use allocation in each MPO's Regional Transportation Plan. CARB, in consultation with the MPOs, is to provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in their respective regions for 2020 and 2035. The Sacramento Area Council of Governments (SACOG) serves as the MPO for Sacramento, Placer, El Dorado, Yuba, Sutter, and Yolo Counties, excluding those lands located in the Lake Tahoe Basin. SACOG adopted its Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) 2036 in 2012 and completed an update adopted on February 18, 2016 (SACOG 2016). In 2013, SACOG was tasked by CARB to achieve a 7 percent per capita reduction compared with 2012 emissions by 2020 and a 16 percent per capita reduction by 2035, which CARB confirmed the region would achieve by implementing its SCS. In June 2017, CARB released the proposed update for the SB 375 targets, tasking SACOG to achieve a 7 percent and a 19 percent per capita reduction by 2020 and 2035, respectively (CARB 2017). At the time of writing this Draft EIR (DEIR), the target update had not been approved by CARB.

SB 743 of 2013 changed the way that public agencies evaluate the transportation impacts of projects under CEQA. Revisions to the State CEQA Guidelines would establish new criteria for determining the significance of a project's transportation impacts to more appropriately balance the needs of congestion management with statewide goals related to infill development, promotion of public health through active transportation, and reduction of GHG emissions. OPR was tasked with developing potential metrics to measure transportation impacts and replace the use of delay and level of service. More detail about SB 743 is provided in the regulatory setting of Chapter 16, Transportation.

On April 20, 2015, Governor Brown signed **EO B-30-15** to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. The governor's EO aligns California's GHG reduction targets with those of leading international governments, such as the 28-nation European Union, which adopted the same target in October 2014. California is on track to meet or exceed the target of reducing GHG emissions to 1990 levels by 2020, as established in the California Global Warming Solutions Act of 2006 (AB 32, discussed previously). California's new emission reduction target of 40 percent below 1990 levels by 2030 will make it possible to reach the ultimate goal of reducing emissions 80 percent below 1990 levels by 2050. This is in line with the scientifically established levels needed in the United States to limit global warming below 2 degrees Celsius, the warming threshold at which major climate disruptions are projected, such as super droughts and rising sea levels.

In August 2016, Governor Brown signed **SB 32 and AB 197**, which serve to extend California's GHG reduction programs beyond 2020. SB 32 amended the *Health and Safety Code* to include Section 38566, which contains language to authorize CARB to achieve a statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030. SB 32 codified the targets established by EO B-30-15 for 2030, which set the next interim step in the state's continuing efforts to pursue the long-term target expressed in EOs S-3-05 and B-30-15 of 80 percent below 1990 emissions levels by 2050.

In January 2012, CARB approved the **Advanced Clean Cars program**, which combines the control of GHG emissions and criteria air pollutants, as well as requirements for greater numbers of zero-emission vehicles, into a single package of standards for vehicle model years 2017–2025. The new rules strengthen the GHG standard for 2017 models and beyond. This will be achieved through existing technologies, the use of stronger and lighter materials, and more efficient drivetrains and engines. The program's zero-emission vehicle regulation requires battery, fuel cell, or plug-in hybrid electric vehicles to account for up to 15 percent of California's new vehicle sales by 2025. The program also includes a clean fuels outlet regulation designed to support the commercialization of zero-emission hydrogen fuel cell vehicles planned by vehicle manufacturers by 2015 by requiring increased numbers of hydrogen fueling stations throughout the state. The number of stations will grow as vehicle manufacturers sell more fuel cell vehicles (Placer County 2018). By 2025, when the rules will be fully implemented, new cars and light trucks will emit 40 percent fewer GHG emissions and 75 percent fewer smog-forming emissions than the average car sold in 2012 (CARB 2021).

SB X1-2, the California Renewable Energy Resources Act of 2011, requires all California utilities to generate 33 percent of their electricity from renewables by 2020. SB X1-2 sets a three-stage compliance period requiring all California utilities, including independently owned utilities, energy service providers, and community choice aggregators, to generate 20 percent of their electricity from renewables by December 31, 2013; 25 percent by December 31, 2016; and 33 percent by December 31, 2020. SB X1-2 also requires the renewable electricity standard to be met increasingly with renewable energy that is supplied to the California grid from sources within, or directly proximate to, California. SB X1-2 mandates that renewables from these sources make up at least 50 percent of the total renewable energy for the 2011–2013 compliance period, at least 65 percent for the 2014–2016 compliance period, and at least 75 percent for 2016 and beyond. In October 2015, SB 350 was signed by Governor Brown, which requires retail sellers and publicly owned utilities to procure 50 percent of their electricity from renewable resources by 2030.

SB 100 – The 100 Percent Clean Energy Act of 2018 calls for 100 percent of total retail sales of electricity in California to originate from eligible renewable energy resources and zero-carbon resources by December 31, 2045. The intention was to extend and expand policies of the California Renewables Portfolio Standard Program, and to codify the policies established pursuant to Section 454.53 of the *Public Utilities Code*, and that both be included in long-term planning. A benefit of this Act includes meeting the state's climate change goals by reducing emissions of GHGs associated with electrical generation.

EO B-55-18, signed by Governor Brown on September 10, 2018, calls for a new statewide goal to achieve carbon neutrality as soon as possible, and no later than 2045, and to maintain net negative emissions thereafter. This goal is in addition to the existing statewide targets of reducing GHG emissions.

Buildings in California are required to comply with **California's Energy Efficiency Standards for Residential and Nonresidential Buildings** established by California Energy Commission regarding energy conservation standards and found in **Title 24, Part 6** of the CCR. These standards were first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption and are updated on an approximately 3-year cycle to allow consideration and possible incorporation of new energy-efficient technologies and methods. All buildings for which an application for a building permit is submitted on or after January 1, 2020, must follow the 2019 standards (CEC 2019). Energy-efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions.

In January 2007, **EO S-01-07** established a **Low Carbon Fuel Standard (LCFS)**. The EO calls for a statewide goal to be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020 and for an LCFS for transportation fuels to be established for California. The LCFS applies

to all refiners, blenders, producers, or importers (providers) of transportation fuels in California. The LCFS will be measured on a full fuels-cycle basis and may be met through market-based methods by which providers exceeding the performance required by an LCFS will receive credits that may be applied to future obligations or traded to providers not meeting the LCFS. In June 2007, CARB adopted the LCFS as a Discrete Early Action item under AB 32, and in April 2009, CARB approved the new rules and carbon intensity reference values with new regulatory requirements that took effect in January 2011. The standards require providers of transportation fuels to report on the mix of fuels that they provide and demonstrate that they meet the LCFS intensity standards annually. This is accomplished by verifying that the number of “credits” earned by providing fuels with a lower carbon intensity than the established baseline (or obtained from another party) is equal to or greater than the “deficits” earned from selling higher intensity fuels.

In December 2011, the U.S. District Court for the Eastern District of California issued three rulings against the LCFS, including a requirement for CARB to abstain from enforcing the LCFS. In April 2012, the Ninth Circuit granted CARB’s motion for a stay of the injunction while it continued to consider CARB’s appeal to the lower court’s decision. Consequently, CARB readopted the LCFS regulation in September 2015, and the changes went into effect on January 1, 2016. The program establishes a strong framework to promote the low-carbon fuel adoption necessary to achieve the governor’s 2030 and 2050 GHG goals.

SB 1383 (2016) Short-Lived Climate Pollutants: Methane Emissions: Dairy and Livestock: Organic Waste: Landfills: (1) Codifies various aspects of the CARB’s Short-Lived Climate Pollutant Plan, (2) requires the California Energy Commission to develop recommendations to increase the use of renewable gas, (3) sets organics disposal reduction targets, and (4) provides CalRecycle the regulatory authority required to achieve the waste sector aspects of the Short-Lived Climate Pollutant Plan. The California Department of Resources Recycling and Recovery (CalRecycle) oversees programs to promote recycling and reduce the amount of solid waste sent to landfills, including organic waste recycling under SB 1383. SB 1383 and the ensuing regulations establish Statewide goals to reduce California’s disposal of organic waste 50 percent by 2020 and 75 percent by 2025 and require that at least 20 percent of currently disposed edible food must be recovered for human consumption by 2025.

CARB staff worked jointly with EPA and NHTSA on the Phase 2 federal GHG emission standards for medium- and heavy-duty vehicles. These federal Phase 2 standards were built on the improvements in engine and vehicle efficiency required by the Phase 1 emission standards and represent a significant opportunity to achieve further GHG reductions for 2018 and later model year heavy-duty vehicles, including trailers. In the California Phase 2 standards, California is aligning with the federal Phase 2 standards in structure, timing, and stringency, but with some minor California differences.

CARB’s Regulation to Reduce Methane Emissions from Municipal Solid Waste Landfills requires the installation and operation of gas collection and control systems at active, inactive, and closed MSW landfills having 450,000 tons of waste-in-place or greater that received waste after January 1, 1977. The regulation contains performance standards for the gas collection and control system and specifies monitoring requirements so that the system is maintained and operated in a manner that minimizes CH₄ emissions. The regulation includes a CH₄ leak standard for gas collection and control system components, a monitoring requirement for wellheads, CH₄ destruction efficiency requirements for most control devices, surface CH₄ emission standards, and reporting requirements.

The regulation establishes a 500 parts per million by volume (ppmv) CH₄ instantaneous surface monitoring standard and a 25 ppmv CH₄ integrated surface monitoring standard to adequately control CH₄ emissions (§ 95465). In addition, landfills that are currently subject to local or federal landfill rules will need to continue complying with the 500 ppmv instantaneous standard commonly found in those rules.

AB 75 was passed in 1999 and mandates state agencies to develop and implement integrated waste management plans to reduce GHG emissions related to solid waste disposal and diversion (recycling). Since 2004, the bill has required diversion of at least 50 percent of the solid waste from landfills and submission to the California Integrated Waste Management Board of an annual report describing achieved diversion rates.

In 2007, **SB 1016** changed the diversion reporting from a percentage calculation to a target of daily pounds per capita disposal based on each jurisdiction's average waste generation from 2003 through 2006. A comparison between the reported annual per capita disposal rate to the 50 percent per capita disposal target will be useful for indicating progress.

AB 341 Solid Waste Diversion increased previous California recycling requirements (AB 939, Solid Waste Management, Source Reduction, Recycling, Composting, and Market Development) from 50 percent diversion as a statewide target to a 75 percent statewide target for diversion of solid waste from landfills by January 2020. Businesses and multifamily residential dwelling of five units or more must arrange for recycling services. Each jurisdiction must implement a commercial solid waste recycling program that consists of education, outreach, and monitoring of businesses.

AB 1826 Mandatory Organics Recycling, enacted in 2014, requires businesses to recycle their organic wastes. Organic wastes include primarily green waste and food waste, and the amount of wastes to be recycled will increase over time. If CalRecycle determines that the statewide disposal of organic waste in 2020 has not been reduced by 50 percent of the level of disposal during 2014, the organic recycling requirements on businesses will expand to cover businesses that generate 2 cubic yards or more of commercial solid waste per week, and certain exemptions may no longer be available.

AB 1594 Waste Management, enacted in 2014, states that green waste used as alternate daily landfill cover (ADC) will no longer receive recycling credit beginning in 2020. Currently, approximately about 300,000 tons of green waste is used as ADC in the state annually. To continue receiving recycling credit, this material will need to be sent to green waste processing and composting or other organics processing facility. Reductions in disposal tonnage are anticipated.

10.3.3 Local

Placer County Air Pollution Control District

In October 2016, the PCAPCD Board of Directors adopted the Review of Land Use Projects under CEQA Policy document, establishing thresholds of significance for GHG emissions and criteria air pollutants for projects under CEQA review in the County. The document serves as guidance for lead agencies when reviewing GHG impacts associated with a project. In the development of these thresholds, the PCAPCD Board considered statewide regulations to accomplish statewide emissions reduction targets for GHGs. PCAPCD has prepared a CEQA Thresholds of Significance Justification Report, which contains the rationale, modeling analyses, and factual data to justify the thresholds of significance that have been established (PCAPCD 2016a).

Placer County Sustainability Plan and Placer County General Plan

The WPWMA is a Joint Powers Authority (JPA) composed of Placer County and the cities of Lincoln, Rocklin, and Roseville to own and operate a regional recycling facility and sanitary landfill. As a JPA, the WPWMA considers local regulations and consults with local agencies, but County and city regulations, goals, and policies are not applicable, because the County and cities do not have jurisdiction over the

proposed project. Accordingly, the following discussion of local goals and policies from the Placer County Sustainability Plan and the Placer County General Plan is provided for informational purposes only.

The Placer County Sustainability Plan, adopted on January 28, 2020, includes policies related to addressing GHG emissions and climate change in Placer County (Placer County 2020). Solid waste-related GHG emission reduction measures and goals are for the most part voluntary and dependent on available funding, other than mandatory compliance with state laws. They include the following:

- Work with the WPWMA to get to 90 percent CH₄ capture by 2030, with an aspirational goal of 100 percent CH₄ capture
- Comply with state laws and regulations – AB 876, SB 1383, AB 1826, AB 939
- Explore feasibility to convert facility vehicles and haul trucks to alternative (low carbon) fuels and electricity
- Get grants to study CH₄ capture at landfills
- Educate the public on waste reduction and reuse

The Placer County General Plan, which was originally adopted in 1994 and last updated in 2013, includes the following policies related to addressing GHG emissions and climate change in Placer County (Placer County 2013):

- Policy G-2: The County shall promote land-use patterns that encourage energy efficiency, to the extent feasible, and encourage efficient energy use in new development, including but not limited to access to non-auto transit, use of traffic demand management, and water-efficient landscaping.
- Policy G-4: The County shall encourage participation in weatherization and energy efficiency programs sponsored by utility companies.
- Policy 6. F.5: The County shall encourage project proponents to consult early in the planning process with the County regarding the applicability of Countywide indirect and areawide source programs and transportation control measures (TCM) programs. Project review shall also address energy-efficient buildings and site designs and proper storage, use, and disposal of hazardous materials.

10.4 Impact Analysis and Mitigation Measures

The analysis, GHG-related impacts, and mitigation for some of the planned land development in the proposed project area has been generally described in prior studies for the SAP and PCCP EIRs (Placer County 2018, 2019, 2020). Parts of the following discussion of the standards of significance, GHG impact analysis, results, and mitigation for the proposed project have been adapted from these prior EIRs, with updates of pertinent information for the proposed project.

10.4.1 Thresholds of Significance

The issue of global climate change is inherently a cumulative issue, as the GHG emissions of individual projects contribute regionally to the effect on global climate change. Thus, the climate change impact resulting from the development of land uses and infrastructure under the proposed project under Plan Concept 1 and Plan Concept 2 is addressed as a project impact and as a cumulative impact.

State CEQA Guidelines Section 15064 and relevant portions of Appendix G recommend that a lead agency consider a project's consistency with relevant, adopted plans and discuss any inconsistencies with applicable regional plans, including plans to reduce GHG emissions. Under Appendix G of the State CEQA

Guidelines, a project will consider the following factors, among others, when determining the significance of impacts from GHG emissions on the environment:

- a) Does the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?
- b) Do project emissions exceed a threshold of significance that the lead agency determines applies to the project?
- c) Does the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The Appendix G checklist questions are used as the thresholds of significance when evaluating the environmental effects of the proposed project's GHG emissions. In applying these thresholds, reference is also made to CEQA Guidelines Section 15064.4(b)(1)-(3).

In California, some counties, cities, and air districts have developed guidance and thresholds for determining the significance of GHG emissions that occur within their jurisdiction. The WPWMA is the CEQA lead agency for the proposed project and is therefore responsible for determining whether an impact would be considered significant. At the time of writing this DEIR, the WPWMA does not have an adopted Climate Action Plan consistent with State CEQA Guidelines Section 15183.5(b).

For completeness purposes, both biogenic and nonbiogenic GHG emissions³⁶ have been calculated for project-related operations. CO₂ emissions from fossil fuel combustion are a major nonbiogenic contributor to climate change. Some biogenic GHG emissions are returned to the environment through landfill processes. LFG combustion in the flares and cogeneration engines would produce unchanged biogenic CO₂ emissions, along with converted nonbiogenic CH₄ and N₂O emissions. Use of electricity generated in the LFG-to-energy plant would avoid the use of limited, nonrenewable resources such as coal and oil and the related biogenic emissions.

Project-related buildings and equipment, such as the LFG collection system, have been assumed to use electricity purchased from the grid. The purchased electricity is generated from a variety of sources, including fossil fuels. The GHG emissions associated with the increased generation and use of electricity by the proposed project have been quantified. Some of the LFG collected by the facility is used to generate electricity at the LFG-to-energy plant.³⁷ GHG emissions from electricity use are calculated using emission factors for electricity generation from EPA's eGRID database for Placer County. Information on electricity use in the 2018 baseline year and an assumed annual increase to account for operational increases caused by waste growth were used to estimate electricity use at buildout.

To evaluate the impacts of projects on global climate change, PCAPCD has established thresholds of significance for land-use development projects that occur within its jurisdiction (PCAPCD 2017). Thresholds used to determine significance are from PCAPCD's policy document titled "Review of Land Use Projects under CEQA" and are shown below (PCAPCD 2016b).

³⁶ EPA has identified biogenic sources (that is, sources not related to energy production and consumption) as those with GHG emissions that are generated during the decomposition of biologically based material, such as landfills, manure management, wastewater treatment, livestock respiration, fermentation processes, and combustion of biogas not resulting in energy production (for example, flaring of collected LFG). Decomposition of organic material derived from biomass sources (for example, crops and wood) is the primary source of CO₂ released from waste (IPCC 2013). Some climate models do not include biogenic CO₂ emissions from the decomposition of organic material, because decomposition is part of the natural carbon cycle.

³⁷ The electricity generated at the LFG-to-energy plant is considered renewable, and the CO₂ emissions are biogenic because they are LFG-derived. GHG benefits of this power generation are conveyed with the renewable energy credits, which are sold by the LFG-to-energy facility and cannot be double-counted as a benefit of the proposed project. Therefore, in accordance with the relevant accounting standards, this analysis conservatively quantifies GHG impacts of all power consumed onsite as if it were purchased from the grid.

PCAPCD's policy document titled "California Environmental Quality Act Thresholds of Significance – Justification Report" notes the following in describing how each of the thresholds should be applied (PCAPCD 2016a):

- 1) A bright-line threshold of 10,000 metric tons of CO₂ equivalent per year (MT CO₂e/year) for the construction and operational phases of land-use projects as well as stationary source projects.
- 2) An efficiency matrix for the operational phase of land-use development projects when emissions exceed the de minimis level.
- 3) A de minimis level for the operational phases of 1,100 MT CO₂e/year.

GHG emissions from projects that exceed 10,000 MT CO₂e/year would be deemed to have a cumulatively considerable contribution to global climate change. The de minimis level for the operational phases of 1,100 MT CO₂e/year represents an emissions level that can be considered as less than cumulatively considerable and be excluded from the further GHG impact analysis. To evaluate the significance of potential impacts associated with GHG emissions, the total unmitigated project-related GHG emissions were compared with the PCAPCD GHG significance thresholds (PCAPCD 2017). If the estimated GHG emissions exceed the thresholds, feasible mitigation measures for the GHG emissions are required to be evaluated to reduce the proposed project's GHG impacts.

Additionally, CEQA requires that the proposed project evaluate the potential for conflicts with any applicable plans, policies, or regulations adopted for the purpose of reducing GHG emissions. To evaluate the significance of potential project-related impacts associated with this CEQA criterion, the proposed project has been assessed for consistency with the following:

- Applicable California laws, plans, policies, and regulations (for example, AB 32, AB 876, SB 1383, AB 1826, AB 939)
- Placer County Sustainability Plan (Placer County 2020), including the solid waste-related GHG emission reduction measures and goals in that plan

10.4.2 Impacts and Mitigation Measures

This section describes the effects related to GHG emissions and global climate change associated with the two plan concepts, mitigation measures for identified significant impacts, and the level of impact significance following implementation of the identified mitigations.

IMPACT 10-1	Construction and Operational GHG Emissions. Annual GHG emissions estimated for the development and implementation of solid waste elements, complementary elements, and supporting elements under the proposed project would exceed PCAPCD's recommended GHG significance thresholds, including the bright-line threshold of 10,000 MT CO ₂ e/year for the construction and operational phases of land-use projects. GHG emissions from construction alone would not exceed PCAPCD's recommended bright-line threshold of 10,000 MT CO ₂ e/year, but estimated operational GHG emissions increases would exceed the threshold. Exceedance of the PCAPCD threshold of 10,000 MT CO ₂ e/year indicates that GHG emissions associated with the proposed project would result in a cumulatively considerable contribution to global climate change. This impact would be significant .
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Plan Concept 1

Construction-related activities for Plan Concept 1 would result in nonbiogenic GHG emissions (CO₂, CH₄ and N₂O) from fuel combustion in on-road and off-road vehicles used for construction, upgrade, expansion, and replacement of onsite facilities and construction of new landfill modules. Activities associated with construction of the proposed facilities would include demolition, site preparation, grading, excavation, road construction, foundation construction, and building construction. Landfill module construction would include excavation, placement of liner materials, and partial module closure. Typical construction activities would require fuel combustion in forklifts, cranes, pickup and fuel trucks, loaders, backhoes, excavators, dozers, tractors, graders, scrapers, pavers, rollers, paving equipment, welders, bore and drill rigs, cement and mortar mixers, off-road haul trucks, generator sets, as well as other equipment as necessary. On-road haul trucks would be used to deliver equipment, materials, and supplies, and on-road passenger vehicles would be used for worker commute trips. The annual GHG emissions increases estimated for the construction of the proposed project under Plan Concept 1 are presented in Table 10-2.

Operation of the proposed solid waste elements, complementary elements, and supporting elements would result in GHG emissions from worker commute trips, haul truck trips (commercial and self-haul), off-road equipment, waste receipt, recovery, and disposal operations, composting, generators, LFG-to-energy plant operation, LFG flares, fugitive LFG, electricity use, and compatible manufacturing.³⁸ For example, fuel combustion in on-road and off-road vehicles and stationary engines would result in nonbiogenic GHG emissions (CO₂, CH₄, and N₂O). LFG generation and flaring and composting would result in biogenic emissions (CO₂, CH₄). The emissions benefits associated with the proposed improvements in organic waste composting technology (for example, transition from windrows to ASP composting) for future waste streams have been estimated; the proposed project would result in a net benefit for GHG emissions from composting operations when compared with existing operations. The net annual GHG emissions increases estimated for operation of the proposed project under Plan Concept 1 are presented in Table 10-3.

The emission values presented in Tables 10-2 and 10-3 represent construction and operation of project elements under Plan Concept 1 with implementation of BMPs and project design measures from Table 10-1, but no additional mitigation. For specific assumptions and modeling inputs, refer to Appendix C.2.

³⁸ Emission calculations for this analysis of project-related construction and operational GHG emissions assumed construction of 300,000 sq feet of building space and 300,000 sq feet of parking and roads for complementary elements (e.g., compatible manufacturing). This analysis did not evaluate the timing or impacts of full buildout of complementary/programmatic elements (1,900,000 sq feet of building space and associated parking and roads), nor does it provide project-level analysis of the air quality impacts of construction of specific types of industrial activities. Additional project-level analysis and air permits from PCAPCD may be required.

As shown in Table 10-3, operation of the proposed project, under Plan Concept 1, would result in an estimated increase of 33,841 MT CO₂e per year, relative to 2018 existing conditions. Approximately 37 percent of the proposed project’s estimated annual GHG emissions from operation are associated with fugitive LFG; consequently, project design measures to increase the efficiency of the LFG capture system would be prioritized. Other project design measures included in the proposed project would reduce the project’s GHG emissions through use of Tier 4 engines, ASP technology for the composting facility, and Title 24 building standards on additional buildings being constructed.

GHG emissions from construction alone would not exceed PCAPCD’s recommended bright-line threshold of 10,000 MT CO₂e/year for the construction and operational phases of land-use projects. Operational GHG emissions estimated for the development and implementation of solid waste elements, complementary elements, and supporting elements under the proposed project would exceed the bright-line threshold of 10,000 MT CO₂e/year. Exceedance of the PCAPCD threshold indicates that GHG emissions associated with the proposed project would result in a cumulatively considerable contribution to global climate change.

Table 10-2. Summary of Maximum Annual Construction Greenhouse Gas Emissions for Plan Concept 1

Maximum Annual Emissions (MT/yr)				
Construction Year	CO ₂	CH ₄	N ₂ O	CO ₂ e
2024	758	0.08	0.05	773
2025	748	0.14	0.04	763
2028	1,405	0.44	0.00	1,417
2029	2,166	0.51	0.02	2,186
2033	1,273	0.05	0.01	1,277
PCAPCD Threshold 10,000 MT CO₂e				10,000
Assumed Construction of Complementary Elements in any given year ^b	326	0.01	0.000	327

^b Emission calculations assumed construction of 300,000 square feet of building space and 300,000 square feet of parking and roads for complementary elements over 5 years, with emissions assumed to occur equally during each year in the 5-year period. This analysis did not evaluate the impacts of full buildout of complementary and programmatic elements (1,900,000 square feet of building space and associated parking and roads), nor does it provide project-level analysis of the air quality impacts of construction of specific types of industrial activities.

Table 10-3. Summary of Maximum Annual Operational Greenhouse Gas Emissions for Plan Concept 1

Maximum Annual Emissions (MT/yr)					
Source	Biogenic CO ₂	Nonbiogenic CO ₂	CH ₄	N ₂ O	Total CO ₂ e
Onsite Vehicles	-	441	< 0.01	0.05	454
Offsite Vehicles	-	1,413	0.01	0.16	1,457
Off-road Equipment	-	5,166	0.16	0.07	5,190
Composting Operations	-398	-	-8.05	-0.60	-784
Gasoline Generators	-	5.2	< 0.01	< 0.01	5.2
LFG-to-energy Engines ^a	7,641	-	0.47	0.09	7,679
Fugitive LFG	1,107	-	404	-	12,407
Flares	2,736	1,480	5.45	0.02	4,374
Electricity	-	989	0.16	0.02	999
Complementary Elements ^b	38.2	1,920	3.16	0.06	2,060
Total	11,124	11,414	405	-0.13	33,841
PCAPCD Threshold 10,000 MT CO₂e/yr					10,000
Exceeds Threshold?					Yes

^a Currently the LFG-to-energy facility and all required air permits are held by a private operator. Other emission sources may also be owned and operated by others.

^b Emission calculations assumed operation of 300,000 square feet of building space and 300,000 square feet of parking and roads for complementary elements. This analysis did not evaluate the impacts of full buildout of complementary and programmatic elements (1,900,000 square feet of building space and associated parking and roads), nor does it provide project-level analysis of the air quality impacts of construction of specific types of industrial activities.

Note:

Negative values indicate a net benefit. Values in **bold** type indicate an exceedance of the applicable PCAPCD Operational Threshold of Significance.

Plan Concept 2

As described in Chapter 3, Project Description, the primary differences between Plan Concept 1 and Plan Concept 2 are related to where various facilities would be located on WPWMA's property and when various facilities would be developed. The annual GHG emissions increases estimated for the construction of the proposed project under Plan Concept 2 are presented in Table 10-4, and the net annual GHG emissions increases estimated for operation are presented in Table 10-5. Like the values presented in Tables 10-2 and 10-3 for Plan Concept 1, the emission values presented in Tables 10-4 and 10-5 represent construction and operation of project elements with implementation of BMPs and project design measures, but no additional mitigation. For specific assumptions and modeling inputs, refer to Appendix C.2.

These differences would not change the conclusions regarding GHG emissions identified for Plan Concept 1, including a finding of significance for construction and operational GHG emissions. As such, impacts related to construction and operational GHG emissions for implementation of Plan Concept 2 would be the same as described for Plan Concept 1.

Table 10-4. Summary of Maximum Annual Construction Greenhouse Gas Emissions for Plan Concept 2

Maximum Annual Emissions (MT/yr)				
Construction Year	CO ₂	CH ₄	N ₂ O	CO ₂ e
2024	1,652	0.48	0.01	1,669
2026	1,273	0.27	0.04	1,290
2031	1,402	0.44	0.00	1,415
2032	2,537	0.09	0.02	2,546
PCAPCD Threshold 10,000 MT CO₂e/yr				10,000
Assumed Construction of Complementary Elements in any given year ^a	326	0.01	0.000	327

^a Emission calculations assumed construction of 300,000 square feet of building space and 300,000 square feet of parking and roads for complementary elements over 5 years, with emissions assumed to occur equally during each year in the 5-year period. This analysis did not evaluate the impacts of full buildout of complementary and programmatic elements (1,900,000 square feet of building space and associated parking and roads), nor does it provide project-level analysis of the air quality impacts of construction of specific types of industrial activities.

Table 10-5. Summary of Maximum Annual Operational Greenhouse Gas Emissions for Plan Concept 2

Maximum Annual Emissions (MT/yr)					
Source	Biogenic CO ₂	Nonbiogenic CO ₂	CH ₄	N ₂ O	Total CO ₂ e
Onsite Vehicles	-	255	< 0.01	0.03	262
Offsite Vehicles	-	1,413	0.01	0.16	1,457
Off-road Equipment	-	5,166	0.16	0.07	5,190
Composting Operations	-398	-	-8.05	-0.60	-784
Gasoline Generators	-	5.2	< 0.00	< 0.00	5.2
LFG-to-energy Engines ^a	7,641	-	0.47	0.09	7,679
Fugitive LFG	1,163	-	424	-	13,029
Flares	3,143	1,700	6.26	0.02	5,024
Electricity	-	989	0.16	0.02	999
Complementary Elements ^b	38.2	1,920	3.16	0.06	2,060
Total	11,587	11,448	426	-0.15	34,921
PCAPCD Threshold 10,000 MT CO₂e/yr					10,000
Exceeds Threshold?					Yes

^a Currently the LFG-to-energy facility and all required air permits are held by a private operator. Other emission sources may also be owned and operated by others.

^b Emission calculations assumed operation of 300,000 square feet of building space and 300,000 square feet of parking and roads for complementary elements. This analysis did not evaluate the impacts of full buildout of complementary and programmatic elements (1,900,000 square feet of building space and associated parking and roads), nor does it provide project-level analysis of the air quality impacts of construction of specific types of industrial activities.

Note:

Negative values indicate a net benefit. Values in **bold** type indicate an exceedance of the applicable PCAPCD Operational Threshold of Significance.

Mitigation Measure 10-1: Fund GHG Emissions Reductions through an Offsite Mitigation Fee Program.

WPWMA and their operation contractor(s) shall document their capability and commitment to implement the GHG BMPs and project design measures³⁹ identified in Table 10-1 as part of their contracts and plan submittals. To further mitigate the significant GHG impacts identified for the proposed project, WPWMA shall participate in one of the following voluntary offsite mitigation programs:

- Establish and fund an offsite mitigation project to result in a GHG emission reduction equivalent to the total amount of emissions estimated to exceed the PCAPCD significance threshold over a single year. Developing an offsite mitigation program in western Placer County shall be coordinated with PCAPCD.

³⁹ Note: Applicable measures from PCAPCD's recommended GHG emission mitigation measures (PCAPCD 2017) are incorporated in the proposed project as project design measures. For the list of BMPs and project design measures incorporated in the proposed project, please see the list of measures in Table 10-1, Current Emission Reduction Measures and Best Management Practices Incorporated as Project Design Measures.

Emission reductions achieved through the offsite mitigation program must be real and quantifiable, as verified by PCAPCD.

- Participate in PCAPCD's Offsite Mitigation Fee Program by paying the equivalent amount of money to mitigate the net annual project contribution of GHG that exceeds the PCAPCD threshold. The actual amount to be paid shall be determined according to the selected program and applicable cost-effectiveness rate agreed to by WPWMA and PCAPCD. (Please note that there is currently no mitigation fee option for GHG offsite mitigation, because there is no fee rate or cost-effectiveness factor established by a statewide incentive program.)
- Any combination of these or other measures, as determined feasible by WPWMA and PCAPCD.

If an offsite mitigation measure is required for a land-use project, that mitigation measure shall explicitly identify the required GHG emission reduction and the implementation method. PCAPCD's Board of Directors adopted the Review of Land Use Projects under CEQA Policy in 2016, which outlines the principles on how the GHG offsite mitigation measures should be implemented, by the selected mitigation scenarios, to offset the land-use project's related operational GHG emissions. The project applicant has two options to implement offsite mitigation measures for GHG emissions: (1) proposing their own offsite mitigation project or (2) purchasing carbon credits from recognized carbon credit registries.

When offsite mitigation is an option used to mitigate the project's operational impacts, additional (surplus) emission reductions achieved from offsite sources should be equal to the emission reductions required to mitigate the land-use project's onsite impacts. This can provide the proper nexus for GHG emission mitigation under CEQA. For example, excessive GHG emissions from a land-use project's energy usage could be reduced by a project that would generate the same amount of surplus GHG emission reductions by renewable energy.

Prior to implementation of an offsite mitigation project, the applicant shall consult with PCAPCD and demonstrate that the project meets all conditions required by a selected carbon credit protocol approved by California Air Pollution Control Officers Association (CAPCOA), CARB, or other similar entities determined acceptable by PCAPCD. If the applicant chooses to purchase carbon credits, the credits should be registered under the CAPCOA GHG Reduction Exchange Program, American Carbon Registry, Climate Action Reserve, or other similar carbon credit registry as determined acceptable by PCAPCD. This requirement means that the proposed mitigation project or carbon credit purchase can result in an equivalent GHG reduction required by the offsite mitigation measure. In addition, PCAPCD encourages the applicant to consider generating or purchasing local and California-only carbon credits as the preferred mechanism for implementing the GHG offsite mitigation measure, which helps direct the state toward achieving the GHG emission reduction goal.

The following are well-recognized entities with approved carbon offset protocols or registered carbon credits that can be applied toward a land-use project's GHG emission reductions:

- CAPCOA GHG Reduction Exchange Program (GHG Rx)
- CARB Compliance Offset Protocols
- Verified Carbon Standard (Verra)
- American Carbon Registry
- Climate Action Registry

PCAPCD notes that it will not be involved with any carbon credit purchase agreements; PCAPCD is only assisting the lead agency with verification of the carbon credits to confirm they are real, permanent, quantifiable, verifiable, enforceable, and additional.

Level of Significance after Mitigation

Implementation of Mitigation Measure 10-1 would result in additional reductions in GHG emissions. Available information on the benefits of the proposed mitigation measure is not sufficient to quantify the additional emission reductions that would occur, so this analysis is qualitative and conservative in nature.

Even with incorporation of all available and feasible BMPs, project design measures, and mitigation measures to reduce emissions, including funding of mitigation fees or purchase of offsets, it is likely that project-related GHG emissions could continue to exceed PCAPCD's recommended bright-line threshold of 10,000 MT CO₂e/year. Participation in a verified GHG emission offset program cannot be assured. No additional feasible mitigation measures are available to reduce this impact. This impact would remain **significant and unavoidable**.

Material Recovery Facility Operations Design Concept Evaluation.

As described in Chapter 3, Project Description, and Chapter 4, Approach, proposed changes to material recovery facility (MRF) operations could be implemented under either plan concept and would potentially result in changes in quantities, timing, and release locations of estimated project-related GHG emissions from construction and operations. The proposed changes would involve facility improvements to accommodate accelerated and expanded diversion of organic material, including organic fraction of municipal solid waste (OFMSW), for composting in covered aerated static pile (CASP) composting systems and increased recovery and diversion of recyclables. Changes may also involve the addition of an enclosed building for organics receipt and processing.

To accommodate the proposed increase in the quantity of material processed at the organics management facility, facility operation would need to increase sooner than anticipated in Plan Concept 1 and Plan Concept 2, but the proposed total processing capacity would not exceed the full buildout capacity evaluated for the proposed project. The proposed CASP processes are similar to the ASP process analyzed as part of the proposed project and would provide similar or better control of fugitive emissions from active composting. Use of an enclosed building for organics receipt and processing was not specifically analyzed as part of the proposed project, but it is not expected to result in increased operational GHG emissions. Processing of increased quantities of organic material and recyclables could be accommodated within the existing MRF facility, but it may require use of additional equipment, which could indirectly generate increased GHG emissions. Increased amounts of recyclables recovered from the MRF would also be anticipated to result in a near-term increase in outbound traffic taking material to market and associated GHG emissions.

The expanded use of CASP would have a corresponding increase in energy use in the near term, indirectly increasing GHG emissions associated with the electricity used for blowers. Increased diversion would reduce the amount of waste residuals sent to the landfill, reducing the frequency of landfill cell construction over time and reducing the construction and operational GHG emissions associated with landfill waste disposal. Diversion of more OFMSW from the landfill within a faster timeframe would correspond to a near-term (next 10 years) reduction in LFG production, including reduced fugitive LFG and related GHG emissions.

The conservative approach used to calculate emissions associated with construction and operation of the proposed project included assessing multiple overlapping construction projects to allow flexibility in the timing of individual projects and application of a peaking factor to address variability in material quantities received and processed. While the proposed changes have the potential to result in near-term emissions increases for the organics management facility and MRF, they also have the potential to result in decreased

emissions from waste disposal operations and LFG. Overall, operational activity is not expected to exceed the levels analyzed for full buildout of the proposed project with implementation of the proposed changes.

PCAPCD recently issued permits to the WPWMA related to ASP composting; however, these permits would likely require updates as the project proceeds. The enclosed building for organics processing, if constructed, would be equipped with an odor control system and would require preconstruction review and permitting by PCAPCD as a stationary source. As the permitting process is undertaken, the WPWMA facility must continue to comply with applicable regulatory and permitting requirements.

Based on this qualitative review, the proposed MRF operations design concept changes would be covered under the current assumptions of this GHG emissions impact analysis, and the conclusions of the project-level analysis related to GHG emissions would not change.

IMPACT 10-2	Consistency with Applicable Plans, Policies, or Regulations Adopted to Reduce GHG Emissions. The construction and operation of the solid waste elements, complementary and programmatic elements, and supporting elements under the proposed project would implement and accommodate compliance with goals and directives in applicable plans, policies, and regulations to reduce GHG emissions. This impact would be less than significant .
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Plan Concept 1

As described in Section 10.3, Regulatory Setting, federal and state laws and regulations have resulted in plans and policies to reduce GHG emissions from the waste management sector. The proposed project would integrate and support the goals and directives of federal and state plans and policies, including the following:

- Increasing diversion of organics and other recyclable commodities from landfills
- Increasing use of alternative technologies, such as ASP composting
- Reducing volumes of waste landfilled
- Expanding the current waste management infrastructure to accommodate the increases in recycling and remanufacturing of waste materials to meet goals, including co-location of new waste treatment facilities at existing waste sites to minimize permitting issues and environmental impacts
- Implementing BMPs at landfills, including specific requirements for LFG collection system design and construction, landfill unit and cell design and construction, waste placement methods, daily and intermediate cover materials and practices, use of compost or other biologically active materials in cover soils, and organic materials management

Accordingly, the following discussion regarding project consistency with local goals and policies from the Placer County Sustainability Plan and the Placer County General Plan is provided for informational purposes only.

Construction and operation of the proposed project under Plan Concept 1 would be consistent with the Placer County General Plan, which was originally adopted in 1994 and last updated in 2013. The General Plan includes several policies related to addressing GHG emissions and climate change in Placer County, including implementation of building and operational energy efficiency programs, traffic demand management, and water-efficient landscaping (Placer County 2013). Project proponents are encouraged to consult with the County early in the planning process regarding Countywide indirect and areawide source programs and transportation control measure programs. The proposed project under Plan

Concept 1 includes measures to reduce GHG emissions and promote energy efficiency and is therefore consistent with this General Plan policy.

The Placer County Sustainability Plan, adopted in January 2020, includes voluntary goals that include working with WPWMA to find funding, provide public education, support compliance with state laws and regulations, and evaluate feasible approaches to meet aspirational goals for CH₄ capture and transition to vehicles and haul trucks that would use low-carbon fuels and electricity. The Placer County Sustainability Plan forecasts Countywide GHG emissions from solid waste at 190,910 MT CO₂e per year (Placer County 2020). Estimates of project-related GHG emissions for Plan Concept 1 are higher than the Countywide solid waste GHG estimates in the sustainability plan, but it is not accurate to compare the two GHG emission inventories, because of differences in assumptions and calculation methods. Therefore, the proposed project would result in less-than-significant impacts.

Plan Concept 2

As described in Chapter 3, Project Description, the primary differences between Plan Concept 1 and Plan Concept 2 are related to where various facilities would be located on WPWMA's property and when various facilities would be developed. These differences would not change the conclusions regarding consistency with applicable plans, policies, or regulations adopted to reduce GHG emissions identified for Plan Concept 1. As such, impacts related to consistency with GHG plans, policies, and regulations for implementation of Plan Concept 2 would be the same as described for Plan Concept 1.

Material Recovery Facility Operations Design Concept Evaluation.

Proposed changes to MRF operations could be implemented under either plan concept and would potentially result in changes in quantities, timing, and release locations of estimated project-related GHG emissions from construction and operations. The proposed changes would involve facility improvements to accommodate accelerated and expanded diversion of organic material, including OFMSW, for composting in CASP composting systems and increased recovery and diversion of recyclables. Changes may also involve the addition of an enclosed building for organics receipt and processing.

Based on this qualitative review, the proposed MRF operations design concept changes would be covered under the current assumptions of this analysis of project consistency with applicable plans, policies, and regulations for GHG reductions, and the conclusions of the project-level analysis related to GHG emissions would not change.

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