4.2 Greenhouse Gas Emissions

4.2.1 Introduction

This greenhouse gas (GHG) analysis examines potential GHG emissions associated with the proposed Project, as may contribute to global climate change (GCC) impacts. The analysis addresses the change in GHG emissions 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, and an analysis is provided to assess potential cumulative and Project-related GHG contributions to GCC that could result from the proposed Project. The analysis accounts for energy and resource conservation measures that have been incorporated into the proposed Project and pertinent State mandated GHG emission reduction measures. Air quality effects associated with criteria pollutant (ambient air pollutant) emissions and emissions of toxic air contaminants are discussed in Section 4.1, *Air Quality*, of this Environmental Impact Report (EIR). GHG emission calculations prepared for the proposed Project are provided in Appendix B, *Air Quality, Greenhouse Gas, and Human Health Risk Assessment*, of this EIR.

4.2.1.1 Global 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 range of global mean temperature change from 1990 to 2100, given six scenarios, could range from 1.1 to 6.4 degrees Celsius (C).[1] Regardless of analytical methodology, global average temperature and mean sea level are expected to rise under all scenarios.

Climate models applied to California's conditions project that, under different scenarios, temperatures in California are expected to increase by 3 to 10.5 degrees Fahrenheit (F).[2] 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 the *2006 California Climate Action Team Report*, the following climate change effects are predicted in California over the course of the next century.[3]

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1 Intergovernmental Panel on Climate Change, Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, 2007.

2 California Climate Change Center, Our Changing Climate: Assessing the Risks to California, 2006.

3 California Environmental Protection Agency, Climate Action Team, Report to Governor Schwarzenegger and the

- A diminishing Sierra snowpack declining by 70 to 90 percent, threatening the state's water supply.
- Increasing temperatures, as noted above, of up to approximately 10 degrees F under the higher emission scenarios, leading to a 25 to 35 percent increase in the number of days ozone pollution levels are exceeded in most urban areas.
- Coastal erosion along the length of California and seawater intrusion into the Sacramento-San Joaquin River Delta from a 4- to 33-inch rise in sea level. This would exacerbate flooding in already vulnerable regions.
- Increased vulnerability of forests due to pest infestation and increased temperatures.
- Increased challenges for the state's important agricultural industry from water shortages, increasing temperatures, and saltwater intrusion into the Sacramento-San Joaquin River Delta.
- Increased electricity demand, particularly in the hot summer months.

As such, 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.

4.2.1.2 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, carbon dioxide (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, such as 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.

Climate change is driven by "forcings" and "feedbacks." A feedback is "an internal climate process that amplifies or dampens the climate response to a specific forcing."[4] Radiative forcing is the difference between the incoming energy and outgoing energy in the climate system. The global warming potential (GWP) is the potential of a gas or aerosol to trap heat in the atmosphere; it is the "cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference gas."[5] Individual GHG species have varying GWP and atmospheric lifetimes. The carbon dioxide equivalent (CO_2e) -- the mass emissions of an individual GHG multiplied by its GWP -- is a consistent methodology for comparing GHG emissions because it normalizes various GHG emissions to a consistent

California Legislature, March 2006.

[4] National Research Council of the National Academies, Radiative Forcing of Climate Change: Expanding the Concept and Addressing Uncertainties, 2005.

[5] U.S. Environmental Protection Agency, Glossary of Climate Terms, Available: http://www.epa.gov/climatechange/glossary.html, Accessed February 14, 2012.

metric. The reference gas for GWP is CO_2; CO_2 has a GWP of 1. Compared to CH_4's GWP of 21,[6] CH_4 has a greater global warming effect than CO_2 on a molecule-per-molecule basis. **Table 4.2-1** identifies the GWP of several select GHGs.

Table 4.2-1

Global Warming Potentials and Atmospheric Lifetimes of Select Greenhouse Gases

Gas	Atmospheric Lifetime (Years)	Global Warming Potential (100 Year Time Horizon)
Carbon Dioxide	50 - 200	1
Methane	12 ± 3	21
Nitrous Oxide	120	310
HFC-23	264	11,700
HFC-134a	14.6	1,300
HFC-152a	1.5	140
PFC: Perfluromethane (CF_4)	50,000	6,500
PFC: Perfluoroethane (C_2F_6)	10,000	9,200
Sulfur Hexafluoride (SF_6)	3,200	23,900

Source: Intergovernmental Panel on Climate Change, Climate Change 1995: The Science of Climate Change. Contribution of Working Group I to the Second Assessment Report (SAR) of the Intergovernmental Panel on Climate Change, 1996.[7]

4.2.2 Methodology

A number of methodologies and significance thresholds have been proposed for analyzing impacts on GCC. However, at this time no definitive thresholds or methodologies that are applicable to the proposed Project have been adopted for determining the significance of the proposed Project's cumulative contribution to GCC in California Environmental Quality Act (CEQA) documents.

For the purposes of this EIR, as is explained in more detail below, total GHG emissions from the proposed Project were quantified to determine whether the proposed Project would be consistent with the Global Warming Solutions Act of 2006, also known as Assembly Bill (AB) 32 (i.e., reduction of statewide GHG emissions to 1990 levels by 2020). The mandate of AB 32 demonstrates California's commitment to reducing GHG emissions and the State's associated contribution to climate change, without intending to limit population or economic growth within the State.

[6] Intergovernmental Panel on Climate Change (IPCC), Climate Change 1995: The Science of Climate Change. Contribution of Working Group I to the Second Assessment Report (SAR) of the Intergovernmental Panel on Climate Change, 1996.

[7] GWP values have been updated in IPCC's subsequent assessment reports (e.g., Third Assessment Report [TAR], etc.). However, in accordance with international and U.S. convention to maintain the value of the carbon dioxide 'currency', GHG emission inventories are calculated using the GWPs from the IPCC SAR.

Various guidance documents, such as The Climate Registry *General Reporting Protocol* (GRP) (version 2.0, March 2013), 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), and the Association of Environmental Professionals (AEP) *Community-wide GHG Emissions Protocol*, propose generally consistent methodologies for preparing GHG inventories. However, these methodologies have been developed for varying purposes and not specifically for CEQA. Relying on these guidance documents, this analysis addresses both direct and indirect GHG emissions, which are defined as follows:

- Direct Emissions: Direct sources of GHG emissions from the proposed Project include the consumption of natural gas for airport operations, including heating/cooling; worker, and vendor car/truck trips; construction and operation equipment; and landscape activities.
- Indirect Emissions: Indirect sources of GHG emissions related to the proposed Project include the consumption of purchased electricity and water usage.

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.[8] For these reasons, CARB has proposed requiring the calculation of direct and indirect GHG emissions as part of the AB 32 reporting requirements. Additionally, the California Office of Planning and Research (OPR) directs lead agencies to "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."[9] Therefore, direct and indirect emissions have been calculated for the proposed Project.

In estimating the GHG emissions of an individual business or facility, the *GHG Protocol Corporate Accounting and Reporting Standard*, developed by the World Business Council for Sustainable Development and World Resources Institute,[10] provides standards and guidance for companies and other organizations preparing a GHG emissions inventory. The standard is written primarily from the perspective of a business developing a GHG inventory. The *GHG Protocol* provides the accounting framework for nearly every GHG standard and program in the world from the International Standards Organization to the European Union Emissions Trading

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8 California Air Resources Board (ARB), 2007a. 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). Planning and Technical Support Division Emission Inventory Branch, October 19, 2007.

9 Office of Planning and Research (OPR), Technical Advisory, CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review, June 2008, p. 5, Available: http://opr.ca.gov/docs/june08-ceqa.pdf. Accessed: April 2013.

10 World Business Council for Sustainable Development and World Resources Institute, The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, Revised Edition, April 2004, Available: http://www.ghgprotocol.org/files/ghgp/public/ghg-protocol-revised.pdf.

Scheme to the CCAR, as well as hundreds of GHG inventories prepared by individual companies.

The *GHG Protocol* divides GHG emissions into three source types or "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: All direct GHG emissions.
- 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).
- 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.

As relates to the proposed Project, direct, or Scope 1, GHG emissions would include the incremental increase in emissions from the towing and taxiing of aircraft to the proposed Project site. Scope 2 emissions would include those from the use of electricity and natural gas by the proposed hangars. Scope 3 emissions would include emissions from employee commutes, the disposal and decomposition of waste generated by the operation and construction of the proposed Project, construction activities, water consumption and wastewater treatment. For purposes of this analysis, it is considered reasonable and consistent with criteria pollutant calculations to consider only those GHG emissions resulting from the proposed Project that would contribute to an incremental (net) increase compared to existing conditions. This includes proposed Project construction activities such as demolition, hauling, and construction worker trips (Scope 3), as well as the operational emissions from energy use from the proposed aircraft hangars (Scope 2) and waste generation from hangar activities (Scope 3). The future operation of the proposed Project would not result in long-term operational changes to traffic activity and traffic flows within the airport study area as, in the long-term, the proposed Project would not increase the number of employees or airline passengers traveling to/through the Los Angeles International Airport (LAX). Thus, new on-road vehicle traffic would not be generated and emissions from vehicle traffic are not included. Since potential impacts resulting from GHG emissions are long-term rather than acute, GHG emissions are calculated on an annual basis.

4.2.2.1 Construction

GHG emissions associated with construction of the proposed Project were calculated based on methodologies provided in The Climate Registry GRP Version 2.0.[11] The GRP is the guidance document that Los Angeles Worlds Airports (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 study. However, to adapt the GRP for CEQA purposes, a modification to the GRP operational and geographical boundaries was necessary. The GRP requires all emissions to be reported, as well as all direct and indirect emissions owned or controlled by the reporting entity (in this case, LAWA). Since GHG emissions were

[11] The Climate Registry, General Reporting Protocol, Version 2.0, March 2013.

restricted to only those that could be affected by the proposed Project, this represents an appropriate and necessary deviation from the GRP, consistent with the requirements of CEQA.

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

- Off-road construction equipment.
- On-road trucks.
- Construction worker commute vehicles.

Emissions were calculated using the California Emissions Estimator Model (CalEEMod), Version 2013.2. CalEEMod is a Statewide land use emissions computer model that calculates criteria pollutant and GHG emissions associated with a variety of land use projects. The model was developed in collaboration with the air districts of California including the South Coast Air Quality Management District (SCAQMD). CalEEMod incorporates the on-road Emissions Factor (EMFAC2011) model and the 2011 Inventory Model for Off-Road Diesel Equipment (OFFROAD2011),[12] which are emissions estimation models developed by the CARB to calculate emissions from motor vehicles and heavy-duty equipment. CalEEMod generates GHG emissions results for CO_2, CH_4, and N_2O, which are the GHGs associated with and relevant to the proposed Project. In CalEEMod, GHG emissions for certain sources, such as solid waste, are derived from emission factors published in the *2006 Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories*. These emissions are then converted to units of metric tons of CO_2e ($MTCO_2e$) for consistency. The CO_2e values are calculated for the entire construction period in order to generate a net change in GHG emissions caused by Project construction (refer to Appendix B of this EIR). In accordance with SCAQMD guidance[13], GHG emissions from construction have been amortized over the 30-year lifetime of the proposed Project (i.e., total construction GHG emissions were divided by 30 to determine an annual construction emissions estimate comparable to operational emissions).

4.2.2.2 Operations

Operational sources of emissions are generally divided into two categories: mobile and stationary. Examples of LAX-related mobile sources include aircraft, ground support equipment (GSE), and on-road motor vehicles. Examples of LAX-related stationary sources include natural gas space heaters. Operational GHG impacts were assessed based on the net new incremental increase in emissions compared to existing conditions. In accordance with the *CEQA Guidelines* and the *L.A. CEQA Thresholds Guide*, the impacts of the proposed Project were compared to baseline conditions to determine significance under CEQA.

As discussed in Chapter 2, *Project Description*, the intent of the proposed Project is to consolidate, relocate, and modernize some of the existing aircraft maintenance facilities at LAX consistent with the LAX Master Plan. Operation of the proposed Project would not result in additional or increased operational or maintenance activities and would not result in net new

[12] OFFROAD 2007 emission factors were used in this analysis as CARB's 2011 Inventory Model for Off-Road Diesel Equipment does not provide emission factors for GHG emissions.

[13] South Coast Air Quality Management District, Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold, October 2008.

vehicle trips to LAX. The proposed Project is not expected to increase the number of run-ups from aircraft engine testing compared to the current condition. Improvements associated with the LAX Master Plan would consolidate, relocate and modernize existing maintenance operations and run-ups in the western area of LAX. The proposed Project would shift an estimated 60 annual (five monthly) existing run-ups in the western area of LAX to the Project site, also located in the western area of LAX. Thus, the proposed Project would not result in net new GHG emissions from run-ups. The proposed Project would not increase passenger or gate capacity and would not increase flights and/or aircraft operations at LAX. Thus, on-road motor vehicle GHG emissions were not included in the inventory, since there would be no new vehicle trips associated with the proposed Project. In addition, emissions from aircraft landing and takeoff operations (LTO) would not increase and were not included in this inventory. The future operation of the proposed Project would not result in long-term operational changes to traffic activity and traffic flows within the airport study area as, in the long-term, the proposed Project would not increase the number of employees or airline passengers traveling to/through LAX.

However, compared to baseline conditions, the distance between the terminal gates and maintenance area is further under the proposed Project. Aircraft being maintained at the proposed Project facilities would need to taxi or be towed further; thus, some incremental emissions would be generated from either aircraft engines for those taxiing or from the aircraft tugs that tow the aircraft to and from maintenance. The use of the existing maintenance areas that would be replaced with proposed Project was reviewed, and the following assumptions and methodology were developed to calculate these incremental emissions:

- On a daily basis, 26 aircraft would move between the gates and the maintenance areas:
  - 20 aircraft would be towed per day, using a towbarless aircraft tractor represented by a model year 2005, 400 horsepower wide body aircraft tug, at an average speed of 15 miles per hour (mph); and
  - 6 aircraft per day would taxi at an average speed of 17 mph. These aircraft were represented by a Boeing 737-300 with CFM56-3-B1 engines, a Boeing 757-300 with RB211-535E4B Phase 5 engines, and a Boeing 767-300 with CF6-80A2 engines. For each pollutant, the engine with the highest emission factor was assumed for all 6 daily aircraft movements.
- Incremental distances (proposed Project minus baseline) ranged from 1.0 to 2.4 miles, one way.
- Aircraft engine emission factors were obtained from FAA's Emissions and Dispersion Modeling System (i.e., EDMS model), version 5.1.4.
- Aircraft tug emission factors and load factors were obtained from CARB's OFFROAD 2011 and OFFROAD 2007[14] emission models.
- The modeling of emissions associated with towing activities is based on the use of diesel-fueled GSE, which provides for a conservative analysis. LAX has committed to converting GSE to low and ultra-low emission technology (e.g., electric, fuel cell, and other future low-emission technologies). The program to convert the LAX GSE fleet is currently being implemented. Thus, future actual emissions associated with towing are likely to be lower as this program is implemented.

[14] OFFROAD 2007 emission factors were used in this analysis as CARB's 2011 Inventory Model for Off-Road Diesel Equipment does not provide emission factors for GHG emissions.

While the proposed Project would develop the site with taxiways and aircraft parking apron areas, maintenance hangars, and related facilities, and consolidate and modernize existing aircraft maintenance activities, these activities already occur at LAX. Since the activities that would occur in the new maintenance area already generate emissions through current activities, any net change in such emissions due to their relocation to the site would be negligible in comparison to the emissions that occur from existing maintenance activities. For the purposes of this assessment, the proposed aircraft maintenance hangar building is assumed to result in no net new (no additional) emissions. Therefore, no incremental stationary source GHG emissions were included in the operational impact analysis.

4.2.3 Existing Conditions

4.2.3.1 Regulatory ContextSetting

4.2.3.1.1 International and Federal Regulations and Directives

International Governmental Panel on Climate Change

In 1988, the United Nations and the World Meteorological Organization established the IPCC to assess "the scientific, technical and socioeconomic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation."

United Nations Framework Convention on Climate Change

On March 21, 1994, the United States (U.S.) joined other countries around the world in signing the United Nations Framework Convention on Climate Change (UNFCCC). 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.

Kyoto Protocol

The Kyoto Protocol (or Protocol) is a treaty made under the UNFCCC. Countries can sign the treaty to demonstrate their commitment to reduce their emissions of GHGs or engage in emissions trading. More than 160 countries, accounting for 55 percent of global emissions, are under the protocol. The U.S. symbolically signed the Protocol in 1998. However, in order for the Protocol to be formally ratified, it must be adopted by the U.S. Senate, which has not been done to date. The original GHG reduction commitments made under the Protocol expired at the end of 2012. A second commitment period was agreed to at the Doha, Qatar, meeting held December 8, 2012, which extended the commitment period to December 31, 2020.

Massachusetts et al. v. United States Environmental Protection Agency et al.

Massachusetts et. al. v. Environmental Protection Agency et. al. (549 U.S. 497 [2007]) was argued before the U.S. Supreme Court on November 29, 2006, in which it was petitioned that

U.S. Environmental Protection Agency (USEPA) regulate four GHGs, including CO_2, under Section 202(a)(1) of the federal Clean Air Act (CAA). The Court issued an opinion on April 2, 2007, in which it held that petitioners have standing to challenge the USEPA, that the USEPA has statutory authority to regulate emissions of GHGs from motor vehicles, and that the USEPA had not adequately justified its decision not to regulate GHGs.

Endangerment Finding

The USEPA subsequently published its endangerment finding for GHGs in the Federal Register,[15] which responds to this court case. The USEPA Administrator determined that six GHGs, taken in combination, endanger both the public health and welfare of current and future generations. Although the endangerment finding discusses the effects of six GHGs, it acknowledges that transportation sources only emit four of the key GHGs: CO_2, CH_4, N_2O, and HFCs. Further, the USEPA Administrator found that the combined emissions of these GHGs from new motor vehicles contribute to air pollution that endangers the public health and welfare under the CAA, Section 202(a).

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. Under these standards, CO_2 emission limits would decrease from 295 grams per mile (g/mi) in 2012 to 250 g/mi in 2016 for a combined fleet of cars and light trucks. If all of the necessary emission reductions were made from fuel economy improvements, then the standards would correspond to a combined fuel economy of 30.1 miles per gallon (mpg) in 2012 and 35.5 mpg in 2016. The agencies 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.

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 signed into law on August 9, 2011. The two agencies' complementary standards form a new Heavy-Duty National Program that has the potential to reduce GHG emissions by 270 million metric tons and to reduce oil consumption by 530 million barrels over the life of the affected vehicles.

[15] U.S. Environmental Protection Agency, Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the CAA, Federal Register 74 (15 December 2009): 66496-66546.

4.2.3.1.2 State Regulations and Directives

Title 24 Energy Standards

Although not originally intended to reduce GHG emissions, California's Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations, Title 24, Part 6) were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. The latest amendments were made in April 2008 and went into effect on January 1, 2010. 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 (typically for water heating) results in GHG emissions. Therefore, increased energy efficiency in buildings results in fewer GHG emissions on a building-by-building basis.

California Assembly Bill 1493 (AB 1493) - Pavley

Enacted on July 22, 2002, this bill required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light-duty trucks. Regulations adopted by CARB apply to 2009 and later model year vehicles. CARB estimates that the regulation will reduce GHG emissions from the light-duty and passenger vehicle fleet by an estimated 18 percent in 2020 and by 27 percent in 2030, compared to recent years. 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 standards with the federal standards for passenger cars and light-duty trucks.

Executive Order S-3-05

California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following GHG emission reduction targets for all of California: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels.

California Assembly Bill 32 (AB 32)

AB 32, titled The California Global Warming Solutions Act of 2006 and signed by Governor Schwarzenegger in September 2006, requires CARB to adopt regulations to require the reporting and verification of statewide GHG emissions and to monitor and enforce compliance with the program. In general, the bill requires CARB to reduce statewide GHG emissions to the equivalent of those in 1990 by 2020. CARB adopted regulations in December 2007 for mandatory GHG emissions reporting. On August 24, 2011, CARB adopted the scoping plan indicating how emission reductions will be achieved. Part of the scoping plan includes an economy-wide cap-and-trade program. The final cap-and-trade plan was approved on October 21, 2011 and went into effect on January 1, 2013.

California Senate Bill 375 (SB 375)

SB 375 requires CARB to set regional targets for 2020 and 2035 to reduce GHG emissions from passenger vehicles. A regional target will be developed for each of the 18 metropolitan

planning organizations (MPOs) in the State; the Southern California Association of Governments (SCAG) is the MPO that has jurisdiction over the Project area. A Regional Targets Advisory Committee (RTAC) was appointed by CARB to provide recommendations to be considered and methodologies to be used in CARB's target setting process. The final RTAC report was released on January 23, 2009.

Each MPO is required to develop Sustainable Community Strategies through integrated land use and transportation planning and to demonstrate an ability to attain the proposed reduction targets by 2020 and 2035. CARB issued an eight percent per capita reduction target to the SCAG region for 2020 and a target of 13 percent by 2035. SCAG adopted the Regional Transportation Plan/Sustainable Community Strategies for the six-county Southern California region on April 4, 2012.

Executive Order S-01-07 and the Low Carbon Fuel Standard (LCFS)

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. The Executive Order also mandated the creation of an LCFS for transportation fuels. The LCFS requires that the life-cycle 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.[16] On December 29, 2011, U.S. District Judge Lawrence O'Neill granted an injunction to prevent CARB from implementing the LCFS because it violates a federal law on interstate commerce. The Ninth Circuit Court of Appeals vacated the preliminary injunction on September 19, 2013, and found that the LCFS did not discriminate against interstate commerce under the Commerce Clause. (Rocky Mountain Farmers Union v. Corey, No. 12-15135).

Senate Bill 97 (SB 97)

SB 97 requires the OPR to prepare guidelines to submit to the California Natural Resources Agency (CNRA) regarding feasible mitigation of GHG emissions or the effects of GHG emissions as required by CEQA. The CNRA adopted amendments to the *CEQA Guidelines* for GHG emissions on December 30, 2009. The amendments became effective on March 18, 2010. The guidelines apply retroactively to any incomplete EIR, negative declaration, mitigated negative declaration, or other related document, and are reflected in this EIR.[17]

Renewables Portfolio Standard

Senate Bill 1078 (SB 1078) (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010. In November 2008, the Governor signed Executive Order S-14-08, which expands the State's Renewable Energy Standard (the Renewable Portfolio Standard - RPS) 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

[16] 17 California Code of Regulations, Section 95480 et seq., "Low Carbon Fuel Standard."
[17] Senate Bill 97, August 24, 2007.

adopt regulations to meet a 33 percent RPS target by 2020. The CARB regulations would 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 SB X1-2, which was signed into law by the Governor the following month. SB X1-2 requires utilities to procure renewable energy products equal to 33 percent of retail sales by December 31, 2020 and also establishes interim targets: 20 percent by December 31, 2013 and 25 percent by December 31, 2016. SB X1-2 also applies to publicly-owned utilities in California. According to the most recent data available from the Los Angeles Department of Water and Power (LADWP), the utility provider for the City of Los Angeles, approximately 19 percent of its electricity purchases in 2011 were from eligible renewable sources.[18]

4.2.3.1.3 Local Regulations and Directives

Green LA

In May 2007, the City of Los Angeles introduced *Green LA - An Action Plan to Lead the Nation in Fighting Global Warming*.[19] *Green LA* presents a framework targeted to reduce the City's GHG emissions by 35 percent below 1990 levels by 2030. The plan calls for an increase in the City's use of renewable energy to 35 percent by 2020 in combination with promoting water conservation, improving the transportation system, reducing waste generation, greening the ports and airports, creating more parks and open space, and greening the economic sector. *Green LA* identifies objectives and actions in various focus areas, including airports. The goal for airports is to "green the airports," and the following actions are identified: 1) fully implement the Sustainability Performance Improvement Management System (discussed below); 2) develop and implement policies to meet the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED®) green building rating standards in future construction; 3) improve recycling, increase use of alternative fuel sources, increase use of recycled water, increase water conservation, reduce energy needs, and reduce GHG emissions; and 4) evaluate options to reduce aircraft-related GHG emissions.

Climate LA

In 2008, the City of Los Angeles followed up *Green LA* with an implementation plan called *Climate LA - Municipal Program Implementing the Green LA Climate Action Plan*.[20] A Departmental Action Plan for LAWA is included in *Climate LA*, which identifies goals to reduce CO_2 emissions 35 percent below 1990 levels by 2030 at LAX and the other three LAWA airports, implement sustainability practices, and develop programs to reduce the generation of waste and pollutants. Actions are specified in the areas of aircraft operations, ground vehicles, electrical consumption, building, and other actions.

[18] Los Angeles Department of Water and Power, "Power Content Label," https://www.ladwp.com. Accessed August 2013.
[19] City of Los Angeles, Green LA - An Action Plan to Lead the Nation in Fighting Global Warming, 2007.
[20] City of Los Angeles, Climate LA - Municipal Program Implementing the Green LA Climate Action Plan, 2008.

City of Los Angeles Green Building Code (LAGBC)

In December 2010, the Los Angeles City Council approved Ordinance No. 181,481, which amended Chapter IX of the Los Angeles Municipal Code (LAMC) by adding a new Article 9 to incorporate various provisions of the 2010 CALGreen Code. The requirements of the adopted LAGBC apply to new building construction, building renovations, and building additions within the City of Los Angeles. Specific mandatory requirements and elective measures are provided for three categories: (1) low-rise residential buildings; (2) nonresidential and high-rise residential buildings; and (3) additions and alterations to nonresidential and high-rise residential buildings. Key measures in the LAGBC that apply to nonresidential buildings include, but are not limited to, the following:

- Construction – A Storm Water Pollution Prevention Plan conforming to the State Storm Water National Pollutant Discharge Elimination System Construction Permit or local ordinance, whichever is stricter, is required for a project regardless of acreage disturbed;
- Construction – Construction waste reduction of at least 50 percent of construction debris;
- Construction – 100 percent of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled;
- Transportation Demand – Designated parking for any combination of low emitting, fuel-efficient, and carpool/vanpool vehicles shall be provided;
- Energy Conservation – Electric vehicle supply wiring for a minimum of 5 percent of the total number of parking spaces shall be provided;
- Energy Conservation – Energy conservation for new buildings must exceed the California Energy Code (CEC) requirements, based on the 2008 Energy Efficiency Standards, by 15 percent using an Alternative Calculation Method approved by the CEC;
- Energy Conservation – Each appliance provided and installed shall meet Energy Star requirements, if an Energy Star designation is applicable for that appliance;
- Renewable Energy – Future access, off-grid prewiring, and space for electrical solar systems shall be provided;
- Water – A schedule of plumbing fixtures and fixture fittings shall be provided that will reduce the overall use of potable water within the building by at least 20 percent based on the maximum allowable water use per plumbing fixture and fittings as required by the California Building Standards Code; and
- Wastewater – Each building shall reduce wastewater by 20 percent based on the maximum allowable water use per plumbing fixture and fittings as required by the California Building Standards Code.

Los Angeles World Airports Sustainability

LAWA defines sustainability (and measures our sustainable performance) as the Triple Bottom Line, consistent with the Global Reporting Initiative (GRI) and CEQA, which are the social, economic, and environmental impacts of our organization. All projects are subject to various sustainable requirements in the City of Los Angeles and at LAWA, including, but not limited to:

- LAGBC (Ordinance 181479);
- Low Impact Development (Ordinance 181899);
- Standard Urban Stormwater Mitigation Plan (Ordinance 173494);
- Demolition Debris Recycling Program (Ordinance 181519);
- LAX Construction & Maintenance Services – Recycling Program; and
- LAX Master Plan – Mitigation Monitoring and Reporting Program (MMRP). Highlights of the LAX Master Plan MMRP include, but are not limited to the following measures:
    - C-1: Work with LAWA to approve and coordinate staging areas, haul routes, etc.;
    - MM-AQ-2: Utilize on-site rock-crushing facility, when feasible, during construction to reuse rock/concrete and minimize off-site truck-haul trips; and
    - W-1: Maximize use of Reclaimed Water.

All building projects in the City of Los Angeles are subject to the LAGBC, which is based on CALGreen with some modifications unique to the City of Los Angeles. The LAGBC is a code-requirement that is part of Title 24, and is enforced by the Los Angeles Department of Building & Safety (LADBS).

Given that the LAGBC has replaced LEED in the LAMC, LAWA has based its new sustainable construction standards on the mandatory and voluntary tiers defined in the LAGBC. All building projects with an LADBS permit-valuation over $200,000 shall achieve LAGBC Tier 1 conformance, to be certified by LADBS during final plan check (on the issued building permit) and validated by the LADBS inspector during final inspection (on the Certificate of Occupancy). Should a project pose unique issues/circumstances based on the scope and/or location of work, LAWA may require more prescriptive approaches to resolving issues such as energy performance, site drainage, etc.

For tenant projects, the permittee shall submit copies of all LADBS Green Building Forms to the LAWA Project Manager prior to issuance of a Notice-To-Proceed. This information may be published in our Annual Sustainability Reports in accordance with the GRI Sustainability Reporting Guidelines and Airport Operators Sector Supplement.

The proposed Project would comply with the mandatory requirements for nonresidential buildings including the mandatory requirements for Tier 1 conformance, which are provided in **Table 4.2-2**. Not all measures are applicable to the proposed Project, as some measures provide requirements for residential buildings or facilities not present at the proposed Project. The specific measures that are applicable to the proposed Project and would be included as parts of the design of the proposed Project are indicated in the right-hand column in Table 4.2-2.

Table 4.2-2

City of Los Angeles Green Building Code Tier 1 Requirements for Newly-Constructed Nonresidential Buildings

Checklist for the City of Los Angeles	Measures		
	Mandatory	**CALGreen Tier 1**	**Applicable to Proposed Project**
Requirements			
Project meets all of the requirements of Divisions 5.1 through 5.5.	**X**		**X** (Not including measures for residential buildings or uses not associated with the Project; See below)[a]
Planning and Design			
A5.106.4 Bicycle parking and changing rooms. Comply with Sections 5.106.4.1 through 5.106.4.2; or meet local ordinance, whichever is stricter.	**X**		**X** See A5.106.4.1 and A5.106.4.2
A5.106.4.1 Short –term bicycle parking. If the project is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5 percent of visitor motorized vehicle parking capacity, with a minimum of one two-bike capacity rack.	**X**		**X** Applicable only if there would be visitor traffic to the West Aircraft Maintenance Area Facility
A5.106.4.2 Long-term bicycle parking. For buildings with over ten tenant-occupants, provide secure bicycle parking for 5 percent of motorized vehicle parking capacity, with a minimum of one space.	**X**		**X** Applicable only if there would be buildings with over ten tenant-occupants
A5.106.5.1 Designated parking. Provide designated parking, by means of permanent marking or a sign, for any combination of low-emitting, fuel-efficient, and carpool/van pool vehicles as shown in Table A5.106.5.1.1 for Tier 1 at ten percent of total spaces.		**X**	**X**
A5.106.5.3.2 Electric vehicle supply wiring. Provide a minimum number of 208/240 volts 40 amp, grounded AC outlet(s), that is equal to 5 percent of the total number of parking spaces.	**X**		**X**

Table 4.2-2

City of Los Angeles Green Building Code Tier 1 Requirements for Newly-Constructed Nonresidential Buildings

Checklist for the City of Los Angeles	Measures		
	Mandatory	**CALGreen Tier 1**	**Applicable to Proposed Project**
A5.106.8 Light pollution reduction. Comply with lighting power requirements in the California Energy Code and design interior and exterior lighting such that zero direct-beam illumination leaves the building site. Meet or exceed exterior light levels and uniformity ratios for lighting zones 1-4 as defined in Chapter 10 of the following strategies:	**X**		**X**
1. Shield all exterior luminaires or use cutoff luminaries.	**X**		**X**
2. Contain interior lighting within each source.	**X**		**X**
3. Allow no more than 0.01 horizontal foot candle 15 feet beyond the site.	**X**		**X**
4. Contain all exterior lighting within property boundaries.	**X**		**X**
A5.106.10 Grading and paving. The site shall be planned and developed to keep surface water away from buildings. Construction plans shall indicate how site grading or a drainage system will manage all surface water flows.	**X**		**X**
Energy Efficiency			
A5.203.1 Energy performance. Using an Alternative Calculation Method approved by the California Energy Commission, calculate each nonresidential building's time dependent valuation for energy and CO_2 emissions, and compare it to the standard or "budget" building.			
A5.203.1.1 Tier 1. Exceed California Energy Code requirements, based on the 2008 Energy Efficiency Standards, by 15 percent		**X**	**X**
A5.203.1.3 Energy Efficiency. Exceed California Energy Code requirements, based on the 2008 Energy Efficiency Standards, by 15 percent.	**X (6/01/11)**		Measure included in A5.203.1.1

Table 4.2-2

City of Los Angeles Green Building Code Tier 1 Requirements for Newly-Constructed Nonresidential Buildings

Checklist for the City of Los Angeles	Measures		
	Mandatory	**CALGreen Tier 1**	**Applicable to Proposed Project**
Energy Systems			
A.5.210.1 ENERGY STAR equipment and appliances. All residential grade equipment and appliances provided and installed shall be ENERGY STAR labeled if ENERGY STAR is applicable to that equipment or appliance.	**X**		**X**
Renewable Energy			
A5.211.4 Prewiring for future solar. Install conduit from the building roof or eave to a location within the building identified as suitable for future installation of a charge controller (regulator) and inverter.	**X**		**X**
A5.211.4.1 Off-grid prewiring for future solar. If battery storage is anticipated, conduit shall run to a location within the building that is stable, weather-proof, insulated against very hot and very cold weather, and isolated from occupied spaces.	**X**		Not Applicable: Project does not include battery storage for off-grid energy
Water Efficiency and Conservation			
Indoor Water Use`			
A5.303.1.1 Buildings in excess of 50,000 square feet. Separate submeters shall be installed as follows:			
1. For each individual leased, rented, or other tenant space within the building project to consume more than 100 gallons per day.	**X**		**X**
2. For spaces used for laundry or cleaners, restaurant or food service, medical or dental office, laboratory or beauty salon or barber shop projected to consume more than 100 gallons per day.	**X**		Not Applicable: Project does not include these facilities/uses
A5.303.1.2 Excess consumption. Any building within a project or space within a building that is projected to consume more than 1,000 gallons per day.	**X**		**X**

Table 4.2-2

City of Los Angeles Green Building Code Tier 1 Requirements for Newly-Constructed Nonresidential Buildings

Checklist for the City of Los Angeles	Measures		
	Mandatory	**CALGreen Tier 1**	**Applicable to Proposed Project**
A5.303.2. 20 Percent Savings. A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by 20 percent shall be provided. (Calculate savings by Water Use Worksheets.)	**X**		**X**
A5.303.2.1 Multiple showerheads serving one shower. When single shower fixtures are served by more than one showerhead, the combined flow rate of all the showerheads shall not exceed the maximum flow rates specified in the 20 percent reduction column contained in Table 5.303.2.3 or the shower shall be designed to only allow one showerhead to be in operation at a time.	**X**		Not Applicable: Project does not include showers
A5.303.2.3.1 Tier 1 – 30 percent savings. A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by 30 percent shall be provided.		**X**	**X**
A5.303.4 Wastewater reduction. Each building shall reduce the generation of wastewater by one of the following methods:			
1. The installation of water-conserving fixtures or	**X**		**X**
2. Utilizing non-potable water systems	**X**		**X**
A5.303.6 Plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the requirements listed for each type in Items listed in Table 5.303.6.			
1. Water closets (toilets) – flushometer type	**X**		**X**
2. Water closets (toilets) – tank type	**X**		**X**
3. Urinals	**X**		**X**
4. Public lavatory faucets	**X**		Not Applicable: Project does not include public faucets

Table 4.2-2

City of Los Angeles Green Building Code Tier 1 Requirements for Newly-Constructed Nonresidential Buildings

Checklist for the City of Los Angeles	Measures		
	Mandatory	**CALGreen Tier 1**	**Applicable to Proposed Project**
5. Public metering self-closing faucets	**X**		Not Applicable: Project does not include public faucets
6. Residential bathroom lavatory sink faucets	**X**		Not Applicable: Project does not include residential faucets
7. Residential kitchen faucets	**X**		Not Applicable: Project does not include residential faucets
8. Residential shower heads	**X**		Not Applicable: Project does not include residential showers
9. Single shower fixtures served by more than one showerhead	**X**		Not Applicable: Project does not include showers
Outdoor Water Use			
A5.304.1 Water budget. A water budget shall be developed for landscape irrigation use.[a]	**X**		**X**
A5.304.2 Outdoor potable water use. Building on sites with 1,000 square feet or more of cumulative landscaped area shall have separate meters or submeters for indoor and outdoor potable water use.	**X**		**X**
A5.304.3 Irrigation design. Buildings on site with 1,000 square feet or more of cumulative irrigated landscaped area shall have irrigation controllers and sensors which include the following criteria, and meet manufacturer's recommendations.			

Table 4.2-2

City of Los Angeles Green Building Code Tier 1 Requirements for Newly-Constructed Nonresidential Buildings

Checklist for the City of Los Angeles	Measures		
	Mandatory	**CALGreen Tier 1**	**Applicable to Proposed Project**
A5.304.3.1 Irrigation controllers. Automatic irrigation system controllers installed at the time of final inspection shall comply with the following:			
1. Controllers shall be weather- or soil moisture-based controllers that automatically adjust irrigation in response to changes in plants' needs as weather conditions change.	**X**		**X**
2. Weather –based controllers without integral rain sensors or communication systems that account for local rainfall shall have a separate wired or wireless rain sensor which connects or communicates with the controllers(s). Soil moisture-based controllers are not required to have rain sensor input.	**X**		**X**
A5.304.4 Potable water reduction. Provide water efficient landscape irrigation design that reduces by use of potable water.			
A5.304.4.1 Tier 1 – Reduce the use of potable water to a quantity that does not exceed 60 percent of evapotranspiration times the landscape area.		**X**	**X**
A5.304.4.3 Verification of compliance. A calculation demonstrating the applicable potable water use reduction required by this section shall be provided.		**X**	**X**
Material Sources			
A5.405.4 Recycled content, Tier 1. Use materials, equivalent in performance to virgin materials, with post-consumer or pre-consumer recycled content value.		**X**	**X**
Weather Resistance and Moisture Management			
A5.407.1 Weather protection. Provide a weather-resistant exterior wall and foundation envelope as required by Los Angeles Building Code Section 1403.2 and California Energy Code Section 150, manufacturer's installation instructions, or local ordinance, whichever is more stringent.[a]	**X**		**X**

Table 4.2-2

City of Los Angeles Green Building Code Tier 1 Requirements for Newly-Constructed Nonresidential Buildings

Checklist for the City of Los Angeles	Measures		
	Mandatory	**CALGreen Tier 1**	**Applicable to Proposed Project**
A5.407.2 Moisture control. Employ moisture control measures by the following methods:			
A5.407.2.1 Sprinklers. Prevent irrigation spray on structures.	**X**		**X**
A5.407.2.2 Entries and openings. Design exterior entries and openings to prevent water intrusion into buildings.	**X**		**X**
Construction Waste Reduction, Disposal and Recycling			
A5.408.1 Construction waste diversion. Comply with Section 66.32 of the LAMC.	**X**		**X**
A5.408.3.1 Enhanced construction waste reduction. Divert to recycle or salvage non-hazardous construction and demolition debris generated at the site in compliance with Tier 1 – at least 65 percent reduction.		**X**	**X**
A5.408.4 Excavated soil and land clearing debris. 100 percent of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled.	**X**		**X**
Building Maintenance and Operation			
A5.410.1 Recycling by occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage, and collection of non-hazardous materials for recycling.[a]	**X**		**X**
A5.410.2 Commissioning. For new buildings 10,000 square feet and over, building commissioning for all building systems covered by T24, Part 6, process systems, and renewable energy systems shall be included in the design and construction processes of the building project. Commissioning requirements shall include as a minimum items listed in 5.410.2.	**X**		**X**

Table 4.2-2

City of Los Angeles Green Building Code Tier 1 Requirements for Newly-Constructed Nonresidential Buildings

Checklist for the City of Los Angeles	Measures		
	Mandatory	**CALGreen Tier 1**	**Applicable to Proposed Project**
A5.410.2.1 Owner's Project Requirements. Documented before the design phase of the project begins the Owner's Project Requirements shall include items listed in 5.410.4.	**X**		**X**
A5.410.2.2 Basis of Design. A written explanation of how the design of the building systems meets the Owner's Project Requirements shall be completed at the design phase of the building project and shall include as a minimum items listed in 5.410.2.3.	**X**		**X**
A5.410.2.3 Commissioning plan. A commissioning plan describing how the project will be commissioned shall be started during the design phase of the building project and shall include as a minimum items listed in 5.410.2.3.	**X**		**X**
A5.410.2.4 Functional performance testing shall demonstrate the correct installation and operation of each component system, and system-to-system interface in accordance with the approved plans and specifications.	**X**		**X**
A5.410.2.5 Post construction documentation and training. A systems manual and systems operations training are required.	**X**		**X**
A5.410.2.5.1 Systems manual. The systems manual shall be delivered to the building owner and facilities operator and shall include the items listed in 5.410.2.5.1	**X**		**X**
A5.410.2.5.2 Systems operations training. The training of the appropriate maintenance staff for each equipment type and/or system shall include the items listed in 5.410.2.5.1.	**X**		**X**
A5.410.2.6 Commissioning report. A complete report of commissioning process activities undertaken through the design, construction and post-construction phases of the building project shall be completed and provided to the owner or representative.	**X**		**X**

Table 4.2-2

City of Los Angeles Green Building Code Tier 1 Requirements for Newly-Constructed Nonresidential Buildings

Checklist for the City of Los Angeles	Measures		
	Mandatory	**CALGreen Tier 1**	**Applicable to Proposed Project**
A5.410.4 Testing, adjusting and balancing. Testing and adjusting of systems shall be required for buildings less than 10,000 square feet.			
A5.410.4.2 Systems. Develop a written plan of procedures for testing and adjusting systems. Systems to be included for testing and adjusting shall include at a minimum, as applicable to the project, the systems listed in 5.410.3.2.	**X**		**X**
A5.410.4.3 Procedures. Perform testing and adjusting in accordance with industry best practices and applicable national standards on each system.	**X**		**X**
A5.410.4.3.1 HVAC balancing. Before a new space-conditioning system serving a building or space is operated for normal use, the system should be balanced in accordance with the procedures defined by national standards listed in 5.410.3.3.1.	**X**		**X**
A5.410.4.4 Reporting. After completion of testing, adjusting and balancing, provide a final report of testing signed by the individual responsible for performing these services.	**X**		**X**
A5.410.4.5 Operation and maintenance manual. Provide the building owner with detailed operating and maintenance instructions and copies of guaranties/warranties for each system prior to final inspection.	**X**		**X**
A5.410.4.5.1 Inspections and reports. Include a copy of all inspection verifications and reports required by the Department.	**X**		**X**

Table 4.2-2

City of Los Angeles Green Building Code Tier 1 Requirements for Newly-Constructed Nonresidential Buildings

Checklist for the City of Los Angeles	Measures		
	Mandatory	**CALGreen Tier 1**	**Applicable to Proposed Project**
Fireplaces			
A5.503.1 Fireplaces. Install only a direct-vent sealed-combustion gas or sealed wood-burning fireplace, or a sealed woodstove, and refer to residential requirements in the California Energy Code, Title 24, Part 6, Subchapter 7, Section 150.	**X**		Not Applicable: Project does not include fireplaces or woodstoves
A5.503.1.1 Woodstoves. Woodstove shall comply with USEPA Phase II emission limits.	**X**		Not Applicable: Project does not include woodstoves
Pollutant Control			
A5.504.3 Covering of duct openings and protection of mechanical equipment during construction. At the time of rough installation, or during storage on the construction site and until final startup of the heating and cooling equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheetmetal or other methods acceptable to the Department to reduce the amount of dust or debris which may collect in the system.	**X**		**X**
A5.504.4 Finish material pollutant control. Finish materials shall comply with Sections 5.504.4.1 through 5.504.4.4.			
A5.504.4.1 Adhesives, sealants, caulks. Adhesives and sealants used on the project shall meet the requirements of the following standards.			
1. Adhesives, adhesive bonding primers, adhesive primers sealants, sealant primers, and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable, or SCAQMD Rule 1168 VOC limits, as shown in Tables 5.504.4.1 and 5.504.4.2.	**X**		**X**

Table 4.2-2

City of Los Angeles Green Building Code Tier 1 Requirements for Newly-Constructed Nonresidential Buildings

Checklist for the City of Los Angeles	Measures		
	Mandatory	**CALGreen Tier 1**	**Applicable to Proposed Project**
2. Aerosol adhesives, and smaller unit sizes of adhesive and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than one pound and do not consist of more than 16 fluid ounces) shall comply with Statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, or California Code of Regulations, Title 17, commencing with Section 94507.	**X**		**X**
A5.504.4.3 Paints and coatings. Architectural paints and coatings shall comply with Table 5.504.4.3 unless more stringent local limits apply.	**X**		**X**
A5.504.4.3.1 Aerosol Paints and Coatings. Aerosol paints and coatings shall meet the Product-Weighted MIR Limits for reactive organic compounds in section 94522(a)(3) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances (California Code of Regulations [CCR], Title 24, Section 94520 *et seq*).	**X**		**X**
A5.504.4.3.2 Verification. Verification of compliance with this section shall be provided at the request of the Department.	**X**		**X**
A5.504.4.4 Carpet systems. All carpet installed in the building interior shall meet the testing and product requirements of one of the standards listed in 5.504.4.4.	**X**		**X**
A5.504.4.4.1 Carpet cushion. All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute Green Label program.	**X**		**X**
A5.504.4.4.2 Carpet adhesive. All carpet adhesive shall meet the requirements of Table 804.4.1.	**X**		**X**

Table 4.2-2

City of Los Angeles Green Building Code Tier 1 Requirements for Newly-Constructed Nonresidential Buildings

Checklist for the City of Los Angeles	Measures		
	Mandatory	**CALGreen Tier 1**	**Applicable to Proposed Project**
A5.504.4.5 Composite wood products. Hardwood plywood, particleboard, and medium density fiberboard composite wood products used on the interior or exterior of the building shall meet the requirements for formaldehyde as specified in Table 5.504.4.	**X**		**X**
A5.504.4.5.2 Documentation. Verification of compliance with this section shall be provided as requested by the Department. Documentation shall include at least one of the following.	**X**		**X**
1. Product certification and specifications	**X**		**X**
2. Chain of custody certifications	**X**		**X**
3. Other methods acceptable to the Department	**X**		**X**
A5.504.4.6 Resilient flooring systems. Comply with the VOC-emission limits defined in the 2009 Collaborative for High Performance Schools (CHPS) criteria and listed on its Low-emitting Materials List (or Product Registry) or certified under the FloorScore program of the Resilient Floor Covering Institute.	**X**		**X**
A5.504.4.6.1 Verification of compliance. Documentation shall be provided verifying that resilient flooring materials meet pollutant emission limits.	**X**		**X**
A5.504.4.7 Resilient flooring systems Tier 1. For 80 percent of floor area receiving resilient flooring, install resilient flooring complying with the VOC-emission limits defined in the 2009 CHPS criteria and listed on its Low-emitting Materials List or certified under the FloorScore program of the Resilient Floor Covering Institute.		**X**	**X**
A5.504.4.4.7.2 Verification of compliance. Documentation shall be provided verifying that resilient flooring materials meet pollutant emission limits.		**X**	**X**

Table 4.2-2

City of Los Angeles Green Building Code Tier 1 Requirements for Newly-Constructed Nonresidential Buildings

Checklist for the City of Los Angeles	Measures		
	Mandatory	**CALGreen Tier 1**	**Applicable to Proposed Project**
A5.504.4.8 Thermal Insulation, Tier 1. Comply with Chapter 12-13 in Title 24, Part 12 and with the VOC-emission limits defined in 2009 CHPS criteria listed on its Low-emitting Materials List.		**X**	**X**
A5.504.4.8.2 Verification of compliance. Documentation shall be provided verifying that thermal insulation materials meet pollutant emission limits.		**X**	**X**
A5.504.5 Hazardous particulates and chemical pollutants. Minimize and control pollutant entry into buildings and cross-contamination of regularly occupied areas.			
A5.504.5.3 Filters. In mechanically ventilated buildings, provide regularly occupied areas of the building with air filtration media for outside and return air prior to occupancy that provides at least a Minimum Efficiency Reporting Value of 8.	**X**		**X**
Indoor Moisture and Radon Control			
A5.505.1 Indoor moisture control. Buildings shall meet or exceed the provisions of Los Angeles Building Code, Sections 1203 and Chapter 14.[b]	**X**		**X**
Air Quality and Exhaust			
A5.506.1 Outside air delivery. For mechanically or naturally ventilated spaces in buildings, meet the minimum requirements of Section 121 of the California Energy Code, CCR, Title 24, Pat 6 and Chapter 4 of CCR, Title 8, or the applicable local code, and Division 1, whichever is more stringent.[b]	**X**		**X**

Table 4.2-2

City of Los Angeles Green Building Code Tier 1 Requirements for Newly-Constructed Nonresidential Buildings

Checklist for the City of Los Angeles	Measures		
	Mandatory	**CALGreen Tier 1**	**Applicable to Proposed Project**
A5.506.2 Carbon dioxide (CO_2) monitoring. For buildings equipped with demand control ventilation, CO_2 sensors and ventilation controls shall be specified and installed in accordance with the requirements of the latest edition of the California Energy Code, CCR, Title 24, Part 6, Section 121(c).[b]	**X**		**X**
Outdoor Air Quality			
A5.508.1 Ozone depletion and global warming reductions. Installations of HVAC, refrigeration, and fire suppression equipment shall comply with Sections 5.508.1.1 and 5.508.1.2.			
A5.508.1.1 CFCs. Install HVAC/refrigeration equipment that does not contain CFCs. [b]	**X**		**X**
A5.508.1.2 Halons. Install fire suppression equipment that does not contain Halons.[b]	**X**		**X**

Note:
[a] Not all measures are applicable to the proposed Project, as some measures provide requirements for residential buildings or facilities not present at the proposed Project.
[b] These measures are currently required by statute or in regulation.
Source: City of Los Angeles, Los Angeles Green Building Code, Article 9 of Chapter IX of the LAMC. http://ladbs.org/LADBSWeb/LADBS_Forms/Publications/LAGreenBuildingCodeOrdinance.pdf, 2010.

4.2.3.2 Existing Greenhouse Gas Setting

According to the IPCC in 2007, worldwide man-made emissions of GHGs were approximately 40,000 $MMTCO_2e$[21], including ongoing emissions from industrial and agricultural sources, but excluding emissions from land use changes (i.e., deforestation, biomass decay). Total U.S. GHG emissions in 2010 were 6,822 $MMTCO_2e$, or about 17 percent of worldwide GHG emissions.[22] California is a substantial contributor of global GHGs as it is the second largest contributor in the United States (Texas is number one). CARB compiles GHG inventories for the State of California. Based on the 2010 GHG inventory data, California emitted 452 $MMTCO_2e$ *including* emissions resulting from imported electrical power in 2010 and

[21] IPCC, Fourth Assessment Report: Climate Change 2007.
[22] USEPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2010, (2012).

408 $MMTCO_2e$ *excluding* emissions related to imported power.[23] **Table 4.2-3**, *State of California GHG Emissions,* identifies and quantifies statewide anthropogenic GHG emissions in 1990 and 2010. California emissions are due in part to its large size and large population. By contrast, California had the fifth lowest CO_2 emissions per capita from fossil fuel combustion in the U.S., 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 by more than half of what it would have been otherwise.[24]

Table 4.2-3

State of California GHG Emissions [a]

Category	Total 1990 Emissions ($MMTCO_2e$)	Percent of Total 1990 Emissions	Total 2010 Emissions ($MMTCO_2e$)	Percent of Total 2010 Emissions
Transportation	150.7	35%	173.2	38%
Electric Power	110.6	26%	93.3	21%
Commercial	14.4	3%	14.5	3%
Residential	29.7	7%	29.4	7%
Industrial	103.0	24%	86.0	19%
Recycling and Waste [b]	–	–	7.0	2%
High GWP/Non-Specified [c]	1.3	<1%	15.7	3%
Agriculture	23.4	5%	32.5	7%
Forestry	0.2	<1%	0.2	<1%
Forestry Sinks	-6.7	–	– [d]	–
Net Total	**426.6**	**100%**	**451.6**	**100%**

Notes:
[a] Numbers may not add up exactly due to rounding.
[b] Included in other categories for the 1990 emissions inventory.
[c] High GWP gases are not specifically called out in the 1990 emissions inventory.
[d] Revised methodology under development (not reported for 2010).

Source: CARB, 2007, 2013

Between 1990 and 2010, the population of California grew by approximately 7.5 million (from 29.8 to 37.3 million).[25] This represents an increase of approximately 25 percent from 1990 population levels. In addition, the California economy, measured as gross state product, grew from $773 billion in 1990 to $1.88 trillion in 2010 representing an increase of approximately 143 percent (over twice the 1990 gross state product).[26] Despite the population and economic

[23] California Air Resources Board, California Greenhouse Gas 2000-2010 Inventory by Scoping Plan Category - Summary, Available: http://www.arb.ca.gov/cc/inventory/data/data.htm. 2012, accessed April 2013.
[24] Ibid.
[25] U.S. Census Bureau, Data Finders, Available: http://www.census.gov/, Accessed April 2013; California Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State, January 2011 and 2012, with 2000 Benchmark, Available: http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2011-20/view.php, Accessed April 2013.
[26] California Department of Finance, Gross Domestic Product, California, Available:

growth, California's net GHG emissions only grew by approximately 6 percent. The CEC attributes the slow rate of growth to the success of California's renewable energy programs and its commitment to clean air and clean energy.[27]

4.2.4 Thresholds of Significance

The *L.A. CEQA Thresholds Guide* does not contain significance thresholds or criteria for use in evaluating environmental impacts related to GHG emissions. Appendix G of the *CEQA Guidelines* provides sample checklist questions for use in an Initial Study to determine a project's potential for environmental impacts. The most recent amendments relating to climate change and GHG emissions encourage lead agencies to consider many factors in performing a CEQA analysis, but preserve the discretion granted by CEQA to lead agencies in making their own determinations based on substantial evidence. The amendments augmented Appendix G of the *CEQA Guidelines*, the sample environmental checklist form, to include a section on GHG emissions. The amendments to the *CEQA Guidelines* suggested the following questions:

Would the project:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, based on any applicable threshold of significance?
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs?

Section 15064.7 of the *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 gives wide latitude to lead agencies in determining what impacts are significant and does not prescribe thresholds of significance, analytical methodologies, or specific mitigation measures. 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. However, neither the SCAQMD nor the City of Los Angeles has yet established specific quantitative significance thresholds for GHG emissions for residential or commercial projects. In the latest CEQA Guidelines amendments, which went into effect on March 18, 2010, OPR encourages lead agencies to make use of programmatic mitigation plans and programs from which to tier when they perform individual project analyses. However, the City of Los Angeles has not yet developed a Greenhouse Reduction Plan meeting the requirements set forth in the latest OPR guidelines.

As noted above, there are currently no widely-established or readily accepted thresholds of significance for GHG. SCAQMD released a draft guidance document regarding interim CEQA GHG significance thresholds in October 2008 and adopted this proposal in December 2008. SCAQMD proposed a tiered approach, whereby the level of detail and refinement needed to determine significance increases with a project's total GHG emissions. SCAQMD also proposed a screening level of 10,000 $MTCO_2e$ per year for industrial projects, under which

http://www.dof.ca.gov/html/fs_data/latestecondata/FS_Misc.htm, Accessed April 2013. Estimated gross state product for 1990 and 2012 are based on current dollars are of June 2012.

[27] California Energy Commission, Inventory of California Greenhouse Gas Emissions and Sinks 1990 to 2004, (2006).

project impacts are considered "less than significant." The 10,000 $MTCO_2e$ per year screening level was intended to achieve the same policy objective of capturing 90 percent of the GHG emissions from new development projects in the industrial sector.[28] For projects with GHG emissions increases greater than 10,000 $MTCO_2e$ per year, the use of a percent emission reduction target (e.g., 30 percent) was proposed to determine significance. This emission reduction target is a reduction below what is considered "business as usual." SCAQMD also proposes that projects amortize construction emissions over the 30-year lifetime of any given project. Proposed Project construction emissions can be amortized by calculating total construction period emissions and dividing by the 30-year lifetime of the project. Given that the proposed Project consists of aircraft maintenance facilities, it is reasonable to consider it as an industrial project; hence, the threshold of 10,000 $MTCO_2e$ per year will be used for determining significance on a project level, in accordance with Appendix G amendments discussed above.

While it is difficult to predict the specific impact of one project's incremental contribution to the global effects of GHG emissions due to a variety of factors, including the complex and long term nature of such effects and the global scale of climate change, it is possible to quantify a project's incremental increase in GHG emissions. The thresholds of significance proposed by the SCAQMD GHG Working Group are considered most appropriate for the proposed Project. Based on the foregoing, the proposed Project would have a significant impact if the proposed Project's emissions exceed the threshold of 10,000 $MTCO_2e$ per year.

4.2.5 Applicable LAX Master Plan Commitments and Mitigation Measures

As part of the LAX Master Plan, LAWA adopted commitments and mitigation measures pertaining to air quality (denoted with "AQ") in the LAX Master Plan MMRP. Those Master Plan commitments and mitigation measures were later integrated with additional air quality measures for projects at LAX to form a comprehensive list of LAWA Air Quality Control Measures. Of the LAWA Air Quality Control Measures, three of the control measures are applicable to the proposed Project and were considered in the GHG analysis herein (denoted below as LAX-AQ-1, LAX-AQ-2, and LAX-AQ-4). The transportation-related control measure (denoted as LAX-AQ-3) is not applicable to the proposed Project because the Project does not include ground transportation access components; thus, LAX-AQ-3 was not considered in the GHG analysis herein. The portions of the three air quality control measures that would be applicable to the proposed Project and that would provide co-benefits of reducing GHG emissions are summarized in **Table 4.2-4**, **Table 4.2-5**, and **Table 4.2-6**.

LAX-AQ-1 – General Air Quality Control Measures

- This measure describes a variety of specific actions to reduce air quality impacts associated with projects at LAX, and applies to all projects. Some components of LAX-AQ-1 are not readily quantifiable, but would be implemented as part of LAX Master Plan projects. Specific measures applicable to the proposed Project are identified in Table 4.2-4.

[28] South Coast Air Quality Management District, Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold, (2008).

Table 4.2-4

General Air Quality Control Measures [a]

Measure Number	Measure	Type of Measure	Quantified Emissions Reductions
1f	Prohibit idling or queuing of diesel-fueled vehicles and equipment in excess of five minutes. This requirement will be included in specifications for any LAX projects requiring on-site construction.[b]	On- and Off-Road Mobile	NQ
1g	Require that all construction equipment working on-site is properly maintained (including engine tuning) at all times in accordance with manufacturers' specifications and schedules.	Mobile and Stationary	NQ

NQ = Not Quantified

[a]. These measures are from LAX Master Plan Mitigation Measure MM-AQ-2, unless otherwise noted.

[b] From LAX Master Plan Mitigation Measure MM-AQ-2 and Community Benefits Agreement Measure X.M and LAWA's Design and Construction Handbook, Section 1.31.9.

Source: PCR Services Corporation, 2013

LAX-AQ-2 – LAX Master Plan - Mitigation Plan for Air Quality; Construction-Related Measures

- This measure describes numerous specific actions to reduce fugitive dust emissions and exhaust emissions from on-road and off-road mobile and stationary sources used in construction. Some components of LAX-AQ-2 are not readily quantifiable, but would be implemented as part of LAX Master Plan projects. These control strategies are expected to reduce construction-related emissions. Specific measures applicable to the proposed Project are identified in Table 4.2-5.

Table 4.2-5

Construction-Related Control Measures [a]

Measure Number	Measure	Type of Measure	Quantified Emissions Reductions
2d	To the extent feasible, have construction employees' work/commute during off-peak hours.	On-Road Mobile	NQ
2e	Make available on-site lunch trucks during construction to minimize off-site worker vehicle trips.	On-Road Mobile	NQ
2f	Utilize on-site rock crushing facility, when feasible, during construction to reuse rock/concrete and minimize off-site truck haul trips.	On-Road Mobile	NQ

Table 4.2-5

Construction-Related Control Measures [a]

2g	Specify combination of electricity from power poles and portable diesel- or gasoline-fueled generators using "clean burning diesel" fuel and exhaust emission controls.[b]	Stationary Point Source Controls	NQ
2i	Utilize construction equipment having the minimum practical engine size (i.e., lowest appropriate horsepower rating for intended job).	Mobile and Stationary	NQ
2j	Prohibit tampering with construction equipment to increase horsepower or to defeat emission control devices.	Mobile and Stationary	NQ
2k	The contractor or builder shall designate a person or persons to ensure the implementation of all components of the construction-related measure through direct inspections, record reviews, and investigations of complaints.	Administrative	NQ
2m	LAWA will ensure that there is available and sufficient infrastructure on-site, where not operationally or technically infeasible, to provide fuel to alternative-fueled vehicles to meet all requests for alternative fuels from contractors and other users of LAX. This will apply to construction equipment and to operations-related vehicles on-site. This provision will apply in conjunction with construction or modification of passenger gates related to implementation of the LAX Master Plan relative to the provision of appropriate infrastructure for electric GSE.[c]	Mobile	NQ
2o	Prior to January 1, 2015, all off-road diesel-powered construction equipment greater than 50 horsepower shall meet USEPA Tier 3 off-road emission standards. After December 31, 2014, all off-road diesel-power construction equipment greater than 50 horsepower shall meet USEPA Tier 4 off-road emissions standards. Tier 4 equipment shall be considered based on availability at the time the construction bid is issued. LAWA will encourage construction contractors to apply for SCAQMD "SOON" funds to accelerate clean-up of off-road diesel engine emissions.[d]	Off-Road Mobile	Assumed in modeling

NQ = Not Quantified

[a] These measures are from LAX Master Plan Mitigation Measure MM-AQ-2, unless otherwise noted.

[b] From LAX Master Plan Mitigation Measure MM-AQ-2 and LAWA's Design and Construction Handbook, Section 1.31.9.

[c] From Community Benefits Agreement Measure X.N.

[d] From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-1.

Source: PCR Services Corporation, 2013

LAX-AQ-4 – Operations-Related Control Measures

- The principal feature of this measure is the conversion of LAX GSE to low and ultra-low emission technology (e.g., electric, fuel cell, and other future low-emission technologies). It should be noted that no estimate of the air quality benefit (i.e., emission reductions) of other secondary measures is made in this analysis. Specific measures applicable to the proposed Project are identified in Table 4.2-6.

Table 4.2-6

Operations-Related Air Quality Control Measures [a]

Measure Number	Measure	Type of Measure
4a	LAX GSE will be converted to low- and ultra-low emission technology (e.g., electric, fuel cell, and other future low-emission technologies). Both LAWA- and tenant-owned equipment will be included in this conversion program, which will be implemented in phases. LAWA will assign a GSE coordinator whose responsibility it will be to ensure the successful conversion of GSE in a timely manner. This coordinator will have adequate authority to negotiate on behalf of the City and have sufficient technical support to evaluate technical issues that arise during the implementation of this measure.[b]	Airside Operations
4d	LAWA will require the use of electric lawn mowers and leaf blowers, as these units become available for commercial use, for landscape maintenance associated with the proposed project.[c]	General
4e	LAWA will require the conversion of sweepers to alternative fuels or electric power for ongoing airfield and roadway maintenance. In the 2006 GSE inventory, two of ten sweepers were electric powered and one was either CNG or LPG fueled. HEPA filters will be installed on airport sweepers where the use of HEPA filters is technologically and financially feasible and does not pose a safety hazard to airport operations.[d]	General
4f	LAWA will ensure that there is available and sufficient infrastructure on-site, where not operationally or technically infeasible, to provide fuel to alternative-fueled vehicles to meet all requests for alternative fuels from contractors and other users of LAX. This will apply to construction equipment and to operations-related vehicles on-site. This provision will apply in conjunction with construction or modification of passenger gates related to implementation of the LAX Master Plan relative to the provision of appropriate infrastructure for electric GSE.[e]	Operational Vehicles.

Table 4.2-6

Operations-Related Air Quality Control Measures [a]

NQ = Not Quantified
[a] These measures are from LAX Master Plan Mitigation Measure MM-AQ-4, unless otherwise noted.
[b] From Community Benefits Agreement Measure X.F.
[c] From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-3.
[d] From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-3.
[e] From Community Benefits Agreement Measure X.N.

Source: PCR Services Corporation, 2013

4.2.6 Impact Analysis

4.2.6.1 Construction

Annual construction GHG emissions for the proposed Project before mitigation are presented in **Table 4.2-7**. To be consistent with guidance from the SCAQMD for calculating criteria pollutants from construction activities, GHG emissions from on-site construction activities and off-site hauling, vendor deliveries, and construction worker commuting are considered as generated by the proposed Project. The SCAQMD recommends that amortized GHG construction emissions (i.e., total construction emissions divided by the lifetime of the Project, assumed to be 30 years) be added to operational emissions to evaluate significance.[29] Construction of the proposed Project is estimated to emit a total of 12,971 $MTCO_2e$ during construction. When amortized over 30 years, construction results in approximately 432 $MTCO_2e$ per year. Construction-related significance is not determined on an individual basis for GHG emissions; rather, Section 4.2.6.2 below evaluates the significance of the combined construction-related and operations-related GHG emissions for the proposed Project.

Table 4.2-7

Construction Greenhouse Gas Emissions

Emission Source	$MTCO_2e$
Construction (Total)	12,971
Construction (Amortized – 30 years)	432

Source: PCR Services Corporation, 2013.

[29] South Coast Air Quality Management District, Draft Guidance Document - Interim CEQA Greenhouse Gas (GHG) Significance Threshold, October 2008.

4.2.6.2 Operations

Operation of the proposed Project is not expected to generate new emissions associated with aircraft maintenance because the proposed Project simply consolidates, relocates and modernizes existing aircraft maintenance operations. However, the redirection and consolidation of maintenance operations to the proposed Project does result in longer distances between gates and maintenance with some additional taxi/towing emissions. As previously discussed, the modeling of emissions associated with towing activities is based on the use of diesel-fueled GSE, which provides for a conservative analysis. LAX has committed to converting GSE to low and ultra-low emission technology (e.g., electric, fuel cell, and other future low-emission technologies). The program to convert the LAX GSE fleet is currently being implemented. Thus, future actual emissions associated with towing are likely to be lower than the GHG emissions estimated in this EIR.

The number of run-ups from aircraft engine testing is not expected to increase compared to the current condition, nor is additional on-road vehicle traffic expected as a result of the proposed Project. Improvements associated with the LAX Master Plan would consolidate, relocate and modernize existing maintenance operations and run-ups in the western area of LAX. The proposed Project would shift an estimated 60 annual (five monthly) existing run-ups in the western area of LAX to the Project site, also located in the western area of LAX. However, there would no net increase in the number of run-ups or associated GHG emissions. Therefore, only emissions associated with the incremental taxi/tow distance are presented in this operational GHG emissions inventory.

Operational GHG emissions, plus amortized construction GHG emissions, for the proposed Project are presented in **Table 4.2-8**. Future operational GHG emissions are 98 metric tons CO_2e per year, which when combined with the amortized construction emissions indicated above, would contribute to a total of 530 $MTCO_2e$ per year.

Table 4.2-8

Annual Greenhouse Gas Emissions

Emission Source	$MTCO_2e$ Emissions (per year)[a]
Construction (Amortized)	432
Stage 3 Aircraft (Taxiing)	7
Wide-body Aircraft Tug (Towing)	91
Total Net	530
GHG Threshold	10,000
Above the Threshold?	No

Note:
[a] Numbers may not add up exactly due to rounding.

Source: PCR Services Corporation, 2013.

As shown in Table 4.2-8, GHG emissions from amortized construction and operation of the proposed Project would be below SCAQMD's proposed threshold of 10,000 $MTCO_2e$ per year. Based on the above analysis, GHG emissions resulting from proposed Project construction and operations would not directly or indirectly have a significant GHG impact. Therefore, the proposed Project would result in a less than significant impact with regard to GHG emissions.

4.2.6.3 Consistency with Greenhouse Gas Reduction Plans

As discussed previously, the proposed Project would comply with the LAGBC Tier 1 requirements. LAWA has based its new sustainable construction standards on the mandatory and voluntary tiers defined in the LAGBC. All building projects with an LADBS permit-valuation over $200,000 shall achieve LAGBC Tier 1 conformance, to be certified by LADBS during final plan check (on the issued building permit) and validated by the LADBS inspector during final inspection (on the Certificate of Occupancy).

As discussed previously, the requirements of the adopted LAGBC apply to new building construction, building renovations, and building additions within the City of Los Angeles. Specific mandatory requirements and elective measures are provided for three categories: (1) low-rise residential buildings; (2) nonresidential and high-rise residential buildings; and (3) additions and alterations to nonresidential and high-rise residential buildings. The proposed Project would comply with the mandatory requirements for nonresidential buildings including the mandatory requirements for Tier 1 conformance. Specific measures that would be included as part of the Project design are listed in Table 4.2-2. Certain measures of note include but are not limited to compliance with enhanced construction waste reduction goals, exceeding the California Energy Code requirements (based on the 2008 Energy Efficiency Standards) by 15 percent, use of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by 30 percent, providing readily accessible areas that serve the entire building and are identified for the depositing, storage, and collection of non-hazardous materials for recycling, and use of low-emitting adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers, caulks, and other materials. As a result, the proposed Project would be consistent with plans to reduce GHG emissions and impacts would be less than significant.

4.2.6.4 Impacts from Climate Change

As indicated above in Section 4.2.1.1, temperature increases anticipated to occur in conjunction with climate change would lead to environmental impacts in a wide variety of areas, including: sea level rise, reduced snow pack 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. Of these potential climate change-related impacts, sea level rise is most relevant to the proposed Project. The Project site would have a finish surface elevation of approximately 110 feet above sea level and is located within approximately one mile of the coast. It is not anticipated that the Project site would be subject to a 100+ foot (30+ meter) increase in sea level rise in the foreseeable future. Additionally, it is not feasible to design and construct the project at a higher elevation (i.e., adaptive management for long-term GCC impacts such as sea level rise), due to the need for the Project to maintain elevations comparable to those of the existing taxiway system at LAX.

4.2.7 Cumulative Impacts

As discussed previously in Section 4.2.4, *Thresholds of Significance*, the *CEQA Guidelines* do not include or recommend any particular threshold of significance; instead, they leave that decision to the discretion of the lead agency (Section15064.4).[30] The CNRA noted in its Public Notice for the added sections on GHG, 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:[31]

> "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, will be significant on project basis. A typical single project's GHG emissions will be small relative to total global or even statewide GHG emissions. Thus, the analysis of significance of potential impacts from GHG emissions related to a single project is already representative of the long-term impacts on a cumulative basis. Therefore, projects that exceed the project-specific significance thresholds are considered to be cumulatively considerable. Conversely, projects that do not exceed the project-specific thresholds for GHG emissions are not considered to be cumulatively considerable.

As discussed in Section 4.2.6, *Impact Analysis*, the proposed Project's combined amortized construction and operational GHG emissions would not exceed the threshold of 10,000 $MTCO_2e$ per year promulgated by the SCAQMD for industrial projects. The proposed Project would consolidate, relocate, and modernize existing aircraft maintenance facilities at LAX in conformance with Tier 1 requirements, provide for more efficient and effective maintenance of existing aircraft at the airport, and support consistency with the LAX Master Plan by providing an aircraft maintenance area in the southwest portion of the airport. Therefore, in accordance with the discussion above, the proposed Project would not cause cumulatively considerable impacts with respect to GHG emissions.

4.2.8 Mitigation Measures

As discussed above, construction and operation of the proposed Project would not result in significant impacts related to GHG emissions; hence, no mitigation measures are required. Notwithstanding, the proposed Project includes design features to reduce construction equipment operations/duration, as described above. Additionally, GHG emissions associated

[30] Natural Resources Agency, Guidelines for Implementation of the California Environmental Quality Act, Available at: http://ceres.ca.gov/ceqa/docs/FINAL_Text_of_Proposed_Amendemts.pdf. Accessed: March, 2013.

[31] Natural Resources Agency, Guidelines for Implementation of the California Environmental Quality Act, Available at: http://ceres.ca.gov/ceqa/docs/Notice_of_Proposed_Action.pdf Accessed: March, 2013.

with the proposed Project would be reduced directly or indirectly through compliance with the Tier 1 requirements of the LAGBC. For operational impacts, the proposed Project would comply with the Tier 1 requirements of the LAGBC, as presented in Table 4.2-2**,** to address GHG emissions and climate change impacts within an EIR,[32] and with LAWA policies and programs related to sustainability and reducing GHG emissions that are implemented on a project-specific and on an airport-wide basis.

4.2.9 Level of Significance After Mitigation

Not applicable. Impacts are less than significant, as indicated above; therefore, no additional mitigation measures are required.

[32] LAWA, LAWA Memorandum on New Sustainability Guidelines, November 7, 2012.

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