4.4 Greenhouse Gas Emissions

4.4.1 Introduction

This greenhouse gas (GHG) analysis examines GHG and global climate change (GCC) impacts that would result from construction and operational activities associated with the proposed Project. This section describes applicable Federal, State, and local regulations that address GHG emissions and GCC in California and the City of Los Angeles; existing climate conditions and influences on GCC are also described. The analysis accounts for energy and resource conservation measures that have been incorporated into the proposed Project, as well as pertinent State-mandated GHG emission reduction measures.[1] The analysis also assesses cumulative and Project-related contributions to GCC that would result from the proposed Project. Air quality effects associated with criteria pollutant (ambient air pollutant) emissions are discussed in Section 4.1, *Air Quality and Human Health Risk*, of this EIR. GHG emission calculations prepared for the proposed Project are provided in **Appendix C** of this EIR.

4.4.1.1 Predicted Global and Local Climate Change

Briefly stated, GCC is a change in the average climatic conditions of the earth, as characterized by changes in wind patterns, storms, precipitation, and temperature. The baseline by which these changes are measured originates in historical records identifying temperature changes that have occurred in the past, such as during previous ice ages. Many of the recent concerns over GCC use these data to extrapolate a level of statistical significance, specifically focusing on temperature records from the last 150 years (the Industrial Age) that differ from previous climate changes in rate and magnitude.

The United Nations Intergovernmental Panel on Climate Change (IPCC) developed several emission projections of GHGs needed to stabilize global temperatures and climate change impacts. The IPCC predicted that the global mean temperature change from 2005 to 2100, given six ambient carbon dioxide (CO_2) scenarios, could range from 1.5 to 4.8 degrees Celsius (°C). Regardless of analytical methodology, global average temperature and mean sea level are expected to rise under all scenarios.[2]

Climate models applied to California's conditions project that, under different scenarios, temperatures in California are expected to increase by 2.1 to 8.6 degrees Fahrenheit (°F). Almost all climate scenarios include a continuing trend of warming through the end of the century given the substantial amounts of GHGs already released, and the difficulties associated with reducing emissions to a level that would stabilize the climate. According to California's Fourth Climate Change Assessment, the following climate change effects are predicted in the Los Angeles region over the course of the next century.[3]

- Continued future warming will occur over the Los Angeles Region, with average maximum temperatures projected to increase around 4 to 5 °F by the mid-century and 5 to 8 °F by the late-century.
- Extreme temperatures are expected to increase. The hottest day of the year may be up to 10 °F warmer by the late century, while the number of extremely hot days is also expected to increase.

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1 See Section 4.3, *Energy,* of this EIR for discussion of energy efficiency measures.

2 Intergovernmental Panel on Climate Change, *Climate Change 2014 – Mitigation of Climate Change, Working Group III Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, 2014, page 439. Available: https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_chapter6.pdf.

3 Hall, Alex, Neil Berg, Katharine Reich, University of California, Los Angeles, *Los Angeles Summary Report, California's Fourth Climate Change Assessment*, page 6, 2018. Available: https://www.energy.ca.gov/sites/default/files/2019-11/Reg%20Report-%20SUM-CCCA4-2018-007%20LosAngeles_ADA.pdf.

- Dry and wet extremes in precipitation are both expected to increase. The wettest day of the year is expected to increase across most of the region by the end of the century. Furthermore, the frequency and severity of atmospheric river events are also projected to increase.
- Sea levels are projected to rise, but there is a lot of uncertainty in the different modeled emission scenario. Approximately 1 to 2 feet of sea level rise is projected by mid-century, with 8 to 10 feet of sea level rise by the end of the century under extreme projections.

Climate change has increased the frequency and severity of wildfires in California with the area burned by wildfires increasing each year since 1950. The August Complex Fire (started in August 2020) is the largest recorded wildfire in California history and eight of the largest 20 fires in California's history have occurred in the past three years.[4]

Temperature increases would lead to adverse environmental impacts in a wide variety of areas, including sea level rise, reduced snowpack resulting in changes to existing water resources, increased risk of wildfires, and public health hazards associated with higher peak temperatures, heat waves, and decreased air quality.

4.4.1.2 Greenhouse Gases

Parts of the Earth's atmosphere act as an insulating blanket, trapping sufficient solar energy to keep the global average temperature in a suitable range. The blanket is a collection of atmospheric gases called GHGs. These gases – primarily water vapor, CO_2, methane (CH_4), nitrous oxide (N_2O), ozone, chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6) – all act as effective global insulators, reflecting back to earth visible light and infrared radiation. Human activities, dominated by producing electricity and driving vehicles, have elevated the concentrations of these gases in the atmosphere. Many scientists believe that these elevated levels, in turn, are causing the earth's temperature to rise. A warmer earth may lead to changes in rainfall patterns, much smaller polar ice caps, a rise in sea level, and a wide range of impacts on plants, wildlife, and humans.

The global warming potential (GWP) of a GHG pollutant is heat absorbed by a GHG pollutant over a particular time period, typically 100 years. Individual GHG pollutant species have varying GWP and atmospheric lifetimes.[5] The carbon dioxide equivalent (CO_2e) is calculated from the GWP and represents that amount of CO_2 that would be required to warm the earth as much as the pollutant being emitted. In other words, if a pollutant has a GWP of 25, then it would only take 1 ton of its emissions to equal 25 tons of CO_2 emissions. Compared to CH_4's GWP of 25 and N_2O's GWP of 298, CH_4 and N_2O have greater global warming effects than CO_2 on a molecule-per-molecule basis.

GHG emissions are characterized by ownership and control of emissions from the sources. As a result, they are identified by "scopes," ranging from GHGs produced directly by the business to more indirect sources of GHG emissions, such as employee travel and commuting. Direct and indirect emissions can be generally separated into three broad scopes as follows:

- Scope 1. Direct emissions by sources owned and controlled by the reporting entity
- Scope 2. Indirect GHG emissions from consumption of purchased electricity, heat, or steam (i.e., GHG emissions generated at the power plant that provides electricity at the demand of the site/facility)

[4] California Air Resources Board, *Wildfires & Climate Change*. Available: https://ww2.arb.ca.gov/wildfires-climate-change, accessed September 22, 2020.

[5] U.S. Environmental Protection Agency, *Glossary of Climate Change Terms*. Available: https://19january2017snapshot.epa.gov/climatechange/glossary-climate-change-terms_.html, accessed November 25, 2019.

- Scope 3. Other indirect (optional) GHG emissions, such as the extraction and production of purchased materials and fuels, transport-related activities in vehicles not owned or controlled by the reporting entity, electricity-related activities (e.g., transmission and distribution losses) not covered in Scope 2, outsourced activities, waste disposal, and construction

The Airports Council International (ACI), a worldwide organization addressing airport issues, has implemented the Airport Carbon Accreditation (ACA) program to standardize the evaluation of carbon emissions from airports. The ACA program enables airports to participate at Levels 1, 2, 3, and 3+, ranging from reporting Scope 1 and 2 emissions at Level 1, to reporting and managing Scope 1/2/3 emissions at Level 3, and carbon neutrality of Scope 1/2 emissions at Level 3+.[6] LAWA participates at Level 3 for LAX.[7]

4.4.2 Methodology

The assumptions used to estimate GHG emissions from construction and operational sources are the same as those discussed in Section 4.1, *Air Quality and Human Health Risk* (see Section 4.1.1.2, *Methodology,* for the air quality analysis). The discussion below provides a description of methodology elements that are specific to analyzing GHG emissions.

A number of methodologies and significance thresholds have been considered over the past several years by various agencies and jurisdictions in California to analyze the impacts of GHG emissions on GCC. However, at the time of this analysis, no definitive thresholds or methodologies that are applicable to the proposed Project have been formally adopted for determining the significance of the Project's contribution to GCC in CEQA documents.

Various guidance documents, such as The Climate Registry *General Reporting Protocol* (version 3.0, May 2019);[8] the joint California Air Resources Board (CARB), California Climate Action Registry (CCAR), and International Council for Local Environmental Initiatives (ICLEI) *Local Government Operations Protocol* (LGOP) (version 1.1, May 2010);[9] the Association of Environmental Professionals (AEP) *Community-wide GHG Emissions Protocol*;[10] and the ACI ACA program propose generally consistent methodologies for preparing GHG inventories.[11] These methodologies were developed for varying purposes, and not specifically for CEQA. Relying on these guidance documents, this analysis addresses both direct and indirect GHG emissions, as reflected in the previously defined Scope 1, 2, and 3 categories.

CARB believes that consideration of so-called indirect emissions provides a more complete picture of the GHG footprint of a facility: "As facilities consider changes that would affect their emissions – addition of a cogeneration unit to boost overall efficiency even as it increases direct emissions, for example – the relative impact on total (direct plus indirect) emissions by the facility should be monitored. Annually reported indirect energy usage also aids the conservation awareness of the facility and provides information" to CARB to be considered for future strategies by the industrial sector.[12] For these reasons,

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6 ACI EUROPE, *Airports & CO_2, 4 Levels of Certification*. Available: https://www.airportcarbonaccreditation.org/airport/4-levels-of-accreditation/introduction.html, accessed June 4, 2020.

7 ACI EUROPE, *Accredited Airports across the world, North America, Optimisation*. Available: https://www.airportcarbonaccreditation.org/airport/participants/north-america.html, accessed June 4, 2020.

8 The Climate Registry, *General Reporting Protocol, Version 3.0*, May 2019. Available: https://www.theclimateregistry.org/protocols/General-Reporting-ProtocolV3.pdf.

9 California Air Resources Board, *Local Government Operations Protocol*, *Version 1.1*. Available: https://www.theclimateregistry.org/wp-content/uploads/2014/12/2010-05-06-LGO-1.1.pdf.

10 Association of Environmental Professionals (AEP), *Forecasting Community-Wide Greenhouse Gas Emissions and Setting Reduction Targets*, Draft: May 2012. Available: https://califaep.org/docs/Forecasting_and_Target_Setting.pdf.

11 Airport Carbon Accreditation, *Greenhouse Gas Protocol*. Available: http://www.airportcarbonaccredited.org/airport/4-levels-of-accreditation/ghg-protocol.html, accessed December 3, 2019.

12 California Air Resources Board, Planning and Technical Support Division Emission Inventory Branch, *Staff Report: Initial Statement of Reasons for Rulemaking, Proposed Regulation for Mandatory Reporting of Greenhouse Gas Emissions Pursuant to the California Global Warming Solutions Act of 2006 (Assembly Bill 32)*, October 19, 2007. Available: https://ww3.arb.ca.gov/regact/2007/ghg2007/isor.pdf.

CARB requires the calculation of direct and indirect GHG emissions as part of Assembly Bill (AB) 32 reporting requirements. Additionally, the Governor's Office of Planning and Research (OPR) guidance for lead agencies conducting GCC analyses in CEQA documents indicates that lead agencies should "make a good-faith effort, based on available information, to calculate, model, or estimate … GHG emissions from a project, including the emissions associated with vehicular traffic, energy consumption, water usage and construction activities."[13] Therefore, direct and indirect emissions (i.e., Scope 1, 2, and 3) have been calculated for the proposed Project. Because potential impacts from GHG emissions are long-term, GHG emissions are calculated on an annual basis.

The analysis considers only those GHG emissions resulting from the proposed Project that would lead to a net change (increase or decrease) in incremental emissions compared to baseline conditions in 2018.

4.4.2.1 Construction

GHG emissions associated with construction of the proposed Project were calculated based on methodologies provided in The Climate Registry *General Reporting Protocol* (GRP) Version 3.0.[14] The GRP is the guidance document that LAWA and other members of The Climate Registry must use to prepare annual GHG inventories for the Registry. Therefore, for consistency, the GRP also was used in this impact analysis. However, to adapt the GRP for CEQA purposes, the following refinement to the GRP operational and geographical boundaries was necessary. The GRP requires all direct and indirect emissions owned or controlled by the reporting entity to be reported; under CEQA, only emission sources that would materially change as part of the proposed Project in a manner and to an extent that may result in a significant impact on the environment are required to be analyzed. Certain elements of indirect emissions associated with construction activities, such as related to purchased electricity, solid waste disposal, water usage, and wastewater disposal, would be speculative and negligible compared to the direct emissions of the construction process. Analysis of these indirect construction emissions would not alter the significance conclusions reached in this analysis and would not substantially increase the severity of a significant impact. Therefore, these emissions, which would normally be included in an inventory prepared pursuant to the GRP for purposes of The Climate Registry, were not included in this analysis.

In accordance with guidance from the South Coast Air Quality Management District (SCAQMD), GHG emissions from construction were amortized over the 30-year lifetime of the proposed Project (i.e., total construction GHG emissions were divided by 30) and then added to annual operational emissions estimated to occur with Project implementation.[15]

The proposed Project construction-related sources for which GHG emissions were calculated include:

- Off-road construction equipment
- On-road equipment and delivery/haul trucks
- Construction worker trips
- Incremental operational worker trips during construction
- Increased aircraft ground power unit (GPU) usage during construction

These construction sources are considered to be a Scope 3 source.

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[13] State of California, Office of Planning and Research, Technical Advisory, *CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review*, June 19, 2008, p. 5. Available: https://opr.ca.gov/docs/june08-ceqa.pdf. A draft update to this guidance was released in December 2018 with similar advice. Available: http://opr.ca.gov/docs/20181228-Discussion_Draft_Climate_Change_Advisory.pdf.

[14] The Climate Registry, *General Reporting Protocol, Version 3.0*, May 2019. Available: https://www.theclimateregistry.org/protocols/General-Reporting-ProtocolV3.pdf.

[15] South Coast Air Quality Management District, *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold*, October 2008, p. 3-9. Available: http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgattachmente.pdf?sfvrsn=2.

Existing maintenance facilities and the Central Utility Plant (CUP) are not proposed to be substantially changed by the LAX Airfield and Terminal Modernization Project and, thus, construction emissions associated with these facilities were not evaluated in this analysis. A description of the off-road construction equipment, on-road construction equipment, delivery/haul truck trips, and construction worker trips associated with construction of the proposed Project is provided in Section 4.1, *Air Quality and Human Health Risk*, Section 4.1.1.2. The parameters used to develop construction GHG emissions for these sources, including construction schedule, equipment usage, and load factors, are the same as those outlined for the construction criteria air pollutant emissions analysis, and are presented in Section 4.1.1.3, with supporting information presented in **Appendix C.1** of this EIR.

4.4.2.2 Operations

In accordance with the State CEQA Guidelines, the operational GHG impacts of the proposed Project were assessed based on the net new incremental increase in emissions to determine significance under CEQA. The aircraft activity levels for existing conditions were based on actual operations in 2018. The aircraft activity levels for future conditions were based on aircraft activity growth forecasts for LAX in 2028.[16] Aircraft activity levels were also developed during the anticipated runway closures in 2023 and 2024 as part of the construction impact analysis. Additionally, changes in the airfield configuration would alter taxiing times associated with aircraft movements. Sources of operational emissions evaluated in the analysis include aircraft engines and auxiliary power units (APUs); ground support equipment (GSE); ground vehicles used to transport passengers, cargo, and supplies to and from the airport; stationary water and space heaters; emergency generators; and indirect GHG emissions from electrical demand. Most of these are Scope 3 sources. LAWA ground vehicle trips for airport purposes (i.e., not LAWA employee commute trips) are Scope 1 sources, as are stationary sources (such as boilers used for heating and cooling) used directly by LAWA for the proposed Project.

The parameters used to develop operational GHG emissions for these sources are the same as those outlined for the criteria air pollutant emissions analysis presented in Section 4.1.1.2. As described in that section, emissions from aircraft, which include emissions of GHG pollutants, were estimated using FAA's Aviation Environmental Design Tool Version 3b (AEDT 3b).[17] AEDT calculates the GHG pollutant emissions for aircraft based on the landing-takeoff (LTO) cycle. For vehicular traffic, GHG pollutant emissions from the entire trip length, from the trip origin to LAX, were considered in the analysis. Additionally, information on electrical demand is the same as that developed for the analysis in Section 4.3, *Energy*.

4.4.2.3 Existing LAWA Policies and Proposed Project Features

LAWA has developed a number of policies that address environmental issues, including GHG emissions, associated with airport project construction and airport operations. Existing policies that may reduce GHG emissions are briefly described in Section 4.4.3.1.5 below, under the heading "LAWA Sustainability Plans and Guidelines." In addition to complying with these policies, LAWA would incorporate a number of proposed Project design features which also address or reduce environmental impacts. A general description of these features is provided in Section 2.4.5, *Sustainability*. The detailed GHG emissions calculations for the existing conditions, future With Project and future Without Project scenarios incorporate those policies and Project features that would be in effect under each scenario. The policies and Project features that were included in the calculations were those with specific targets or other

[16] As detailed in Chapter 2, *Description of the Proposed Project*, Section 2.3.1.2, future growth in aviation activity at LAX is not dependent on, or driven by, the improvements associated with the proposed Project and, therefore, the aircraft activity would not differ between the With Project and Without Project future scenarios.

[17] It should be noted that, unlike cars, where changes in emissions are recognized in the fuel economy standards applied to future vehicle trips, AEDT does not assume any future emissions reductions due to increased fuel economy or aircraft design improvements. Therefore, future aircraft-related GHG emissions may be overstated.

information that could be used to quantify GHG emission reductions. The existing policies and Project features that have been incorporated into the unmitigated GHG emission calculations include:

- Construction Emissions (these only apply to the proposed Project construction since the other analyzed scenarios – existing conditions and Without Project – do not include construction activity)
  - Use of off-road construction equipment that complies with USEPA Tier 4 Final engine emission standards (Existing Policy – Design and Construction Handbook [DCH][18])
  - Use of on-road construction trucks that comply with USEPA 2010 model year emission standards (Existing Policy – DCH)
  - On-road construction truck idling time limited to five minutes per one-way trip (Existing Policy – DCH)
  - Use of an on-airport concrete batch plant for proposed Project concrete demand, reducing concrete haul truck miles traveled and associated emissions, and including emission controls on batch plant operations as required in LAWA's existing permit (Existing Policy – Permitted Batch Plants)
- Operational Emissions
  - Airfield layout designed to minimize aircraft taxi and delay times (Project Feature, only applied to With Project scenario)
  - Use of hydrant fueling system – As with the existing airport, which uses an extensive hydrant fueling system, hydrant fueling would be included in the new terminal and concourse aircraft parking positions, which would eliminate the need for large aircraft fueling trucks (Existing Policy and Project Feature, applied to all scenarios)
  - Reductions associated with LAWA's existing GSE Policy, applied to GSE emissions for all scenarios (Existing Policy)
  - Reduced aircraft APU operating times for gates and other aircraft parking positions with pre-conditioned air and gate power, applied to APU emissions for all scenarios (Existing Policy - DCH)
  - Create Connection between LAX and Public Transit (Existing Policy and Project Feature). LAWA is currently constructing the LAX Landside Access Modernization Program that includes an Automated People Mover station adjacent to the future Airport Metro Connector (AMC), which will help support and encourage transit ridership at LAX. The Without Project scenario includes APM stations at the ITF West and in the CTA that are part of the LAX Landside Access Modernization Program. The With Project scenario adds an additional APM station at Terminal 9 that would also help support use of transit by employees and passengers.

Many other LAWA policies and Project features would potentially produce emission reductions, but sufficient information to determine the reduction quantities is not available or verifiable. Those existing policies and Project features that would apply to the Project but whose effects were not quantified are listed below, along with the rationale for not including the measures in the unmitigated GHG emission calculations:

[18] City of Los Angeles, Los Angeles World Airports, *2020 Design and Construction Handbook (DCH), Version 1.0,* June 30, 2020. Available: https://www.lawa.org/en/lawa-businesses/lawa-documents-and-guidelines/lawa-design-and-construction-handbook.

- Construction Policies and Project Features
  - Utilize electric grid power for construction equipment instead of using temporary diesel or gasoline generators (Existing Policy - DCH). Availability and accessibility of grid power may not be known until detailed design.
- Operational Policies and Project Features
  - LAWA Alternative Fuel Vehicle Policy and associated incentive program (Existing Policy). The vehicles subject to this policy represent a small portion of the total airport-related traffic volumes studied in this EIR. Determining whether the policy will change the overall fleet mix of motor vehicles coming to LAX was not verifiable.
  - LAWA-Operated Light-Duty Auto and Airfield Bus programs (Existing Policy – AQIM[19]). LAWA purchased 20 electric buses and over 60 electric light duty autos for airport operations. These vehicles represent a very small portion of the total airport-related traffic volumes studied in the EIR. Determining whether the program will change the overall fleet mix of motor vehicles at LAX is not verifiable.
  - Installation of Electric Vehicle (EV) Chargers for Passengers and Employees in compliance with City code (Existing Policy – DCH, and Project Feature). Over 100 EV charges have been installed at LAX, and the proposed Project would include installation of more changes in the Terminal 9 parking structure in compliance with City code. Installation of EV chargers would not directly reduce emissions but would encourage use of electric vehicles for travel to and from the airport.
  - Achieve Leadership in Energy and Environmental Design (LEED®) Silver requirements for Concourse 0 and Terminal 9 (Existing Policy – DCH, Project Feature). LAWA would require the design and construction of Concourse 0 and Terminal 9 achieve LEED® Silver requirements, at a minimum, in accordance with LAWA's adopted the *Sustainable Design and Construction Policy*.[20] Since multiple options can be implemented to meet those requirements, specific quantification of emission reductions was not attempted.
  - LAWA Employee Rideshare Program (Existing Policy). LAWA provides incentives to its employees to use alternative means to travel to the airport for work. The reduced vehicles represent a small portion of the total airport-related traffic volumes studied in the EIR. Determining whether the program changes the overall volume of motor vehicles at LAX may not be verifiable.

4.4.3 Existing Conditions

4.4.3.1 Regulatory Setting

4.4.3.1.1 International

International Governmental Panel on Climate Change

In 1988, the United Nations and the World Meteorological Organization established the International Governmental Panel on Climate Change (IPCC) to provide policymakers with regular scientific assessments on the current state of knowledge about climate change and "to provide governments…with scientific

[19] As discussed in Section 4.1.1.3.1, LAWA developed LAX Air Quality Improvement Measures (AQIM) to further reduce air pollutant emissions from non-aircraft sources operating at LAX during negotiations with SCAQMD on the voluntary Memorandum of Understanding (MOU); the MOU was formally completed with SCAQMD in December 2019, and identifies specific targets and incentives to further reduce air pollutant emissions from non-aircraft sources operating at LAX.

[20] City of Los Angeles, Los Angeles World Airports, *LAWA Sustainable Design and Construction Policy*, September 7, 2017. Available: https://www.lawa.org/-/media/lawa-web/tenants411/file/lawa-sustainable-design-and-construction-policy.ashx.

information that they can use to develop climate policies." The IPCC "provides regular assessments of the scientific basis of climate change, its impacts and future risks, and options for adaptation and mitigation."[21] Since its inception, the IPCC has delivered five comprehensive scientific reports about climate change, with the latest (the Fifth Assessment Report) released in four parts between September 2013 and November 2014.[22]

United Nations Framework Convention on Climate Change

The United Nations Framework Convention on Climate Change (UNFCCC) is an International Environmental Treaty that entered into force on March 21, 1994. It has been ratified by 197 countries, including the United States. Under the Convention, governments 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 climate change.[23]

Kyoto Protocol

The Kyoto Protocol, which was adopted on December 11, 1997 and entered into force on February 16, 2005, extends the commitments made under the UNFCCC. More than 160 countries, accounting for 55 percent of global emissions, have signed the protocol, under which they commit to reduce their emissions of GHGs or engage in emissions trading. The U.S. symbolically signed the Kyoto Protocol in 1998, however, the U.S. Senate has not ratified the protocol. The original GHG reduction commitments made under the Kyoto Protocol expired at the end of 2012. An extension of the commitment period to December 31, 2020, was agreed to at the Doha, Qatar, meeting held December 8, 2012.[24]

Paris Agreement

Negotiations held to discuss measures to be taken after the end of the Kyoto Protocol commitment period resulted in the 2015 adoption of the Paris Agreement.[25] The U.S. formally entered the Paris Agreement in September 2016 through an executive order, however, the agreement was not submitted to Congress for approval. In June 2017, the U.S. announced its intent to withdraw from the agreement. The earliest effective date of a withdrawal by the U.S. is November 2020.

Carbon Offsetting and Reduction Scheme for International Aviation

The Carbon Offsetting and Reduction Scheme for International Aviation, or CORSIA, is a CO_2 emission mitigation approach for the global airline industry developed by the International Civil Aviation Organization (ICAO) to address CO_2 emissions from international air travel. ICAO is a United Nations specialized agency, established in 1944, to manage the administration and governance of the Convention on International Civil Aviation. ICAO works with 193 member countries and states throughout the world, as well as industry groups, to reach consensus on international civil aviation Standards and Recommended Practices (SARPs) and policies in support of a safe, efficient, secure, economically sustainable, and environmentally responsible civil aviation sector. These SARPs and policies are used by ICAO members to

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21 Intergovernmental Panel on Climate Change, *About the IPCC*. Available: https://www.ipcc.ch/about/, accessed August 19, 2020.

22 Intergovernmental Panel on Climate Change, *History of the IPCC*. Available: https://www.ipcc.ch/about/history/, accessed June 30, 2020.

23 United Nations, *United Nations Framework Convention on Climate Change,* 1992. Available: https://unfccc.int/resource/docs/convkp/conveng.pdf.

24 United Nations, *Kyoto Protocol to the United Nations Framework Convention on Climate Change*, 1998. Available: https://unfccc.int/resource/docs/convkp/kpeng.pdf.

25 United Nations, *Paris Agreement*, 2015. Available: http://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf; United Nations, *Framework Convention on Climate Change - Adoption of the Paris Agreement*, December 12, 2015. Available: https://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf.

ensure that their local civil aviation operations and regulations conform to global norms which, in turn, permits more than 100,000 daily flights in aviation's global network to operate safely and reliably in every region of the world.[26]

In 2010, ICAO adopted several aspirational targets to minimize CO_2 emissions from aircraft: a global target of improving aviation fuel efficiency by two percent annually through 2050; carbon neutral growth from 2020; and reducing CO_2 emissions by 50 percent by 2050 compared to 2005 emissions (Resolution A37-19). ICAO created a "basket of measures" to achieve these goals: 1) aircraft technology and standards; 2) operational improvements; 3) sustainable alternative fuels; and 4) global market-based mechanisms. ICAO recognized that aircraft technology and standards and operational improvements are not enough to achieve its carbon neutral goal and that alternative fuels require more development. ICAO subsequently adopted CORSIA in 2016 to provide a market-based mechanism to fill the emissions gap that would occur between implementation of the other measures and 2020 baseline emission levels (Resolution A39-3).[27]

CORSIA was designed to have phased implementation with a voluntary pilot phase between 2021 and 2023, a voluntary first phase between 2024 and 2026, and a mandatory second phase between 2027 and 2035. The U.S. elected to voluntarily enter CORSIA during the pilot phase commencing in 2021.

CORSIA is a route-based approach, meaning that only emissions from international flights between two member states where both the origin and destination states are included in CORSIA are included in the scheme. Starting in 2019, all aircraft operators (namely airlines), regardless of the country in which they are based, were required to monitor their fuel consumption on routes covered by CORSIA and to estimate their annual CO_2 emissions. ICAO will calculate the average annual emissions between 2019 and 2020 to establish a baseline from which increased CO_2 emissions in subsequent years will be determined. ICAO will use the collected inventory data in future years to estimate a sectoral growth factor of emissions that will then be used by aircraft operators to calculate their CO_2 offsetting requirements. Each operator will then purchase emission credits from the carbon market to meet its offset requirements.

In 2018, ICAO adopted SARPs to implement CORSIA in the form of Annex 16, Volume IV to the Convention on International Civil Aviation.[28] On March 14, 2019, the Federal Aviation Administration (FAA) published its CORSIA Monitoring, Reporting, and Verification (MRV) Program,[29] which provides information to U.S. airplane operators on how to fulfill their obligations under CORSIA and establishes uniformity with the SARPs adopted by ICAO. Only operators that emit more than 10,000 metric tons of CO_2 per year from international flights are subject to CORSIA with the following exemptions: 1) domestic flights; 2) humanitarian, medical, and firefighting operations; 3) operations using an airplane with a maximum certified takeoff mass equal to or less than 5,700 kilograms; and 4) operations on the behalf of the U.S. military.

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[26] International Civil Aviation Organization, *About ICAO*. Available: https://www.icao.int/about-icao/Pages/default.aspx, accessed June 30,2020.

[27] International Civil Aviation Organization, *Resolution A39-3: Consolidated statement of continuing ICAO policies and practices related to environmental protection – Global Market-based Measure (MBM) scheme*. Available: https://www.icao.int/environmental-protection/Documents/Resolution_A39_3.pdf.

[28] International Civil Aviation Organization, *Annex 16 to the Convention on International Civil Aviation – Environmental Protection – Volume IV, Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)*, 2018. Available: https://www.icao.int/environmental-protection/CORSIA/Pages/SARPs-Annex-16-Volume-IV.aspx.

[29] U.S. Department of Transportation, Federal Aviation Administration, *Notice of CORSIA Monitoring, Reporting, and Verification Program*, 84 Fed. Reg. 9412 (Mar. 14, 2019). Available: https://www.federalregister.gov/documents/2019/03/14/2019-04739/faas-corsia-monitoring-reporting-and-verification-program.

4.4.3.1.2 Federal

USEPA Endangerment Findings

In 2010, the U.S. Environmental Protection Agency (USEPA) adopted an endangerment finding for GHGs under Clean Air Act (CAA) Section 202(a) under which the Administrator determined that (1) six GHGs, taken in combination, endanger both the public health and welfare of current and future generations (although the finding acknowledges that transportation sources only emit four of the key GHGs: CO_2, CH_4, N_2O, and HFCs), and (2) the combined emissions of GHGs from new motor vehicles contribute to this GHG air pollution.[30] The Endangerment Finding itself is not a regulation, but it establishes a legal obligation for USEPA to regulate GHGs.

On August 15, 2016, USEPA took the first steps toward addressing GHG emissions from aircraft engines by publishing its finding that GHGs emitted from certain classes of engines used in certain aircraft contribute to the air pollution that endangers public health and welfare.[31] USEPA has not proposed rules for aircraft engine GHG emissions standards.

GHG and Fuel Efficiency Standards for Passenger Cars and Light Duty Trucks

In April 2010, the USEPA and National Highway Traffic Safety Administration (NHTSA) finalized GHG standards for new (model year 2012 through 2016) passenger cars, light-duty trucks, and medium-duty passenger vehicles that would decrease CO_2 emission limits for a combined fleet of cars and light trucks. If fuel economy improvements caused all necessary emission reductions, the standards would correspond to a combined fuel economy of 30.1 miles per gallon (mpg) in 2012 and 35.5 mpg in 2016.[32] The agencies also issued a joint Final Rule for a coordinated National Program for model years 2017 to 2025 light-duty vehicles on August 28, 2012, that would correspond to a combined fuel economy of 36.6 mpg in 2017 and 54.5 mpg in 2025.

As part of the 2012 rulemaking establishing the model year 2017-2025 light-duty vehicle GHG standards, the USEPA made a regulatory commitment to conduct a Mid-term Evaluation of the standards for model years 2022-2025. As part of this process, the USEPA was to examine a wide range of factors, such as developments in powertrain technology, vehicle electrification, light-weighting and vehicle safety impacts, the penetration of fuel-efficient technologies in the marketplace, consumer acceptance of fuel-efficient technologies, trends in fuel prices and the vehicle fleet, employment impacts, and many others. In April 2018, the USEPA Administrator signed the Mid-term Evaluation Final Determination, which found that the model year 2022-2025 GHG standards are not appropriate in light of the record before the USEPA and, therefore, should be revised.[33]

Subsequently, in August 2018, USEPA and the National Highway Traffic Safety Administration (NHTSA) proposed ‘‘Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks’’ (SAFE Vehicles Rule). The SAFE Vehicles Rule would amend certain existing Corporate Average Fuel Economy (CAFE) and tailpipe CO_2 emissions standards for passenger cars and light trucks and establish new standards, all covering model years 2021 through 2026. In addition, USEPA proposed

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30 U.S. Environmental Protection Agency, *Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, Final Rule*, Federal Register, Vol. 74, No. 239, December 15, 2009, pp. 66496 - 66546. Available: https://www.govinfo.gov/content/pkg/FR-2009-12-15/pdf/E9-29537.pdf#page=2.

31 U.S. Environmental Protection Agency, *Finding that Greenhouse Emissions from Aircraft Cause or Contribute to Air Pollution That May Reasonably Be Anticipated To Endanger Public Health and Welfare; Final Rule,* Federal Register, Vol. 81, No. 157, pp. 54,422-54,475, August 15, 2016. Available: https://www.govinfo.gov/content/pkg/FR-2016-08-15/pdf/2016-18399.pdf.

32 U.S. Environmental Protection Agency, *Regulatory Announcement: EPA and NHTSA Finalize Historic National Program to Reduce Greenhouse Gases and Improve Fuel Economy for Cars and Trucks*, April 2010. Available: https://nepis.epa.gov/Exe/ZyPDF.cgi/P100AKHW.PDF?Dockey=P100AKHW.PDF.

33 U.S. Environmental Protection Agency. *Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emissions Standards for Model Years 2022-2025 – Overview*. Available: https://www.epa.gov/regulations-emissions-vehicles-and-engines/midterm-evaluation-light-duty-vehicle-greenhouse-gas#overview; Federal Register, Vol. 83, No. 72. April 13, 2018.

to withdraw the waiver it had previously provided to California for that state's GHG and Zero Emission Vehicle (ZEV) programs under Section 209 of the Clean Air Act, and NHTSA proposed regulatory text implementing its statutory authority to set nationally applicable fuel economy standards that made explicit that those State programs would also be preempted under NHTSA's authorities.[34] In September 2019, USEPA and NHTSA finalized approval of the withdrawal of the waiver granted to California by USEPA, and NHTSA finalized regulatory text related to the federal preemption ("Part One" of the SAFE vehicle rule).[35] California and a coalition of other states has sued both the USEPA and the NHTSA, challenging their decisions that would block the state from setting tougher automobile emissions standards.[36,37,38]

"Part Two" SAFE standards for model year 2021-2026 passenger cars and light trucks were finalized in April 2020 and set fuel economy and CO_2 standards that increase 1.5 percent in stringency for each model year.[39,40] Under the final rule, the CAFE and CO_2 emissions standards increase in stringency by only 1.5 percent per year for each model year over model year 2020 levels.[41] These standards are less stringent than the previous standards, which would have increased fuel efficiency standards by 4 percent per year. On May 27, 2020, a multistate coalition, led by California, filed a lawsuit against the USEPA and the NHTSA challenging this ruling.[42] In its lawsuit, the coalition argues that the rollback of the nation's emissions standards is unlawful as the rollbacks "violate the statutory text and congressional mandates they are bound by" and relied on erroneous analysis and unfounded assumptions, among other things.[43] CARB has estimated the potential impact of the Part One rule on the criteria pollutant emission factors generated by EMFAC2014 and EMFAC2017 light duty gasoline automobiles and light duty gasoline trucks (i.e., the vehicles affected by the SAFE Vehicles Rule).[44] In June 2020, CARB determined that the adjustment factors published for the Part One rule continue to be valid for the Final SAFE Rule, but additional adjustment factors were required for CO_2 emissions.[45] The adjustment factors for EMFAC2017 have been applied to the project-related on-road motor vehicle emissions estimated for construction and operations.

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34 U.S. Environmental Protection Agency and National Highway Traffic Safety Administration, *Notice of Proposed Rule Making - The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks*, 83 FR 42986, August 24, 2018.

35 U.S. Environmental Protection Agency and National Highway Traffic Safety Administration, *Withdrawal of Waiver, Final Rule - The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program*, 84 FR 52310, September 27, 2019.

36 *California v. Wheeler*, No. 19-1239 (D.C. Cir. Pet'n filed Nov. 15, 2019).

37 State of California, Department of Justice, *Press Release: Attorney General Becerra Files Lawsuit Challenging Trump Administration's Attempt to Trample California's Authority to Maintain Longstanding Clean Car Standards*, September 20, 2019. Available: https://oag.ca.gov/news/press-releases/attorney-general-becerra-files-lawsuit-challenging-trump-administration%E2%80%99s, accessed December 9, 2019.

38 State of California, Department of Justice, *Press Release: Attorney General Becerra Files Lawsuit Against EPA for Attacking California's Advanced Clean Car Standards*, November 15, 2019. Available: https://oag.ca.gov/news/press-releases/attorney-general-becerra-files-lawsuit-against-epa-attacking-california%E2%80%99s, accessed December 9, 2019.

39 U.S. Environmental Protection Agency and National Highway Traffic Safety Administration, *Final Rule, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks*, 85 FR 24 174, April 30, 2020. Available: https://www.govinfo.gov/content/pkg/FR-2020-04-30/pdf/2020-06967.pdf.

40 National Highway Traffic Safety Administration, *NHTSA and EPA finalize CAFE and carbon dioxide emissions standards for model years 2021-2026*, March 31, 2020. Available: https://www.nhtsa.gov/corporate-average-fuel-economy/safe, accessed June 4, 2020.

41 National Highway Traffic Safety Administration, *NHTSA and EPA finalize CAFE and carbon dioxide emissions standards for model years 2021-2026*, March 31, 2020. Available: https://www.nhtsa.gov/corporate-average-fuel-economy/safe, accessed June 4, 2020.

42 *California v. Wheeler*, No. 20-1167 (D.C. Cir. Pet'n filed May 27, 2020).

43 State of California, Department of Justice, *Attorney General Becerra Files Lawsuit Challenging Trump Administration's Reckless Rollback of America's Clean Car Standards*, May 27, 2020. Available at: https://oag.ca.gov/news/press-releases/attorney-general-becerra-files-lawsuit-challenging-trump-administration%E2%80%99s-2.

44 California Air Resources Board, *EMFAC Off-Model Adjustment Factors to Account for the SAFE Vehicle Rule Part One*, November 20, 2019. Available: https://ww3.arb.ca.gov/msei/emfac_off_model_adjustment_factors_final_draft.pdf.

45 California Air Resources Board, *EMFAC Off-Model Adjustment Factors for Carbon Dioxide (CO_2) Emissions to Account for the SAFE Vehicles Rule Part One and the Final SAFE Rule*, June 26, 2020. Available: https://ww3.arb.ca.gov/msei/emfac_off_model_co2_adjustment_factors_06262020-final.pdf.

GHG and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles

In October 2010, the USEPA and NHTSA announced a program to reduce GHG emissions and to improve fuel efficiency for medium- and heavy-duty-vehicles (model years 2014 through 2018). These standards were adopted on August 9, 2011.[46] In October 2016, USEPA and NHTSA adopted Phase 2 GHG and fuel efficiency standards for medium- and heavy-duty engines and vehicles. The standards are expected to lower CO_2 emissions by approximately 1.1 billion metric tons and reduce oil consumption by up to two billion barrels over the lifetime of the vehicles sold under the program.[47]

In June 2020, CARB adopted and Advanced Clean Trucks rule, a regulation approving the world's first zero-emission commercial truck requirement.[48] Under this regulation, beginning in 2024, manufacturers of Class 2b-8 chassis or complete trucks with combustion engines would be required to sell zero-emission trucks as an increasing percentage of their annual California sales from 2024 to 2035. By 2035, zero-emission truck/chassis sales would need to be 55 percent of Class 2b – 3 truck sales, 75 percent of Class 4 – 8 straight truck sales, and 40 percent of truck tractor sales.

Fuel Efficiency Standards for Construction Equipment

The federal government sets fuel efficiency standards for nonroad diesel engines that are used in construction equipment. The regulations, contained in 40 CFR Parts 1039, 1065, and 1068, include multiple tiers of emission standards. Most recently, USEPA adopted a comprehensive national program to reduce emissions from nonroad diesel engines by integrating engine and fuel controls as a system to gain the greatest emission reductions. To meet these Tier 4 emission standards, engine manufacturers will produce new engines with advanced emission control technologies.[49]

Aviation Greenhouse Emissions Reduction Plan

In 2012, the United States Government (USG) completed the U.S. Aviation Greenhouse Gas Emissions Reduction Plan, which was submitted to ICAO in June 2012.[50] In conjunction with the plan, the USG set an overarching goal of achieving carbon-neutral growth for U.S. commercial aviation by 2020, using 2005 emissions as a baseline, which equates to a reduction in CO_2 emissions from commercial aviation of approximately 115 million metric tons (MT) by 2020; extending these approaches further could result in an additional 60 million MT reduction by 2026. As part of the Next Generation Air Transportation System (NextGen) Plan, the USG has laid out plans and initiatives for improvements in technology and operations, advances in development and deployment of sustainable alternative fuels, and policies and selective measures to incentivize transition of the fleet and airspace system.

The Reduction Plan identifies actions and progress toward GHG emission reduction in each of the following areas: aircraft and engine technology improvement; operational improvements; alternative fuels development and deployment; policies, standards, and measures; and scientific understanding and modeling/analysis.

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46 U.S. Environmental Protection Agency, *Regulatory Announcement: EPA and NHTSA Adopt First-Ever Program to Reduce Greenhouse Gas Emissions and Improve Fuel Efficiency of Medium- and Heavy-Duty Vehicles*, August 2011. Available: https://nepis.epa.gov/Exe/ZyPDF.cgi/P100BOT1.PDF?Dockey=P100BOT1.PDF.

47 U.S. Environmental Protection Agency, *Final Rule for Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles - Phase 2,* last updated August 7, 2018. Available: https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-greenhouse-gas-emissions-and-fuel-efficiency, accessed December 3, 2019.

48 California Air Resources Board, *Notice of Decision: Advanced Clean Truck Regulation (SCH# 2018052041)*, July 1, 2020. Available: https://ww3.arb.ca.gov/regact/2019/act2019/nod.pdf.

49 U.S. Environmental Protection Agency, *Regulations for Emissions from Vehicles and Engines-Regulations for Emissions from Heavy Equipment with Compression-Ignition (Diesel) Engines*, last updated May 10, 2018. Available: https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-emissions-heavy-equipment-compression, accessed December 3, 2019.

50 United States Government, *United States Aviation Greenhouse Gas Emissions Reduction Plan*, 2012. Available: https://www.faa.gov/about/office_org/headquarters_offices/apl/environ_policy_guidance/policy/media/Aviation_Greenhouse_Gas_Emissions_Reduction_Plan.pdf.

In 2015, an updated Aviation Greenhouse Gas Emissions Reduction Plan was issued with additional details on actions to be taken regarding each of the topics noted above, which will occur under the auspices of NextGen.[51]

FAA Programs and Efforts to Reduce GHG Emissions

The FAA encourages and supports airports' efforts to reduce carbon emissions including, as a first step, that airports prepare a GHG inventory that categorizes emissions in terms of Scope 1, Scope 2, and Scope 3 emissions, and then follow up by implementing measures for reducing the GHG emissions that are within the airport's direct control and establishing measures that indirectly influence the reduction of GHG emissions not controlled by the airport.[52] The FAA provides Airport Improvement Program (AIP) grants to certain airports for Sustainability Master Plans or Airport Sustainability Plans to develop comprehensive sustainability planning documents.[53] The FAA also offers grant funding for GHG emission reductions through the Voluntary Airport Low Emissions (VALE) program[54] and the Airport Zero Emissions Vehicle and Infrastructure Pilot Program.[55] A representative from the FAA is on the ACA advisory panel.

USEPA GHG Emissions Standards for Aircraft

In July 2020, the USEPA proposed emission standards for airplanes used in commercial aviation and large business jets.[56] The action would match the international CO_2 standard adopted by the ICAO in 2017. The proposed standards would apply to new type design airplanes on or after January 1, 2020 and to in-production airplanes on or after January 1, 2028 but would not apply to planes already in use. The proposed CO_2 emission metric measures fuel burn at the cruise altitude and would not change the LTO calculations in this EIR.[57]

4.4.3.1.3 State

The legal framework for GHG emission reduction in California has come about through Executive Orders, legislation, and regulation. The major components of California's climate change initiatives are reviewed below.

California Environmental Quality Act

CEQA requires lead agencies to consider the reasonably foreseeable adverse environmental effects of projects they are considering for approval. GHG emissions have the potential to adversely affect the environment because they contribute to GCC. In turn, GCC has the potential to raise sea levels, affect rainfall and snowfall, and affect habitat.

Senate Bill (SB) 97, enacted in August 2007, required OPR to prepare guidelines to submit to the CNRA regarding feasible mitigation of GHG emissions or the effects of GHG emissions as required by CEQA.[58] The CNRA adopted amendments to the State CEQA Guidelines addressing GHG emissions on

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51 United States Government, *United States Aviation Greenhouse Gas Emissions Reduction Plan*, 2015. Available: https://www.faa.gov/about/office_org/headquarters_offices/apl/environ_policy_guidance/policy/media/2015_US_Action_Plan_FINAL.pdf.

52 U.S. Department of Transportation, Federal Aviation Administration, *Airport Carbon Emissions Reduction*, 2019. Available: https://www.faa.gov/airports/environmental/air_quality/carbon_emissions_reduction/, accessed December 2, 2019

53 U.S. Department of Transportation, Federal Aviation Administration, *Airport Sustainability*, 2019. Available: https://www.faa.gov/airports/environmental/sustainability/, accessed December 2, 2019.

54 U.S. Department of Transportation, Federal Aviation Administration, *Voluntary Airport Low Emissions Program (VALE)*, 2019. Available: https://www.faa.gov/airports/environmental/vale/, accessed December 2, 2019.

55 U.S. Department of Transportation, Federal Aviation Administration, *Airport Zero Emissions Vehicle and Infrastructure Pilot Program*, 2019. Available: https://www.faa.gov/airports/environmental/zero_emissions_vehicles/, accessed December 2, 2019.

56 U.S. Environmental Protection Agency, *EPA Proposes First Greenhouse Gas Emissions Standards for Aircraft*, July 22, 2020. Available: https://www.epa.gov/newsreleases/epa-proposes-first-greenhouse-gas-emissions-standards-aircraft, accessed August 5, 2020.

57 40 Code of Federal Regulations, Parts 87 and 1030, *Control of Air Pollution from Airplanes and Airplane Engines: GHG Emission Standards and Test Procedures*.

58 California Senate Bill 97, Chapter 185, Statutes of 2007.

December 30, 2009. The amendments became effective on March 18, 2010. The guidelines, including subsequent revisions in 2018, are reflected in this EIR.

The significance of GHG emissions is specifically addressed in State CEQA Guidelines Section 15064.4. Section 15064.4 calls for a lead agency to make a "good-faith effort" to "describe, calculate or estimate" GHG emissions in CEQA environmental documents. Section 15064.4 further states that the analysis of GHG impacts should include consideration of: (1) the extent to which the project may increase or reduce GHG emissions, as compared to the existing environmental setting; (2) whether the project emissions would exceed a locally applicable threshold of significance; and (3) the extent to which the project would comply with "regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions." Other sections of the Guidelines more generally state that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program (including plans or regulations for the reduction of GHG emissions) that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located (State CEQA Guidelines Section 15064(h)(3)). The State CEQA Guidelines do not, however, set a numerical threshold of significance for GHG emissions.

Title 24 Energy Standards

The California Building Standards Code (California Code of Regulations [CCR], Title 24) contains the implementing regulations for building standards in California. CCR Title 24 Part 1 Chapter 10 and CCR Title 24 Part 6 are known collectively as the California Energy Code. The California Energy Code contains energy efficiency standards for residential and non-residential buildings, which are known as the Building Energy Efficiency Standards. The Building Energy Efficiency Standards were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The premise for the standards is that energy efficient buildings require less electricity, natural gas, and other fuels. Electricity production from fossil fuels and on-site fuel combustion (for example, for water heating or from the use of on-site generators) result in GHG emissions. Therefore, although not originally created for the purposes of reducing GHG emissions, compliance with the Building Energy Efficiency Standards results in fewer GHG emissions on a building-by-building basis.

The California Energy Commission (CEC) is responsible for creating and updating the Building Energy Efficiency Standards. The standards are updated every three years to reflect and incorporate new energy-efficient technologies, business practices, and methodologies. The latest updates, referred to as the 2019 updates, were published in December 2018 and took effect on January 1, 2020.[59] The new standards focus on four key areas: smart residential photovoltaic systems, updated thermal envelope standards (preventing heat transfer from the interior to exterior and vice versa), residential and nonresidential ventilation requirements, and nonresidential lighting requirements.

Green Building Standards

The 2013 California Green Building Standards Code (24 CCR Part 11; also referred to as CALGreen) took effect January 1, 2014.[60] The Green Building Standards, as updated (2019), require that every new building constructed in California reduce water consumption by 20 percent, divert 50 percent of construction waste from landfills, and install low-pollutant-emitting materials. They also require separate water meters for nonresidential buildings' indoor and outdoor water use, with a requirement for moisture-sensing

[59] California Energy Commission, *2019 Building Energy Efficiency Standards for Residential and Nonresidential Buildings*, December 2018. Available: https://ww2.energy.ca.gov/2018publications/CEC-400-2018-020/CEC-400-2018-020-CMF.pdf.

[60] 24 California Code of Regulations, Part 11, California Building Standards Commission, *2019 California Green Building Standards Code (CALGreen)*. Available: https://www.dgs.ca.gov/BSC/Resources/Page-Content/Building-Standards-Commission-Resources-List-Folder/CALGreen.

irrigation systems for larger landscape projects and mandatory inspections of energy systems (e.g., heat furnace, air conditioner, and mechanical equipment) for nonresidential buildings larger than 10,000 square feet to ensure that all are working at their maximum capacity and according to their design efficiencies.

Executive Orders

California Governor Arnold Schwarzenegger announced the following GHG emission reduction targets for California through Executive Order S-3-05, issued on June 1, 2005: reduce GHG emissions to 2000 levels by 2010, reduce GHG emissions to 1990 levels by 2020, and reduce GHG emissions to 80 percent below 1990 levels by 2050.[61] In 2015, California Governor Edmund G. Brown issued Executive Order B-30-15 to establish a California GHG emissions reduction target of 40 percent below 1990 levels by 2030.[62]

These Executive Orders were followed in 2018 by Executive Order B-55-18, issued by Governor Brown, which established a new statewide goal to achieve carbon neutrality as soon as possible, and not later than 2045, and achieve and maintain negative emissions thereafter.[63] CARB is taking actions to achieve this Executive Order. The agency is working with relevant state agencies to define California's carbon neutrality objective (both quantitatively and descriptively).[64] CARB is also researching emission reduction strategies that can be used to achieve carbon neutrality and studying the economic, policy, and other implications of potential strategies.[65] To date, CARB has not adopted a strategy to achieve carbon neutrality (e.g., via an amendment or an update to the Scoping Plan, discussed below).

Executive Order N-79-20[66] specifies that it shall be a goal of the State that 100 percent of in-state sales of new passenger cars and trucks will be zero-emission by 2035; that 100 percent of medium- and heavy-duty vehicles in the State will be zero-emission by 2045 for all operations where feasible and by 2035 for drayage trucks;[67] and that the State will transition to 100 percent zero-emission off-road vehicles and equipment by 2035 where feasible.

California Assembly Bill 32

Assembly Bill 32 (AB 32), titled the California Global Warming Solutions Act of 2006 (Pavley) and signed by Governor Schwarzenegger in September 2006, required CARB to adopt regulations to require the reporting and verification of statewide GHG emissions and to monitor and enforce compliance with the program.[68] In general, the bill required CARB to cause reductions in statewide GHG emissions to the equivalent level of emissions estimated for 1990 by 2020 (consistent with Executive Order S-3-05).

CARB has taken numerous actions in response to the directives set forth in AB 32. For example, CARB adopted regulations in December 2007 for mandatory GHG emissions reporting. In December 2008, CARB approved the AB 32 Climate Change Scoping Plan (Scoping Plan) outlining the state's strategy to achieve the 2020 GHG emissions limit. The Scoping Plan proposes a comprehensive set of actions designed to reduce overall GHG emissions in California, improve the environment, reduce dependence on oil, diversify California's energy sources, save energy, create new jobs, and enhance public health.[69] On

61 California Executive Order S-3-05, June 1, 2005.
62 California Executive Order B-30-15, April 29, 2015.
63 California Executive Order B-55-18, September 10, 2018.
64 California Air Resources Board, *Carbon Neutrality in California Context Webinar*, January 23, 2019. Available: https://ww3.arb.ca.gov/cc/scopingplan/meetings/012319/cneutrality_ca.pdf.
65 California Air Resources Board, *AB 32 Scoping Plan Events*. Available: https://ww3.arb.ca.gov/cc/scopingplan/meetings/meetings.htm, accessed June 4, 2020.
66 California Executive Order N-79-20, September 9, 2020.
67 Drayage trucks are on-road, diesel-fueled, heavy duty trucks that transport containers and bulk to and from the ports and intermodal railyards, as well as to many other locations.
68 California Assembly Bill 32, Chapter 488, Statutes of 2006.
69 California Air Resources Board, *Climate Change Scoping Plan: A Framework for Change, Pursuant to AB 32 The California Global Warming Solutions Act of 2006*, December 2008. Available: https://ww3.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf.

August 24, 2011, the Scoping Plan was re-approved by CARB, including the final supplement to its functional equivalent document, as required by CEQA.[70] The First Update to the Scoping Plan,[71] which guided the continued development and implementation of the state's efforts to fight climate change, was approved by CARB on May 22, 2014.

In late 2017, CARB adopted an update to the Scoping Plan to reflect the Executive Order B-30-15 GHG reduction target of 40 percent below 1990 levels by 2030, a target also identified in SB 32, described below.[72]

California Senate Bill 32

Senate Bill 32 (SB 32), which extends the California Global Warming Solutions Act of 2006 (AB 32) beyond 2020, was approved by the Governor on September 8, 2016.[73] SB 32 requires CARB to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective methods to reduce GHG emissions to ensure that statewide GHG emissions are reduced to at least 40 percent below the 1990 statewide GHG emissions limit no later than December 31, 2030, the target established by Executive Order B-30-15. In its 2017 Scoping Plan, CARB has adopted a strategy for achieving this goal, which takes into account the key programs associated with implementation of the AB 32 Scoping Plan—such as GHG reduction programs for cars, trucks, fuels, industry, and electrical generation—and builds upon, in particular, existing programs related to the Cap-and-Trade Regulation; the Low Carbon Fuel Standard; much cleaner cars, trucks, and freight movement; power generation for the State using cleaner renewable energy; and strategies to reduce methane emissions from agricultural and other wastes by using it to meet the State's energy needs. The 2017 Scoping Plan also addresses, for the first time, GHG emissions from natural and working lands, including the agriculture and forestry sectors.[74]

California Senate Bill 375

Under Senate Bill 375 (SB 375), the Sustainable Communities and Climate Protection Act of 2008, each metropolitan planning organization (MPO) in the state is required to develop a Sustainable Community Strategy through integrated land use and transportation planning and to attain per capita GHG reduction targets for passenger vehicles set by CARB by 2020 and 2035.[75] The Southern California Association of Governments (SCAG) is the MPO for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial counties. SCAG adopted the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) for the six-county Southern California region on April 7, 2016.[76] In 2018, CARB issued new per capita reduction targets for the SCAG region of 8 percent by 2020 and 19 percent by 2035.[77] These targets are reflected in SCAG's Final 2020-2045 RTP/SCS, known as Connect SoCal, discussed below.

California Assembly Bill 1493

Enacted on July 22, 2002, Assembly Bill 1493 (AB 1493), commonly known as the Pavley law (named for then-Assembly Member Fran Pavley, who sponsored the bill), required CARB to develop and

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70 California Air Resources Board, *Resolution 11-27*, August 24, 2011. Available: https://ww3.arb.ca.gov/cc/scopingplan/final_res_scoping_plan_08242011.pdf.

71 California Air Resources Board, *First Update to the Climate Change Scoping Plan*, May 2014. Available: https://ww3.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf.

72 California Air Resources Board, *California's 2017 Climate Change Scoping Plan*, November 2017. Available: https://ww3.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf.

73 California Senate Bill 32, Chapter 249, Statutes of 2016.

74 California Air Resources Board, *California's 2017 Climate Change Scoping Plan*, November 2017. Available: https://ww3.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf.

75 California Senate Bill 375, Chapter 728, Statutes of 2008.

76 Southern California Association of Governments, *Final 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy: A Plan for Mobility, Accessibility, Sustainability and a High Quality of Life*, adopted April 7, 2016. Available: http://scagrtpscs.net/Pages/FINAL2016RTPSCS.aspx.

77 California Air Resources Board, *Resolution 18-12*, adopted March 22, 2018.

adopt regulations that will lead to a reduction in GHGs emitted by passenger vehicles and light-duty trucks. Subsequent regulations adopted by CARB, often referred to as the Pavley regulations, apply to 2009 through 2016 vehicles. CARB estimated that the regulations would reduce GHG emissions from the light-duty and passenger vehicle fleet by 18 percent in 2020 and by 27 percent in 2030, compared to recent years.[78] In 2011, the U.S. Department of Transportation, USEPA, and California announced a single timeframe for proposing fuel and economy standards, thereby aligning the Pavley regulations with the federal standards for passenger cars and light-duty trucks.[79] These reduction standards would be affected by the SAFE Vehicle Rule Part One federal preemption discussed in Section 4.4.3.1.2. As a result, emission estimates included in this analysis were modified to account for potential changes to the emission factors without the Pavley standards.

California Advanced Clean Cars Program

In January 2012, CARB approved a new emissions-control program for vehicles of model years 2017 through 2025. The program combines the control of smog, soot, and GHG into a single package of standards referred to as the Advanced Clean Cars program (13 CCR §1962.1 and 1962.2). The Advanced Clean Cars requirements include new GHG standards for model year 2017 to 2025 vehicles. The Advanced Clean Cars Program also includes amendments to the low emission vehicle (LEV) regulations (referred to as the LEV III regulations; 13 CCR §1900 et seq.), ZEV regulations, and the Clean Fuels Outlet Regulation. The LEV III regulations are aimed at reducing criteria pollutant and GHG emissions from light- and medium-duty vehicles. The ZEV regulation requires manufacturers to produce an increasing number of the very cleanest cars available, including battery electric, fuel cell, and plug-in hybrid electric vehicles. The Clean Fuels Outlet regulation is designed to ensure that fuels such as electricity and hydrogen are available to meet the fueling needs of the new advanced technology vehicles as they come to market.[80,81] The ZEV regulation would be affected by both the SAFE Vehicle Rule Part One federal preemption and also USEPA's proposed withdrawal of California's waiver to set vehicle standards (as discussed in Section 4.4.3.1.2), in the event that these federal actions are ultimately upheld. As a result, emission estimates included in this analysis were modified to account for potential changes to the emission factors without the ZEV regulation.

Low Carbon Fuel Standard

California Executive Order S-01-07 established a statewide goal to reduce the carbon intensity of transportation fuels sold in California by at least 10 percent by 2020 from 2005 levels. The Executive Order also mandated the creation of Low Carbon Fuel Standard (LCFS) for transportation fuels. The LCFS requires that the lifecycle GHG emissions for the mix of fuels sold in California decline on average. Each fuel provider may meet the standard by selling fuel with lower carbon content, using previously banked credits from selling fuel that exceeded the LCFS, or purchasing credit from other fuel providers who have earned credits.[82] In 2018, CARB amended the implementing LCFS regulations to require a 20 percent reduction in the carbon intensity of transportation fuels by 2030.

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78 California Air Resources Board, *Fact Sheet: Climate Change Emission Control Regulations*, December 10, 2004. Available: https://www.arb.ca.gov/cc/ccms/factsheets/cc_newfs.pdf.

79 U.S. Department of Transportation, *EPA, DOT and California Align Timeframe for Proposing Standards for Next Generation of Clean Cars*, January 24, 2011. Available: https://archive.epa.gov/epapages/newsroom_archive/newsreleases/6f34c8d6f2b11e5885257822006f60c0.html.

80 California Air Resources Board, *Advanced Clean Cars Program Homepage*. Available: https://ww2.arb.ca.gov/our-work/programs/advanced-clean-cars-program/about, accessed December 3, 2019.

81 California Air Resources Board, *News Release: California Air Resources Board Approves Advanced Clean Car Rules*, January 27, 2012. Available: https://ww2.arb.ca.gov/news/california-air-resources-board-approves-advanced-clean-car-rules.

82 17 California Code of Regulations, Section 95480 et seq., *Low Carbon Fuel Standard,* amended on January 4, 2019.

Renewable Portfolio Standard

Established by Senate Bill 1078 (SB 1078; Chapter 516, Statutes of 2002), California's Renewable Portfolio Standard (RPS) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to obtain at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) accelerated the target date to 2010. In November 2008, the Governor signed Executive Order S-14-08, which expanded the RPS's renewable energy target to 33 percent renewable power by 2020. On September 15, 2009, the Governor issued Executive Order S-21-0911 requiring CARB, under its AB 32 authority, to adopt regulations consistent with the RPS target of 33 percent renewable power by 2020. The CARB regulations use a phased-in or tiered requirement to increase the amount of electricity from eligible renewable sources over an eight-year period beginning in 2012. CARB adopted the regulations in September 2010.

In March 2011, the Legislature passed Senate Bill XI-2 (SB XI-2), which was signed into law by the Governor the following month. SB XI-2 requires utility entities to procure renewable energy products equal to 33 percent of retail sales by December 31, 2020, and also established interim targets of 20 percent by December 31, 2013, and 25 percent by December 31, 2016. According to the Los Angeles Department of Water and Power (LADWP), the utility provider for the City of Los Angeles, LADWP achieved the 25 percent renewable energy milestone in 2016.[83] Senate Bill SB 350 of 2015 (Chapter 547, Statutes of 2015) increased the renewable portfolio standard to 50 percent by the year 2030, and also established interim targets of 40 percent by December 31, 2024 and 45 percent by December 31, 2027. Senate Bill 100 (SB 100; Chapter 312, Statutes of 2018) further increased the renewable portfolio standard and accelerated its timeframe for implementation to 50 percent by December 31, 2026, and 60 percent by December 31, 2030. SB 100 also established a policy requiring that eligible renewable energy resources and zero-carbon resources supply 100 percent of retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045.

Zero-Emission Airport Shuttle Bus Regulation

In June 2019, CARB approved a rule that will require fixed route airport shuttles serving the state's 13 largest airports, including LAX, to transition to 100 percent ZEVs by 2035. The regulation applies to public and private fleets, including parking facilities, rental car agencies, and hotels. With almost 1,000 airport shuttles in operation statewide, the regulation is expected to reduce GHG emissions by at least 500,000 metric tons, with a beneficial economic impact for shuttle fleet owners of an estimated $30 million in reduced fuel and maintenance costs. Interim milestones under the new regulation include at least 33 percent of airport shuttle fleets being zero emission by 2027, increasing to 66 percent by 2031.[84] The rule was identified as a control measure in the South Coast 2016 Air Quality Management Plan (2016 AQMP) discussed below. The GHG emission reduction benefit of this regulation was considered in the analysis in this EIR.

Zero-Emission Airport Ground Support Equipment Measure

In order to promote the development and use of zero-emission airport GSE, CARB is in the process of developing a measure to increase the penetration of zero-emission GSE at California airports. The measure is currently scheduled for Board consideration in late 2020. Because this measure has not yet been adopted, discussion of this measure is provided for informational purposes only; no emissions

[83] City of Los Angeles, Los Angeles Department of Water and Power, *LADWP Achieves 25 Percent Renewable Energy Milestone*, March 23, 2017. Available: http://www.ladwpnews.com/ladwp-achieves-25-percent-renewable-energy-milestone-2/.

[84] California Air Resources Board, *Bulletin - California Air Resources Board approves comprehensive effort to clean up airport shuttles*, June 26, 2019. Available: https://content.govdelivery.com/accounts/CARB/bulletins/24e019a.

reduction has been assumed in the Project's emissions inventories relative to this pending regulatory effort.

4.4.3.1.4 Regional

Regional Transportation Plan/Sustainable Communities Strategy

In accordance with SB 375, described above, SCAG developed an RTP/SCS to reduce per capita GHG emissions within its jurisdiction. SCAG's Regional Council adopted the 2012-2035 RTP/SCS on April 4, 2012. The RTP/SCS included an extensive list of individual transportation projects that aimed to improve the region's mobility and air quality and revitalize the economy. Following adoption of the RTP/SCS, subsequent amendments to the project list were approved on June 6, 2013 and September 11, 2014. The 2012-2035 RTP/SCS aimed to reduce emissions from transportation sources to comply with SB 375 and meet SB 375 regional GHG emission reduction targets for light duty vehicles, improve public health, and reduce air emissions.

SCAG's Regional Council adopted the 2016-2040 RTP/SCS on April 7, 2016, with subsequent amendments to the project list on April 6, 2017 and July 6, 2017. Like the 2012-2035 RTP/SCS, the 2016-2040 RTP/SCS demonstrated how the region will reduce emissions from transportation sources to comply with SB 375. The 2016-2040 RTP/SCS outlined more than $556.5 billion in transportation system investments through 2040.[85,86]

SCAG released the Proposed Final 2020-2045 RTP/SCS, known as Connect SoCal, for Regional Council adoption on May 7, 2020. On that date, the SCAG Regional Council adopted Resolution No. 20-621-1 certifying the Connect SoCal Program Environmental Impact Report (PEIR) and approving Connect SoCal for the limited purpose of transportation conformity to meet the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) June 1, 2020 submittal deadline as required by the CAA. The FHWA and FTA approved the Transportation Conformity portion of the plan on June 5, 2020.[87] The SCAG Regional Council formally adopted the Final 2020-2045 RTP/SCS on September 3, 2020.[88,89] The final adopted plan did not result in any changes to the policies or strategies in the plan from the Proposed Final.[90] The plan demonstrates how the region will meet its GHG reduction targets as required by Senate Bill 375.

4.4.3.1.5 Local

Sustainable City pLAn/Green New Deal

In 2014, Mayor Eric Garcetti launched the City of Los Angeles' first-ever Sustainable City Plan ("pLAn"). The pLAn was a comprehensive and actionable policy roadmap intended to prepare the City for an

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85 Southern California Association of Governments, *Final 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy: A Plan for Mobility, Accessibility, Sustainability and a High Quality of Life*, adopted April 7, 2016. Available: http://scagrtpscs.net/Pages/FINAL2016RTPSCS.aspx.

86 Southern California Association of Governments, *2016-2040 RTP/SCS - 2016 RTP/SCS Amendments*. Available: http://scagrtpscs.net/Pages/2016RTPSCSAmendments.aspx, accessed December 3, 2019.

87 U.S. Department of Transportation, Federal Highway Administration. *Re: Southern California Association of Governments Connect SoCal Regional Transportation Plan/Sustainable Communities Strategy, 2019 Federal Transportation Improvement Program Amendment 19-12 and associated conformity determination*. June 5, 2020. Available: http://ftip.scag.ca.gov/Documents/SCAGFF12_060520.PDF.

88 Southern California Association of Governments, *Press Release: SCAG Regional Council formally adopts Connect SoCal*, September 3, 2020. Available: http://scag.ca.gov/Documents/PR-SCAG-ConnectSoCal.pdf.

89 Southern California Association of Governments, *Connect SoCal: The 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy of the Southern California Association of Governments,* adopted September 3, 2020. Available: https://www.connectsocal.org/Documents/Adopted/0903fConnectSoCal-Plan.pdf.

90 Southern California Association of Governments, *Connect SoCal Update*, July 2, 2020. Available: https://www.connectsocal.org/Documents/Agendas/rc070220agn04.pdf.

environmentally healthy, economically prosperous, and equitable future for all.[91] Mayor Garcetti released the pLAn in April 2015 along with corresponding Executive Directive No. 7 that incorporated the pLAn into city-wide management.[92] Through the pLAn, Mayor Garcetti committed the City to becoming a national leader in carbon reduction and climate action by eliminating coal from the City's energy mix, prioritizing energy efficiency, and inspiring other cities to take similar action. The pLAn sets targets of reducing GHG emissions below 1990 levels by at least 45 percent by 2025, 60 percent by 2035, and 80 percent by 2050.

In 2019, Mayor Garcetti launched the *Green New Deal* as a comprehensive update to Sustainable City pLAn (2015).[93] The *Green New Deal* includes a number of new initiatives relating to GHG, including globally-recognized adherence to a strict carbon budget that is consistent with the Paris Climate Agreement, adoption of a quantitative GHG reduction pathway that charts a course to carbon neutrality, and accelerated direct and indirect targets relating to GHG, including a target to reduce municipal GHG emissions 55 percent by 2025 and 65 percent by 2035 from 2008 baseline levels, reaching carbon neutral by 2045.

Resilient Los Angeles

In March 2018, Mayor Eric Garcetti released *Resilient Los Angeles*, a comprehensive, strategically coordinated approach to urban resilience.[94] This plan addresses a range of challenges facing Los Angeles, including preparing for climate adaptation. One of the key climate adaptation initiatives in the resiliency plan is the goal of accelerating reductions in GHG emissions and meeting or exceeding climate resilience outcomes consistent with the Paris Climate Agreement by 2020. Another of the actions in *Resilient Los Angeles* is to leverage the modernization at LAX to incorporate sustainability and resilience measures.

Executive Directive No. 25

On February 10, 2020, Los Angeles Mayor Eric Garcetti issued Executive Directive No. 25 to accelerate the *Green New Deal* and adopt new steps and stronger accountability measures to achieve the City's climate objectives.[95] For example, Executive Directive No. 25 includes measures aimed at reducing building energy use and reducing fossil fuel use through transportation improvements. Such measures include, but are not limited to, amending the City's Green Building Code to ensure all new roofs and renovations are cool roofs, reducing carbon in construction materials, and prioritizing micro-grid projects at critical City-owned infrastructure.

City of Los Angeles Green Building Code (LAGBC)

In December 2013, the Los Angeles City Council approved Ordinance No. 182,849, which updated Chapter IX of the Los Angeles Municipal Code (LAMC) to incorporate portions of the 2013 CALGreen Code and add other conservation-related measures to the LAGBC for residential and non-residential development. The requirements of the adopted LAGBC, as updated (2017), apply to new building construction, building renovations, and building additions within the City of Los Angeles.[96] Key measures in the LAGBC related to energy use that apply to nonresidential buildings include a requirement that

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91 City of Los Angeles, Office of the Mayor, Mayor Eric Garcetti, *Sustainable City pLAn, Transforming Los Angeles, Environment - Economy - Equity*, April 8, 2015. Available: https://www.dropbox.com/s/e768n31r3k379w7/the-plan.pdf?dl=0.

92 City of Los Angeles, Office of the Mayor, Mayor Eric Garcetti, *Executive Directive No. 7, Subject: Sustainable City pLAn*, April 8, 2015. Available: https://www.lamayor.org/sites/g/files/wph446/f/page/file/ED7-SustainableCitypLAn.pdf.

93 City of Los Angeles, Office of the Mayor, Mayor Eric Garcetti, *L.A.'s Green New Deal: Sustainable City pLAn*, 2019. Available: http://plan.lamayor.org/sites/default/files/pLAn_2019_final.pdf.

94 Mayor Eric Garcetti, *Resilient Los Angeles*, March 2018. Available: https://www.lamayor.org/sites/g/files/wph446/f/page/file/Resilient%20Los%20Angeles.pdf.

95 City of Los Angeles, Office of the Mayor, Mayor Eric Garcetti, *Executive Directive No. 25, Subject: L.A.'s Green New Deal: Leading by Example*, February 10, 2020. Available: https://www.lamayor.org/sites/g/files/wph446/f/page/file/20200210ExecutiveDirective25.pdf.

96 City of Los Angeles, Los Angeles Municipal Code, Chapter IX, Article 9, *Green Building Code*, as amended.

energy conservation for new buildings must meet or exceed CEC requirements set forth in the California Building Energy Efficiency Standards.

LAWA Sustainability Plans and Guidelines

On September 7, 2017, LAWA adopted the Sustainable Design and Construction Policy.[97] Under this policy, new buildings and major building renovation projects are required to achieve a minimum of LEED® Silver certification. New LAWA or tenant building construction and building renovation projects that are not eligible for LEED® certification, such as runways, taxiways, and civil infrastructure, or are exempted by LAWA's Sustainability Review Committee, are required to adhere to LAWA's Sustainable Design and Construction Requirements, which incorporate sustainability concepts from the LEED® system as well as the LAGBC, Envision, and other airport sustainability guidelines.[98] The requirements will ensure that all projects at LAWA facilities are environmentally responsible and resource-efficient throughout the structure's life-cycle, from siting to design, construction, operation, maintenance, and renovation, reflecting LAWA's commitment to sustainability.

In line with these evolving policies, LAWA has been implementing a carbon management strategy for several years. In August 2016, LAWA adopted an internal commitment to reduce GHG emissions from LAWA owned and operated sources 45 percent below 1990 levels by 2025, 60 percent by 2035, and 80 percent by 2050.[99] Additionally, in 2017, LAWA upgraded LAX's ACA, which is granted by ACI, from "Level 2 Reduction" to Level 3 (Optimization).[100,101]

LAWA's most recent carbon management goals are outlined in the airport's *Sustainability Action Plan (SAP)*, which was adopted in November 2019.[102] Building upon past sustainability efforts and programs, and to align with Mayor Eric Garcetti's *Green New Deal*, the SAP is designed to address climate change and ensure a healthy, prosperous future for the region. The goals in the SAP are aimed at organization-wide improvements and are not intended or designed to be applied on an individual project-by-project basis. The primary goal relating to GHG emissions is to achieve net zero carbon emissions (i.e., carbon neutrality) for LAWA operations by 2045, with interim goals of a 55 percent reduction by 2025 compared to LAWA baseline 1990 levels and a 65 percent reduction by 2035. The SAP also has goals to improve energy efficiency and to achieve 100 percent renewable energy by 2045.

As described in Section 4.1.1, *Air Quality*, in December 2019, LAWA entered into a voluntary Memorandum of Understanding (MOU) with the SCAQMD under which LAWA developed Air Quality Improvement Measures (AQIM) to further reduce air pollutant emissions from non-aircraft sources

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97 City of Los Angeles, Los Angeles World Airports, *LAWA Sustainable Design and Construction Policy*, September 7, 2017. Available: https://www.lawa.org/-/media/lawa-web/tenants411/file/lawa-sustainable-design-and-construction-policy.ashx.

98 City of Los Angeles, Los Angeles World Airports, *Los Angeles International Airport Sustainable Design & Construction Requirements*, August 4, 2017. Available: https://www.lawa.org/-/media/lawa-web/tenants411/file/sustainable-design-construction-requirements.ashx.

99 Flint, Deborah, Chief Executive Officer, Los Angeles World Airports, *Memorandum, Subject: LAWA's Commitment to Carbon Management Goals*, August 31, 2016. Available: https://www.lawa.org/-/media/lawa-web/sustainability/files/committment-to-carbon-management-goals-memo-to-staff.ashx.

100 Airports are certified under ACA at four progressively stringent levels of participation with recognition of improvements at each stage. The first stage, Level 1 Mapping, requires airports to produce a Scope 1 and 2 "carbon footprint" for the airport, along with evidence of a publicly available environmental/carbon policy endorsed at the highest level of airport management. Independent verification of an airport's carbon footprint is required on entry into the program, and then every two years on renewal at the same level, or upon each upgrade. The ACA program notes that the carbon footprint serves as the basis for developing carbon management and engagement plans (Level 2 Reduction and Level 3 Optimization). An airport may then also seek to achieve carbon neutrality for CO_2 emissions under its direct control (Scope 1 and 2) by offsetting its residual emissions which it cannot reduce by other means (Level 4 Neutrality).

101 City of Los Angeles, Los Angeles World Airports, *News Release: Los Angeles World Airports (LAWA) Leads the Way on Sustainability – Van Nuys Airport Recognized as Only One of Two General Aviation Airports in World to Achieve Airport Carbon Accreditation "Level 2 – Reduction" Tier; LAX Progresses to "Level 3 – Optimization" as Only One of Three U.S. Airports at this Tier*, September 18, 2018. Available: https://www.lawa.org/en/News%20Releases/2017/News%20Release%2025.

102 City of Los Angeles, Los Angeles World Airports, *LAWA Sustainability Action Plan*, 2019. Available: https://cloud1lawa.app.box.com/s/63i2teszgnld5aws68xbou6yc0inl5rp.

operating at LAX. The intent of the MOU is to provide voluntary emissions reductions that can be applied to the South Coast Ozone State Implementation Plan (SIP), as updated with the 2016 South Coast AQMP.[103] One component identified in the MOU is the enhanced GSE Emission Reduction Policy,[104] with new GSE airport-wide emission factor targets to be achieved at rates faster than are required under existing off-road equipment standards by 2023 and 2031. Further, these new airport-wide emission factor targets have been formally adopted by the City of Los Angeles Board of Airport Commissioners as an update to the existing GSE policy and would apply to all GSE used at Concourse 0 and Terminal 9. Although these measures are primarily designed to control nitrogen oxides (NO_X) emissions, there are GHG co-benefits. The two remaining measures are the LAX Alternatives Fuel Vehicle Incentive Program, which creates an incentive program to encourage deployment of zero or near-vehicles at LAX through 2032, and the Zero-Emission Bus Program, which aims to replace 20 percent and 100 percent of LAWA-owned and operated buses with zero-emission buses by 2023 and 2031.

In addition, as discussed in Section 4.4.2.3, the proposed Project would comply with LAWA's DCH,[105] which includes policies and requirements aimed at reducing environmental impacts associated with construction projects at LAX, including and GHG emissions, among others. Key provisions in the DCH that pertain to reducing GHG emissions and have been incorporated into the emissions calculations to the extent feasible include the following:

- Idling or queuing of diesel-fueled vehicles and equipment shall be limited to five minutes.
- Every effort shall be made to utilize grid-based electric power at any construction site, where feasible. Grid-based power can be from a direct hookup or a tie in to electricity from power poles.
- Trucks with a gross vehicle weight rating of 14,001 pounds are required to comply with USEPA 2010 emissions standards or next cleanest vehicle available, as approved by LAWA. In addition, off-road diesel-powered equipment are required to meet USEPA Tier 4(final) standards or the next cleanest equipment available, as approved by LAWA, with some exceptions.
- Speed limits on unpaved construction sites shall be limited to 15 miles per hour, and haul vehicles shall maintain at least six inches of freeboard.
- All new aircraft parking positions shall be installed with ground power and pre-conditioned air, where applicable, as coordinated and approved by LAWA Environmental Programs Group (EPG).
- New LAWA or tenant building construction or renovation projects shall meet one of the following:
  - LEED® Silver certification if the project meets the U.S. Green Building Code (USGBC) and LAWA LEED® Eligibility Criteria, unless exempted by LAWA's Sustainability Review Committee,
  - Los Angeles Green Building Code (LAGBC) Tier 1 requirements if not eligible for LEED® certification, or
  - LAWA Sustainable Design and Construction requirements if not eligible for LEED® certification and unable to meet LAGBC Tier 1 requirements.
- LAWA or tenant non-building projects shall meet LAWA Sustainable Design and Construction requirements if not eligible for or exempted from LEED® certification. Typical airport non-building projects include: runways, taxiways, and other airfield flatwork; roadways, bridges and tunnels; pavement rehabilitation; civil infrastructure/site utility work; exterior lighting; and landscaping.

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[103] *Memorandum of Understanding between the South Coast Air Quality Management District and the City of Los Angeles Department of Airports*, December 2019. Available: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/facility-based-mobile-source-measures/mou-la-department-of-airports.pdf?sfvrsn=6.

[104] The MOU enhances the LAX GSE Emissions Reduction Policy originally adopted in 2015, which was the first policy of its kind in the nation. The enhanced policy has more stringent emission factor targets and extends to policy requirements to 2031.

[105] City of Los Angeles, Los Angeles World Airports, *2020 Design and Construction Handbook (DCH), Version 1.0,* June 30, 2020. Available: https://www.lawa.org/en/lawa-businesses/lawa-documents-and-guidelines/lawa-design-and-construction-handbook.

Section 4.1.1.3.1 identifies additional measures that would control other air pollutant emissions, including toxic air contaminants.

4.4.3.2 Environmental Setting

4.4.3.2.1 Statewide GHG Emissions

California, due in part to its large size and large population, is a substantial contributor of global GHGs, and is the second largest contributor to GHG emissions in the United States (Texas is first).[106] As mandated by the Global Warming Solutions Act of 2006 (AB 32), CARB is required to compile GHG inventories for the State of California, including establishment of the 1990 Greenhouse Gas Emissions Level. Inventories have been prepared for 2000 through 2017. Based on the 2017 GHG inventory data (i.e., the latest year for which data are available), California emitted 424.10 $MMTCO_2e$ if emissions associated with imported electrical power are included, and approximately 400 $MMTCO_2e$ if these emissions are excluded.[107]

Table 4.4-1 identifies and quantifies statewide anthropogenic (man-made) GHG emissions and sinks in 1990 and 2017.[108,109] Although a large overall contributor to GHG emissions, California had the third lowest CO_2 emissions per capita from fossil fuel combustion in the U.S. (including District of Columbia), due to the success of its energy efficiency and renewable energy programs and commitments that have lowered the State's GHG emissions rate of growth.[110]

Between 1990 and 2017, the population of California grew by approximately 9.7 million (29.8 to 39.5 million).[111] This represents an increase of approximately 32 percent from 1990 population levels. In addition, the California economy, measured as gross state product, grew from $773 billion in 1990 to $2.81 trillion in 2017, representing an increase of approximately 263 percent (over twice the 1990 gross state product).[112] Despite the population and economic growth, California's GHG emissions during that period decreased by approximately 0.6 percent.

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106 U.S. Energy Information Administration, *Energy-Related Carbon Dioxide Emissions by State, 2005-2016*, Table 1. Available: https://www.eia.gov/environment/emissions/state/analysis/pdf/table1.pdf; accessed March 20, 2020.

107 California Air Resources Board, *California Greenhouse Gas Inventory for 2000-2017 - by Category as Defined in the 2008 Scoping Plan*, August 12, 2019. Available: https://ww3.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_scopingplan_sum_2000-17.pdf.

108 Per USEPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2017* (p. ES-1), "The term 'anthropogenic,' in this context, refers to greenhouse gas emissions and removals that are a direct result of human activities or are the result of natural processes that have been affected by human activities (IPCC 2006)." Available: https://www.epa.gov/sites/production/files/2019-04/documents/us-ghg-inventory-2019-main-text.pdf.

109 The term "sink," in this context, refers to a natural or artificial reservoir that accumulates and stores greenhouse gases for an indefinite period.

110 U.S. Energy Information Administration, *Energy-Related Carbon Dioxide Emissions by State, 2005-2016*, February 2019, page 4. Available: https://www.eia.gov/environment/emissions/state/analysis/pdf/stateanalysis.pdf.

111 California Department of Finance, Demographic Research Unit, *Report E-5 Population and Housing Estimates for Cities, Counties, and the State, January 1, 2011–2019 with 2010 Benchmark*, May 2019. Available: http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/.

112 California Department of Finance, *Gross Domestic Product, California*. Available: http://www.dof.ca.gov/Forecasting/Economics/Indicators/Gross_State_Product/. Estimated gross state product for 1990 and 2017 are based on current dollars as of 2018.

Table 4.4-1
California Statewide GHG Emissions (1990 and 2017)

Category	Total 1990 Emissions ($MMTCO_2e$)[1]	Percent of Total 1990 Emissions	Total 2017 Emissions ($MMTCO_2e$)	Percent of Total 2017 Emissions
Transportation	150.6	34%	169.9	40%
Electric Power	110.5	25%	62.4	15%
Commercial	14.4	3%	15.1	4%
Residential	29.7	7%	26.0	6%
Industrial	105.3	24%	89.4	21%
Recycling and Waste	--[2]	--[2]	8.9	2%
High GWP/Non-Specified[3]	1.3	<1%	20.0	5%
Agriculture	25.34	6%	32.4	8%
Forestry	0.2	<1%	--[4]	--[4]
Forestry Sinks	-6.7	--	--[4]	--[4]
Net Total[5]	**430.7**	**100%**	**424.1**	**100%**

Source: California Air Resources Board, *California Greenhouse Gas Inventory (millions of metric tonnes of CO_2 equivalent) – By Sector and Activity*, 2007. Available: https://ww3.arb.ca.gov/cc/inventory/archive/tables/ghg_inventory_sector_sum_90-04_ar4.pdf; California Air Resources Board, *California Greenhouse Gas Inventory for 2000-2017 – by Category as Defined in the 2008 Scoping Plan*, August 12, 2019. Available: https://ww3.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_scopingplan_sum_2000-17.pdf.

Notes:

1 The original 1990-2004 emissions inventory was prepared using the IPCC Second Assessment Report (SAR). IPCC periodically updates GWPs and CARB has been using the IPCC Fourth Assessment Report (AR4) since 2014. The 1990 emissions shown in this table were converted from SAR to AR4 GWPs to be consistent with current GHG inventory practices.

2 Included in other categories for the 1990 emissions inventory.

3 High GWP gases are not specifically called out in the 1990 emissions inventory.

4 Revised methodology under development (not reported for 2017).

5 Numbers may not add due to rounding.

Key:
$MMTCO_2e$ = million metric tons of carbon dioxide equivalent; GWP = global warming potential

4.4.3.2.2 Existing LAX GHG Emissions

Existing (baseline) operational emissions (2018) for airport sources are presented in **Table 4.4-2**. Motor vehicle emissions are associated with airport-related trips on the roadway network. Parking emissions are associated with motor vehicle emissions in parking lots.

Table 4.4-2
2018 Existing Airport Operational GHG Emissions

Emission Source	CO_2e (MT/year)	Percent of Total
Aircraft	930,589	43
APUs	45,135	2
GSE	27,723	1
Stationary	97,397	5
Autos	1,020,793	47
Parking	30,186	1
TOTALS[1]	**2,151,823**	**100**

Source: **Appendix C** of this EIR.

Note:
[1] Numbers may not add due to rounding.

Key:
CO_2e = carbon dioxide equivalent; MT/year = metric tons per year

4.4.4 Thresholds of Significance

A significant greenhouse gas emissions impact would occur if the proposed Project would:

Impact 4.4-1 Generate GHGs, either directly or indirectly,[113] that may have a significant impact on the environment.

Impact 4.4-2 Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

These thresholds are from Appendix G of the State CEQA Guidelines.

Section 15064.7 of the State CEQA Guidelines defines a threshold of significance as an identifiable quantitative, qualitative, or performance level of a particular environmental effect, compliance with which determines the level of impact significance. CEQA leaves the determination of significance to the reasonable discretion of the lead agency and encourages lead agencies to develop and publish thresholds of significance to use in determining the significance of environmental effects.

When using thresholds of significance, a lead agency may consider thresholds adopted or recommended by other public agencies. Nevertheless, as discussed previously, neither the State of California, SCAQMD, or the City of Los Angeles has established project-level specific quantitative (numeric) significance thresholds for GHG emissions.

In order to identify a definitive quantitative basis by which to evaluate the proposed Project's impacts in light of the first GHG threshold of significance presented above, (i.e., generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment), the criterion used is whether Project construction and operations would result in a net increase in GHG emissions over baseline (2018) conditions. This threshold reflects the fact that neither the State of California, SCAQMD, nor the City of Los Angeles has developed a non-zero quantitative (numeric) threshold for determining the significance of GHG emissions.

[113] The use of "direct" and "indirect" in the State CEQA Guidelines is not necessarily the same as the use of that terminology when referring to Scope 1, 2, and 3 emissions.

In order to determine the Project-related operations GHG impacts, the total GHG emissions associated with the proposed Project that would occur in 2028 (2028 With Project) were compared to the baseline emissions in 2018 (2018 Baseline). The difference between these two conditions was used to determine the significance of Project-related GHG emissions in 2028.

CEQA requires that, normally, a proposed project be compared to existing conditions (in this case 2018 baseline conditions) for the purpose of making a significance determination. For the proposed Project, the Project-related incremental GHG emissions (i.e., the GHG emissions of the proposed Project in 2028 compared to 2018 baseline conditions) would be influenced by factors that are not attributable to the Project itself. Specifically, Project-related incremental GHG emissions include future GHG emissions from background growth in passengers and aircraft operations that are projected to occur with or without the proposed Project. The incremental emissions also account for lower emission factors for motor vehicles from improved engine technology. In order to remove the influence of background growth and the differences in motor vehicle emission factors between 2018 and 2028, a second comparison is provided of GHG emissions from the proposed Project in 2028 (2028 With Project) and GHG emissions from the Future Without Project scenario in 2028 (2028 Without Project). The difference between these two scenarios highlights the GHG emissions impacts of the proposed Project compared to future GHG emissions that are estimated to occur without the proposed Project. This comparison is made for informational purposes only; the significance of the proposed Project impacts is not based on this comparison.

4.4.5 Project Impacts

4.4.5.1 Impact 4.4-1

Summary Conclusion for Impact 4.4-1: Construction and operation of the proposed Project would generate GHGs, directly and indirectly, that may have a significant impact on the environment. This would be a *significant impact*. Even with mitigation, this would remain a *significant and unavoidable impact* for construction and operations.

4.4.5.1.1 Construction

Construction Activities

GHG emissions associated with the construction of the proposed Project were estimated for on-road and off/non-road vehicles and equipment (e.g., excavators, graders, worker vehicles, etc.) for the anticipated construction activities. The estimates were based on off-road construction equipment types, models, horsepower, load factor, and estimated maximum daily hours of operation developed for the proposed Project.[114] Off-road diesel exhaust emission factors were based on CARB's OFFROAD2017[115] emissions model. Emissions for off-road equipment were calculated by multiplying an emission factor by the horsepower, load factor, usage factor, and operational hours for each type of equipment.

[114] City of Los Angeles, Los Angeles World Airports, *LAX Airfield and Terminal Modernization Program (ATMP) Air Quality Modeling Data & Assumptions*, prepared by Connico Incorporated, September 2019 (with updates October 2019).

[115] California Air Resources Board, *OFFROAD2017 – ORION v1.0.1*. Available: https://www.arb.ca.gov/orion/, accessed October 16, 2019.

Table 4.4-3 presents the GHG emissions inventory results for the construction activities, which would occur from 2021 through 2028. As shown, the annual estimated GHG emissions associated with Project construction would range from 1,639 to 14,240 MT of CO_2e (with the exception of 2028, the final year of construction, when GHG emissions would only be 3 MT/year). This year-to-year variation is largely attributable to the differences in project development timeframes and construction needs (see **Appendix C**). When summed, the proposed Project's total construction-related GHG emissions for the 8-year construction period would be 50,827 MT of CO_2e.

Temporary Runway Closure

As described in Chapter 2, *Description of the Proposed Project,* construction of the airfield improvements would require the temporary closure of Runway 6L-24R for approximately 4.5 months in 2023 and of Runway 6R-24L for approximately 4.5 months in 2024. During these times, aircraft operations at LAX would occur on three runways (i.e., one runway in the north airfield and two runways in the south airfield). The temporary closures of these runways would increase the distances that aircraft would taxi during the closures, as described more fully in Section 4.1.1, *Air Quality* (Section 4.1.1.5.1.1 specifically). Moreover, three-runway operations would be less efficient, resulting in a temporary increase in aircraft taxi-idle times and corresponding GHG emissions. **Table 4.4-4** provides a comparison of incremental 2023 and 2024 GHG emissions with and without the temporary runway closures. As shown in the table, as a result of the temporary closures, GHG emissions would be 56,226 MT CO_2e higher than they would be without the closures, an increase of approximately 16 percent.

As noted in Section 4.4.2.1, construction emissions were amortized over the lifetime of the proposed Project in accordance with SCAQMD guidance, which is assumed to be 30 years. Total emissions from construction activities (50,827 $MTCO_2e$), the closures of Runway 6L-24R (27,575 $MTCO_2e$), and the closure of Runway 6R-24L (28,651 $MTCO_2e$) would equal 107,053 $MTCO_2e$. The total CO_2e amortized over the life of the proposed Project improvements (total emissions divided by 30) is equal to 3,568 $MTCO_2e$ per year. These amortized construction emissions were added to the operational emissions in 2028, and the total was compared to the "no net increase" emissions threshold (see Section 4.4.5.1.2 below).

4.4.5.1.2 Operations

As noted in Section 4.4.4, the GHG analysis associated with operation of the proposed Project compares emissions from 2028 With Project to 2018 baseline conditions to determine the significance of operational GHG emissions under CEQA. Additionally, the 2028 With Project scenario was compared to the 2028 Without Project scenario for informational purposes; however, the level of significance of Project-related GHG emissions was not determined using this comparison.

Table 4.4-3
Construction-Related GHG Emissions for the Proposed Project

Emissions Source	Total CO_2e (MT/year)								Project Total CO_2e (MT)[1]
	2021	2022	2023	2024	2025	2026	2027	2028	
Off-Road, On-Site Equipment	2,145	4,812	8,286	7,224	4,752	1,815	959	1	29,995
On-Road, Off-Site Equipment	708	1,698	2,780	2,115	1,108	446	192	1	9,049
On-Road, On-Site Equipment	138	1,268	3,174	3,743	2,283	688	488	1	11,783
Total[1]	**2,992**	**7,778**	**14,240**	**13,082**	**8,143**	**2,949**	**1,639**	**3**	**50,827**

Source: **Appendix C** of this EIR.

Note:
[1] Numbers may not add due to rounding.

Key:
CO_2e = carbon dioxide equivalent; MT/year = metric tons per year

Table 4.4-4
Aircraft Taxi-Idle GHG Emissions with Temporary Runway Closure

2023 – Closure of Runway 6L-24R (MT/year CO_2e)			2024 – Closure of Runway 6R-24L (MT/year CO_2e)			Total Increase[1,2]	
Without Closure	With Closure	Incremental Difference[2]	Without Closure	With Closure	Incremental Difference[2]	MT CO_2e	Percent
174,847	202,421	27,575	181,672	210,323	28,651	56,226	16

Source: **Appendix C** of this EIR.

Note:
[1] The aircraft taxi-idle incremental emissions presented are representative of both the closure of Runway 6L-24R (2023) and of the closure of Runway 6R-24L (2024).
[2] Numbers may not add due to rounding.

Key:
CO_2e = carbon dioxide equivalent; MT/year = metric tons per year

Comparison of 2028 With Project and 2018 Baseline Conditions

Operational emissions of GHGs associated with the proposed Project at project buildout are presented in **Table 4.4-5** in comparison to 2018 baseline emissions. Amortized GHG emissions from construction activities and from the construction-related runway closures in 2023 and 2024 that would result from the proposed Project are also provided in the table in order to disclose the full effects of the proposed Project on annual CO_2e emissions.

Table 4.4-5
Construction (Amortized) and Operational GHG Emissions for the Proposed Project as Compared to 2018 Baseline Conditions

Emission Source	Baseline Conditions (2018)		Proposed Project (2028)		Incremental Difference	
	MT/Yr CO_2e	Percent of Total	MT/Yr CO_2e	Percent of Total	MT/Yr CO_2e	Percent Change
Aircraft	930,589	43	1,142,950	48	212,362	22.8
APUs	45,135	2	48,941	2	3,806	8.4
GSE	27,723	1	19,626	1	(8,098)	(29.2)
Stationary	97,397	5	107,490	5	10,093	10.4
Autos	1,020,793	47	1,005,382	43	(15,410)	(1.5)
Parking	30,186	1	28,742	1	(1,444)	(4.8)
Construction[1]	--	--	3,568	<1	3,568	100
TOTALS[2]	**2,151,823**	**100**	**2,356,700**	**100**	**204,877**	**9.5**

Source: **Appendix C** of this EIR.

Notes:
Parentheses indicate negative values.
[1] Construction-related GHG emissions, including incremental emissions related to runway closures, amortized over 30 years.
[2] Numbers may not add due to rounding.

Key:
APU = auxiliary power unit; GSE = ground service equipment; CO_2e = carbon dioxide equivalent; MT/year = metric tons per year

As shown in Table 4.4-5, incremental emissions in 2028 with implementation of the proposed Project would result a net increase in CO_2e of 204,877 MT/year as compared to 2018 baseline conditions. The future increase in GHG emissions as compared to 2018 baseline conditions is primarily attributable to increased aircraft activity at LAX that is projected to occur irrespective of the proposed Project; aircraft emissions in 2028 with implementation of the proposed Project would be virtually identical to emissions in 2028 without the Project. The increased aircraft emissions would be partially offset by decreases in automobile (-15,410 MT), parking (-1,444 MT), and GSE (-8,098 MT) emissions. The proposed Project would also add construction-related GHG emissions, as well as stationary source emissions attributable to Concourse 0 and Terminal 9, which would increase emissions compared to 2018 baseline conditions. An increase in APU emissions would also occur because total aircraft operations would increase between 2018 and 2028.

Two specific changes regarding motor vehicle emissions would occur under the proposed Project as compared to 2018 baseline conditions: (i) the vehicle miles traveled (VMT) would increase due to regional growth in population and associated vehicle travel demand, and (ii) the engine exhaust emission factors (emission rates in grams per mile) would decrease as older vehicles are replaced with newer ones that comply with cleaner emission standards. For GHG emissions, the decrease in engine exhaust emission factors would be greater in magnitude than the increase in VMT between 2018 and 2028; therefore, the

emissions of these pollutants from automobile-related sources would decrease when comparing the 2028 proposed Project to baseline (2018) conditions.

A similar emissions reduction would occur with respect to GSE emissions. As a result, although there would be more GSE equipment operating hours in 2028 with implementation of the proposed Project, the cleaner GSE fleet would result in a decrease in emissions in 2028 compared to 2018.

Comparison of 2028 With Project and 2028 Without Project

As noted in Section 4.4.4, GHG emissions in 2028 With Project were compared to emissions in 2028 Without Project for informational purposes. The purpose of this comparison was to remove the influence of background growth and differences in motor vehicle emission factors between 2018 and, thereby, to highlight the GHG emissions impacts of the proposed Project compared to future GHG emissions that are estimated to occur without the Project. The comparison between emissions from the 2028 With Project scenario and the 2028 Without Project scenario is provided in **Table 4.4-6**. As shown in Table 4.4-6, total aircraft-related GHG emissions, which are the single largest source of GHG emissions at LAX, would decrease slightly in 2028 with implementation of the proposed Project as compared to conditions without the Project. This is due to the increased efficiency of the airfield with Project implementation. However, as also shown in Table 4.4-6, in addition to the added stationary source and construction emissions noted above, the proposed Project would result in increased surface traffic-related emissions in 2028 as a result of the proposed changes to the roadway system and additional employment that would cause an increase in VMT. Overall, GHG emissions with implementation of the proposed Project would be higher than without the Project, resulting in incremental increase of 21,273 MT/year in 2028.

Table 4.4-6
Construction (Amortized) and Operational GHG Emissions for the Proposed Project as Compared to Future Without the Project

Emission Source	2028 Without Project		2028 With Project		Incremental Difference	
	MT/Yr CO_2e	Percent of Total	MT/Yr CO_2e	Percent of Total	MT/Yr CO_2e	Percent Change
Aircraft	1,143,999	49	1,142,950	48	(1,048)	(0.1)
APUs	50,253	2	48,941	2	(1,312)	(2.6)
GSE	19,626	1	19,626	1	0	0.0
Stationary	97,397	4	107,490	5	10,093	10.4
Autos	995,885	43	1,005,382	43	9,497	1.0
Parking	28,268	1	28,742	1	474	1.7
Construction[1]	--	--	3,568	<1	3,568	100
TOTALS[2]	**2,335,427**	**100**	**2,356,700**	**100**	**21,273**	**0.9**

Source: **Appendix C** of this EIR.

Notes:
Parentheses indicate negative values.

[1] Construction-related GHG emissions, including incremental emissions related to runway closures, amortized over 30 years.

[2] Numbers may not add due to rounding.

Key:
APU = auxiliary power unit; GSE = ground service equipment; CO_2e = carbon dioxide equivalent; MT/year = metric tons per year

4.4.5.1.3 Conclusion

As described in Section 4.4.3.1.3, State CEQA Guidelines Section 15064.4 calls for a lead agency to make a "good-faith effort" to "describe, calculate, or estimate" GHG emissions in CEQA environmental documents, and, in assessing significant impacts, to consider the extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting, and whether the project emissions would exceed a threshold of significance that the lead agency determines applies to the project. GHG emissions associated with construction and operation of the proposed Project are quantified in Sections 4.4.5.1.1 through 4.4.5.1.2 above.

As shown in Table 4.4-5, with implementation of the proposed Project, LAX-related annual GHG emissions would be 2,356,699 MT of CO_2e in 2028, an increase of 204,877 MT compared to baseline (2018) GHG emissions. This represents a 9.5 percent increase over baseline GHG emissions at LAX.

As also indicated in Table 4.4-5, the majority (i.e., over 50 percent) of the GHG emissions associated with future operation of the proposed Project are related to aircraft sources (i.e., aircraft, APU, and GSE). LAWA does not have authority to regulate aircraft operations or emissions from aircraft engines. Design changes, including the proposed airfield improvements, terminal gate configurations, and the substantial decommissioning of the West Remote Gates with implementation of the proposed Project would result in decreased GHG emissions. The increased aircraft emissions would be partially offset by decreases in automobile, parking, and GSE emissions. The proposed Project would also add construction-related GHG emissions, as well as stationary source emissions attributable to Concourse 0 and Terminal 9, which would increase emissions compared to 2018 baseline conditions. An increase in APU emissions would also occur because total aircraft operations would increase between 2018 and 2028.

The net increase in GHG emissions in 2028 over baseline (2018) conditions is considered to be a ***significant impact*** on the environment.

4.4.5.1.4 Mitigation Measures

As noted above, the proposed Project would result in an increase in GHG emissions from construction and operations. Mitigation proposed to reduce significant impacts related to GHG emissions is provided below. The mitigation measures are grouped in terms of measures that would serve to reduce both GHG emissions and criteria air pollutants (i.e., CO, NO_X SO_X, PM_{10}, and $PM_{2.5}$), and measures that would serve to reduce only GHG emissions. The mitigation measures are labeled accordingly.

- **MM-AQ/GHG (ATMP)-1. Rock Crushing Operations.**

  LAWA shall require Airfield and Terminal Modernization Project contractors to conduct rock-crushing operations on-site to reuse waste rock/concrete generated during construction of the Airfield and Terminal Modernization Project to the maximum extent feasible (determined based on facility capacity and capability, project schedule, costs, and regulatory conditions). Rock-crushing operations (rock-crushing, material laydown, and stockpiling) shall be located away from residential areas in all cases.

- **MM-AQ/GHG (ATMP)-2. Use of Renewable Diesel Fuel.**

  LAWA shall require Airfield and Terminal Modernization Project contractors to use renewable diesel fuel in proposed Project construction off-road equipment and on-site, on-road trucks (i.e., on-site water trucks), as feasible based on commercial renewable fuel availability. For purposes of this measure, commercially-available renewable fuel is defined as renewable fuel that is available in the regional area at a comparable price (i.e., without a substantial premium) and not incurring substantial transportation costs (i.e., higher costs associated with having to transport it to the Project site over substantially longer distances from the supplier[s] of renewable diesel fuel).

- **MM-AQ/GHG (ATMP)-3. Parking Cool Roof.**

  LAWA shall include in the design requirements for the Airfield and Terminal Modernization Project that a cool roof be installed at the Terminal 9 parking facility to reduce energy use and urban heat-island effects. This requirement will not apply if solar panels are instead installed at the Terminal 9 parking facility.

- **MM-AQ/GHG (ATMP)-4. EV Charging Infrastructure.**

  LAWA shall install EV charging infrastructure in the Terminal 9 parking facility beyond the minimum amount required by code. The exact number of spaces and types of parking (Electrical Vehicle Supply Equipment [EVSE] or Electric Vehicle Charging Stations [EVCS]) shall be determined during project design and shall exceed the minimum requirements for EVSE and EVCS specified in the code at the time of design by at least 5 percent.

- **MM-AQ/GHG (ATMP)-5. Electric Vehicle Purchasing.**

  LAWA shall update the Electric Vehicle Purchasing Policy to require 100 percent of LAWA's light-duty vehicle fleet to be all-electric by 2031.

- **MM-AQ/GHG (ATMP)-6. Solar Energy Technology.**

  LAWA shall implement solar energy technology, such as, but not limited to, photovoltaic solar panels on Airfield and Terminal Modernization Project buildings and facilities where feasible based on costs, grid tie-in capability, environmental clearance, compliance with FAR Part 77, and applicable FAA requirements for land leases and funding.

- **MM-GHG (ATMP)-1. Demolition Waste.**

  LAWA shall require Airfield and Terminal Modernization Project construction contractors to recycle or salvage a minimum of 85 percent of non-hazardous construction and demolition waste generated directly from construction of the Airfield and Terminal Modernization Project.

- **MM-GHG (ATMP)-2. Organic Waste Collection and Diversion.**

  LAWA shall require that waste collection procedures at Concourse 0 and Terminal 9 conform with LAWA's Organic Waste Collection Program (which is otherwise voluntary).

- **MM-GHG (ATMP)-3. Green Procurement.**

  LAWA shall develop and adopt an airport-wide Green Procurement Policy applicable to LAWA purchasing which will apply to the Airfield and Terminal Modernization Project. The Green Procurement Policy shall identify requirements and standards for products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose.

- **MM-GHG (ATMP)-4. Enhanced Recycling.**

  LAWA shall enhance the existing recycling program. The enhancements shall include expanding the number of facilities in the program (including Concourse 0 and Terminal 9), updating agreements requiring tenant diversion goals, and incorporating necessary provisions from the Green Procurement Policy.

- **MM-GHG (ATMP)-5. Landscaping Water.**

  LAWA shall use only non-potable water for on-airport landscaping associated with the Airfield and Terminal Modernization Project.

In addition to these measures, MM-T (ATMP)-1, the Vehicle Miles Traveled (VMT) Reduction Program presented in detail in Section 4.8, *Transportation*, of this EIR (specifically in Section 4.8.5.2.2), provides for several strategies for reducing vehicular travel which, in turn, would reduce GHG emissions.

The following mitigation measure would apply to the implementation of all construction-related mitigation measures associated with the proposed Project, including mitigation measures for construction-related GHG emissions.

- **MM-C (ATMP)-1. Construction Mitigation Oversight.**

  LAWA shall require Airfield and Terminal Modernization Project prime contractors to designate an individual responsible for ensuring implementation of all construction-related mitigation measures and LAWA policies/requirements.

Other Measures Considered

Section 4.4.2.3 above identifies the existing policies and Project features that have been incorporated into the unmitigated With Project GHG emission calculations. To determine if additional measures were applicable, LAWA compiled and reviewed a broad array of potential measures from various of sources, such as the FAA, the Airport Cooperative Research Program (ACRP), CARB, and SCAQMD. The review indicated that many of those potential measures are already being implemented at LAX under existing LAWA programs and requirements and/or would be incorporated into the proposed Project as Project features. Of the remaining measures, some were considered feasible to add as mitigation measures for the proposed Project, while others were determined to be not applicable or feasible to include as mitigation measures for the Project. **Appendix C.9** presents an overview of potential measures for the reduction of air pollutant emissions, including GHG emissions. The table indicates whether such measures are already being implemented at LAX, are proposed to be included in the Project as a design/operational feature or as a mitigation measure, or are considered to be not applicable to, or infeasible for, LAX and the proposed Project.

Quantification of GHG Emissions Reductions Associated with Mitigation

While all the mitigation measures presented above would serve to reduce construction- and operations-related GHG emissions associated with the proposed Project, only MM-T (ATMP)-1 provides a reasonable basis to estimate the amount of GHG emission reduction accomplished by the mitigation. The other mitigation measures are more general in nature or are dependent on specific design characteristics that would be defined during more detailed levels of planning. MM-T (ATMP)-1 requires a reduction in daily employee VMT by the equivalent of 16,450 VMT. Based on motor vehicle CO_2e emission factors applicable in 2028, this would result in a reduction of approximately 9,350 pounds per day of CO_2e emissions, or approximately 1,506 metric tons per year.

4.4.5.1.5 Significance of Impact After Mitigation

The proposed Project would generate GHG emissions directly and indirectly that would have a significant impact on the environment. Mitigation Measures MM-AQ/GHG (ATMP)-1 through MM-AQ/GHG (ATMP)-6, MM-GHG (ATMP)-1 through MM-GHG (ATMP)-5, and MM-T (ATMP)-1 would reduce GHG emissions associated with construction and operation of the proposed Project. However, the vast majority of GHG emissions associated with operation of the proposed Project in 2028 would occur with or without Project implementation and are from aircraft, which LAWA does not own and has no authority to control (i.e., Scope 3 GHG emissions). As described in Section 4.1.1, *Air Quality*, the USEPA establishes the overall policies and regulations for protecting air quality nationwide, which include setting standards for stationary (e.g., power plants, industrial boilers, incinerators) and mobile (e.g., motor vehicles, off/non-road vehicles, aircraft engines) sources of pollutant emissions, including GHG emissions. Section 233 of the federal Clean Air Act exclusively vests the authority to promulgate emission standards for aircraft and aircraft engines with the USEPA; states and other municipalities are preempted from adopting or enforcing any standard with respect to aircraft engine emissions unless such standard is identical to the USEPA's standards.

Implementation of the proposed mitigation measures would reduce Project-related GHG emissions, but not to a level that would be less than significant. No other feasible mitigation measures have been identified that would further reduce GHG impacts. Therefore, impacts associated with Project-related GHG emissions would remain ***significant and unavoidable***.

4.4.5.2 Impact 4.4-2

Summary Conclusion for Impact 4.4-2: Implementation of the proposed Project would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. This would be a *significant impact*. Even with mitigation, this would remain a *significant and unavoidable impact* for construction and operations.

4.4.5.2.1 Construction and Operations

Table 4.4-7 identifies the various plans, policies, and regulations described in Section 4.4.3.1 adopted for the purpose of reducing GHG emissions that are applicable to the proposed Project, summarizes the proposed Project's relationship to them, and identifies whether the proposed Project would conflict.

Table 4.4-7
Proposed Project Consistency with Plans, Policies, and Regulations Adopted to Reduce Greenhouse Gas Emissions

Regulatory Framework	Plan, Policy, or Regulation	Project's Relationship	Is the Project in Conflict with Plan, Policy, or Regulation?
State			
Title 24 Energy Standards	Ensures new and existing buildings achieve energy efficiency	All Title 24 energy requirements would be met. Additionally, the proposed Project would be designed and constructed in accordance with LAWA's Sustainable Design and Construction Policy, which requires new buildings to achieve LEED® Silver certification at a minimum. This requirement would apply to Concourse 0 and Terminal 9.	No
California Green Building Standards	Ensures new and existing buildings achieve various sustainable design parameters	The new buildings proposed as part of project would be constructed in accordance with the LAGBC, which is based on CALGreen.	No

Table 4.4-7
Proposed Project Consistency with Plans, Policies, and Regulations Adopted to Reduce Greenhouse Gas Emissions

Regulatory Framework	Plan, Policy, or Regulation	Project's Relationship	Is the Project in Conflict with Plan, Policy, or Regulation?
Executive Order S-3-05	Establishes statewide GHG reduction targets for California, including reducing GHG emissions to 1990 levels by 2020; and reducing GHG emissions to 80 percent below 1990 levels by 2050	GHG emissions in 2028 with Project implementation would be approximately 7.3 percent higher than baseline (2018) emissions. As shown in Table 4.4-6, the majority of this increase will occur with or without Project implementation. Further, as discussed in Section 4.4.5.1.3, LAWA does not have authority to regulate aircraft operations or emissions from aircraft engines. Finally, statewide GHG reduction targets are not directly applicable to individual projects. Nevertheless, the proposed Project's increase in GHG emissions above baseline levels may conflict with the State's ability to achieve statewide GHG reduction targets.	Yes
Executive Order B-30-15	Establishes a statewide GHG reduction target of 40 percent below 1990 levels by 2030	Same as above.	Yes
Executive Order B-55-18	Establishes a statewide GHG reduction target of carbon neutrality by 2045	Same as above.	Yes
2017 Climate Change Scoping Plan	Sets a statewide strategy to achieve a statewide GHG reduction target of 40 percent below 1990 levels by 2030, as required by SB 32	Same as above.	Yes
SB 375	Requires each MPO in the state to develop a Sustainable Communities Strategy through integrated land use and transportation planning in order to attain per capita GHG reduction targets for passenger vehicles set by CARB for 2020 and 2035	SCAG's RTP/SCS demonstrates how the region will reduce emissions from transportation sources to comply with SB 375. As discussed in Section 4.6, *Land Use and Planning*, activity levels are forecasted to be 127 MAP for LAX by 2045 whether or not the proposed Project is implemented. The forecasted activity levels are within the activity levels identified for LAX in the 2020-2045 RTP/SCS.	No
Zero-Emission Airport Shuttle Bus Regulation - CARB Rule	Requires fixed route airport shuttles serving the state's 13 largest airports to transition to 100 percent zero-emission vehicles (ZEVs) by 2035	The proposed Project would not directly affect the number or type of shuttle buses in operation at LAX.	No

Table 4.4-7
Proposed Project Consistency with Plans, Policies, and Regulations Adopted to Reduce Greenhouse Gas Emissions

Regulatory Framework	Plan, Policy, or Regulation	Project's Relationship	Is the Project in Conflict with Plan, Policy, or Regulation?
Regional			
Southern California Association of Governments (SCAG) RTP/SCS	Identifies land use and transportation strategies to increase mobility options and achieve a more sustainable growth pattern	As indicated above relative to SB 375, emissions from forecasted activity levels associated with future growth at LAX, of which the proposed Project is a part, are accounted for in the Proposed Final 2020-2045 RTP/SCS.	No
Local			
Sustainable City pLAn/Green New Deal	Original plan set a 20-year vision of milestones to transform Los Angeles, including commitments for the City to become a national leader in carbon reduction and climate action by eliminating coal from the City's energy mix, prioritizing energy efficiency, and inspiring other cities to take similar action. The updated plan (Green New Deal) sets targets of reducing municipal GHG emissions below 2008 levels by 55 percent by 2025 and 65 percent by 2035, reaching carbon neutral by 2045.	The proposed Project would implement sustainability and energy reducing practices, including the requirement that new buildings achieve LEED® Silver certification at a minimum. However, the proposed Project's net increase in GHG emissions above baseline levels would not be consistent with the City's ability to achieve the GHG reduction targets for 2025, 2035, and 2045.	Yes
Resilient Los Angeles	Addresses a range of challenges facing Los Angeles, including meeting or exceeding climate resilience outcomes. Actions identified in the plan include accelerating reductions in GHG emissions and leveraging the modernization at LAX to incorporate sustainability and resilience measures.	The proposed Project is consistent with the action of modernizing LAX to incorporate sustainability and resilience measures. Moreover, although the proposed Project would result in a net increase in GHG emissions above baseline levels, a number of measures would be implemented as part of the Project in accordance with existing LAWA programs that would reduce GHG emissions, including the LAWA Alternative Fuel Vehicle Policy, compliance with USEPA 2010 emissions standards for trucks, and use of USEPA Tier 4(final) off-road diesel-powered equipment, LAWA's existing GSE policy, and gate electrification. In addition, as described in Section 4.8, *Transportation,* VMT per employee with implementation of the proposed Project would be more efficient than under existing (2019) conditions, resulting in lower GHG emissions per employee.	No

Table 4.4-7
Proposed Project Consistency with Plans, Policies, and Regulations Adopted to Reduce Greenhouse Gas Emissions

Regulatory Framework	Plan, Policy, or Regulation	Project's Relationship	Is the Project in Conflict with Plan, Policy, or Regulation?
Executive Directive No. 25	Accelerates the Green New Deal and adopts new steps and accountability measures to achieve the City's climate objectives, including measures aimed at reducing building energy use, designing carbon neutral buildings, and reducing fossil fuel use through transportation improvements	The proposed Project would implement sustainability and energy reducing practices, including the requirement that Concourse 0 and Terminal 9 achieve LEED® Silver certification at a minimum.	No
City of Los Angeles Green Building Code (LAGBC)	Incorporates portions of the CALGreen Code and adds other conservation-related measures for residential and non-residential development	The proposed Project would be constructed in accordance with applicable requirements of the LAGBC.	No
LAWA Sustainability Plans and Guidelines	LAWA's Sustainable Design and Construction Policy requires new buildings to achieve LEED® Silver certification at a minimum and requires projects such as taxiways to adhere to LAWA's Sustainable Design and Construction Requirements. LAWA has also adopted an internal commitment to reduce GHG emissions from LAWA owned and operated sources 45 percent below 1990 levels by 2025, 60 percent by 2035, and 80 percent by 2050. LAWA's SAP increases these goals to a 55 percent reduction below 1990 levels by 2025, 65 percent reduction by 2035, and carbon neutrality by 2045. In December 2019, LAWA entered a voluntary MOU with the SCAQMD to reduce air pollutant emissions from non-aircraft sources at LAX. Measures included in the MOU are the GSE Emission Reduction Policy, the LAX Alternatives Fuel Vehicle Incentive Program, and the Zero-Emission Bus Program, which are effective through 2032.	Concourse 0 and Terminal 9 would achieve LEED® Silver certification at a minimum, and the proposed airfield improvements would be constructed in accordance with LAWA's Sustainable Design and Construction Requirements. The new gates at Concourse 0 and Terminal 9 would have pre-conditioned air and gate power. The proposed Project would implement the measures included in the SCAQMD MOU and would not hinder its requirements.	No

Source: CDM Smith, August 2020.

As shown in Table 4.4-7, implementation of the proposed Project would have no conflicts with many of the plans, policies, and regulations that have been adopted for the purpose of reducing GHG emissions. However, the Project would conflict with some plans, policies, and regulations, including Executive Orders S-3-05, B-30-15, and B-55-18; 2017 Climate Change Scoping Plan and the City of Los Angeles' Sustainable City pLAn/Green New Deal. These plans and policies each establish numeric targets for reducing future GHG emissions below 1990 levels.

As discussed under Impact 4.4-1 above, GHG emissions at LAX in 2028 would be greater than the GHG emissions in 2018, which themselves are greater than 1990 GHG emissions levels. As shown in Table 4.4-5, the majority of the increase in GHG emissions at LAX in 2028 compared to baseline conditions is attributable to future growth projected to occur at LAX irrespective of the proposed Project. Further, as discussed in Section 4.4.5.1.3, LAWA does not have authority to regulate aircraft operations or emissions from aircraft engines. Design changes, including the proposed airfield improvements, terminal gate configurations, and the substantial decommissioning of the West Remote Gates with implementation of the proposed Project, would result in decreased GHG emissions. The increased aircraft emissions would be partially offset by decreases in automobile, parking, and GSE emissions. The proposed Project would also add construction-related GHG emissions, as well as stationary source emissions attributable to Concourse 0 and Terminal 9, which would increase emissions compared to 2018 baseline conditions. An increase in APU emissions would also occur because total aircraft operations would increase between 2018 and 2028. It is anticipated, however, that future aircraft-related GHG emissions will be lower than currently projected based on the continuing trend of improvements in aircraft engine design and lighter, more fuel-efficient aircraft, which would serve to reduce GHG emissions, even though such improvements are beyond the scope of the proposed Project and are not within the control of LAWA. In addition, GSE emissions may be further reduced if CARB adopts a zero-emission airport GSE measure.

Moreover, future growth in activity at LAX is acknowledged and included in SCAG's Proposed Final 2020-2045 RTP/SCS. Notwithstanding these considerations, the Project would nevertheless increase GHG emissions over baseline levels. Therefore, the Project's conflicts with some plans, policies, and regulations that have been adopted for the purpose of reducing GHG emissions would be a ***significant impact***.

4.4.5.2.2 Mitigation Measures

Implementation of Mitigation Measures MM-AQ/GHG (ATMP)-1 through MM-AQ/GHG (ATMP)-6, MM-GHG (ATMP)-1 through MM-GHG (ATMP)-5, and MM-T (ATMP)-1, presented above in the discussion of Impact 4.4-1, would reduce GHG emissions associated with the proposed Project. The reduction in emissions resulting from implementing this mitigation measure would reduce the severity of Project-related conflicts with certain applicable plans, policies, and regulations adopted for the purpose of reducing emissions of GHG.

4.4.5.2.3 Significance of Impact After Mitigation

Implementation of Mitigation Measures MM-AQ/GHG (ATMP)-1 through MM-AQ/GHG (ATMP)-6, MM-GHG (ATMP)-1 through MM-GHG (ATMP)-5, and MM-T (ATMP)-1, presented above in the discussion of Impact 4.4-1, would reduce GHG emissions associated with construction and operation of the proposed Project. However, as noted in that discussion, even with implementation of these mitigation measure, Project-related GHG emissions would be ***significant and unavoidable***. The reduction in emissions resulting from Mitigation Measures MM-AQ/GHG (ATMP)-1 through MM-AQ/GHG (ATMP)-6, MM-GHG (ATMP)-1 through MM-GHG (ATMP)-5, and MM-T (ATMP)-1 would reduce the severity of Project-related conflicts with certain applicable plans, policies, and regulations adopted for the purpose of reducing emissions of GHG, but would not eliminate these conflicts. Therefore, impacts of the proposed Project with respect to applicable plans, policies, and regulations adopted for the purpose of reducing the emissions of GHGs would remain ***significant and unavoidable***.

4.4.6 Cumulative Impacts

The GHG impacts addressed in this section are treated exclusively as cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective. In its notice of proposed amendments to the CEQA Guidelines pertaining to GHG, the California Natural Resources Agency (CNRA) noted that the impacts of GHG emissions should be considered in the context of a cumulative impact, rather than a project impact. The public notice states:[116]

> "While the Proposed Amendments do not foreclose the possibility that a single project may result in greenhouse gas emissions with a direct impact on the environment, the evidence before [CNRA] indicates that in most cases, the impact will be cumulative. Therefore, the Proposed Amendments emphasize that the analysis of greenhouse gas emissions should center on whether a project's incremental contribution of greenhouse gas emissions is cumulatively considerable."

It is the accumulation of GHGs in the atmosphere that may result in global climate change. Climate change impacts are cumulative in nature and, thus, no typical single project would result in emissions of such a magnitude that it, in and of itself, would be significant on a project basis. A typical single project's GHG emissions will be small relative to total global or even statewide GHG emissions. The analysis of the significance of potential impacts from GHG emissions related to a single project is already representative of the long-term impacts on a cumulative basis. As such, the assessment of significance under CEQA is based on a determination of whether the incremental GHG emissions from the proposed Project represent a cumulatively considerable contribution to global climate change impacts. (See State CEQA Guidelines Section 15064.4(b).) As indicated in Section 4.4.5, implementation of the proposed Project would result in a significant and unavoidable impact related to GHG emissions; hence, the proposed Project's incremental contribution of GHG emissions, both before and after mitigation, is considered to be ***cumulatively considerable***.

4.4.7 Summary of Impact Determinations

Table 4.4-8 summarizes the impact determinations of the proposed Project related to GHG emissions, as described above in Sections 4.4.5 and 4.4.6. Impact determinations are based on the significance criteria presented in Section 4.4.4, and the information and data sources cited throughout Section 4.4.

[116] California Natural Resources Agency, *Notice of Public Hearings and Notice of Proposed Amendment of Regulations Implementing the California Environmental Quality Act*, 2009. Available: https://resources.ca.gov/CNRALegacyFiles/ceqa/docs/Notice_of_Proposed_Action.pdf.

Table 4.4-8
Summary of Impacts and Mitigation Measures Associated with the Proposed Project Related to Greenhouse Gas Emissions

Environmental Impacts	Impact Determination	Mitigation Measures	Level of Significance After Mitigation
Impact 4.4-1: Construction and operation of the proposed Project would generate GHGs, directly and indirectly, that may have a significant impact on the environment. This would be a ***significant and unavoidable impact*** for construction and operations.	Construction and operations combined: Significant	Construction: MM-AQ/GHG (ATMP)-1. Rock Crushing Operations. MM-AQ/GHG (ATMP)-2. Use of Renewable Diesel Fuel. MM-GHG (ATMP)-1. Demolition Waste. MM-C (ATMP)-1. Construction Mitigation Oversight. Operations: MM-AQ/GHG (ATMP)-3. Parking Cool Roof. MM-AQ/GHG (ATMP)-4. EV Charging Infrastructure. MM-AQ/GHG (ATMP)-5. Electric Vehicle Purchasing. MM-AQ/GHG (ATMP)-6. Solar Energy Technology. MM-GHG (ATMP)-2. Organic Waste Collection and Diversion. MM-GHG (ATMP)-3. Green Procurement. MM-GHG (ATMP)-4. Enhanced Recycling. MM-GHG (ATMP)-5. Landscaping Water. MM-T (ATMP)-1. Vehicle Miles Traveled (VMT) Reduction Program.	Construction and operations combined: Significant and Unavoidable

Table 4.4-8
Summary of Impacts and Mitigation Measures Associated with the Proposed Project Related to Greenhouse Gas Emissions

Environmental Impacts	Impact Determination	Mitigation Measures	Level of Significance After Mitigation
Impact 4.4-2: Construction and operation of the proposed Project would conflict with applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of GHGs. This would be a ***significant and unavoidable impact*** for construction and operations.	Construction and operations combined: Significant	Construction: MM-AQ/GHG (ATMP)-1. Rock Crushing Operations. MM-AQ/GHG (ATMP)-2. Use of Renewable Diesel Fuel. MM-GHG (ATMP)-1. Demolition Waste. MM-C (ATMP)-1. Construction Mitigation Oversight. Operations: MM-AQ/GHG (ATMP)-3. Parking Cool Roof. MM-AQ/GHG (ATMP)-4. EV Charging Infrastructure. MM-AQ/GHG (ATMP)-5. Electric Vehicle Purchasing. MM-AQ/GHG (ATMP)-6. Solar Energy Technology. MM-GHG (ATMP)-2. Organic Waste Collection and Diversion. MM-GHG (ATMP)-3. Green Procurement. MM-GHG (ATMP)-4. Enhanced Recycling. MM-GHG (ATMP)-5. Landscaping Water. MM-T (ATMP)-1. Vehicle Miles Traveled (VMT) Reduction Program.	Construction and operations combined: Significant and Unavoidable

Table 4.4-8
Summary of Impacts and Mitigation Measures Associated with the Proposed Project Related to Greenhouse Gas Emissions

Environmental Impacts	Impact Determination	Mitigation Measures	Level of Significance After Mitigation
Cumulative impacts: Construction and operation of the proposed Project would result in an incremental increase in GHG emissions. This would be a ***cumulatively considerable*** contribution for construction and operations.	Construction and operations combined: Cumulatively considerable	Construction: MM-AQ/GHG (ATMP)-1. Rock Crushing Operations. MM-AQ/GHG (ATMP)-2. Use of Renewable Diesel Fuel. MM-GHG (ATMP)-1. Demolition Waste. MM-C (ATMP)-1. Construction Mitigation Oversight. Operations: MM-AQ/GHG (ATMP)-3. Parking Cool Roof. MM-AQ/GHG (ATMP)-4. EV Charging Infrastructure. MM-AQ/GHG (ATMP)-5. Electric Vehicle Purchasing. MM-AQ/GHG (ATMP)-6. Solar Energy Technology. MM-GHG (ATMP)-2. Organic Waste Collection and Diversion. MM-GHG (ATMP)-3. Green Procurement. MM-GHG (ATMP)-4. Enhanced Recycling. MM-GHG (ATMP)-5. Landscaping Water. MM-T (ATMP)-1. Vehicle Miles Traveled (VMT) Reduction Program.	Construction and operations combined: Cumulatively considerable