4.2 Greenhouse Gas Emissions

4.2.1 Introduction

This greenhouse gas (GHG) analysis examines potential GHG and global climate change (GCC) impacts that could result from construction and operational activities associated with the proposed MSC North Project and future phase(s) of the MSC Program. This section describes applicable federal, State, and local regulations that address GHG emissions and GCC in California and the City of Los Angeles; existing climate conditions and influences on GCC are also described. The analysis accounts for energy and resource conservation measures that have been incorporated into the proposed MSC North Project and future phase(s) of the MSC Program, as well as pertinent State-mandated GHG emission reduction measures. The analysis also assesses potential cumulative and project-related contributions to GCC that could result from the proposed MSC North Project or future phase(s) of the MSC Program. Air quality effects associated with criteria pollutant (ambient air pollutant) emissions are discussed in Chapter 4.1, *Air Quality*, of this EIR. GHG emission calculations prepared for the proposed MSC North Project and future phase(s) of the MSC Program are provided in Appendix B, *Air Quality and Greenhouse Gas Emissions*, of this EIR.

4.2.1.1 Global Climate Change (GCC)

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*

[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.

California Climate Action Team Report, the following climate change effects are predicted in California over the course of the next century:[3]

- 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; and
- 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." Radiative forcing is the difference between the incoming energy and outgoing energy in the climate system. A feedback is "an internal climate process that amplifies or dampens the climate response to a specific forcing."[4] 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

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[3] California Environmental Protection Agency, Climate Action Team, Report to Governor Schwarzenegger and the California Legislature, March 2006.

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

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 metric. The reference gas for GWP is CO_2; CO_2 has a GWP of 1. Compared to CH_4's GWP of 21, 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 (CF4)	50,000	6,500
PFC: Perfluoroethane (C2F6)	10,000	9,200
Sulfur Hexafluoride (SF6)	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.[6]

In estimating the GHG emissions, the *GHG Protocol Corporate Accounting and Reporting Standard* (GHG Protocol), developed by the World Business Council for Sustainable Development and World Resources Institute,[7] provides standards and guidance for 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 Scheme to the California Climate Action Registry (CCAR), as well as hundreds of GHG inventories prepared by individual companies. Other

5 U.S. Environmental Protection Agency, Glossary of Climate Terms, Available: www.epa.gov/climatechange/glossary.html, Accessed October 10, 2013.

6 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.

7 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.

organizations, such as the Transportation Research Board's Airport Cooperative Research Program Report 11 *Guidance for Preparing Airport Greenhouse Gas Inventories* and the FAA (FAA Order 1050.1E, Change 1, Guidance Memo #3) were also considered.

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); and
- 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.

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 MSC North Project or future phase(s) of the MSC Program have been adopted for determining the significance of the MSC's cumulative contribution to GCC in CEQA documents.

For the purposes of this EIR, as is explained in more detail below, total GHG emissions from the proposed MSC North Project and future phase(s) of the MSC Program were quantified to determine whether the proposed MSC North Project and future phase(s) of the MSC Program would be consistent with the Global Warming Solutions Act of 2006, also known as AB 32 (i.e., reduction of State-wide 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.

Various guidance documents, such as The Climate Registry *General Reporting Protocol* (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 MSC North Project and future phase(s) of the MSC Program include airfield operations; on-Airport

stationary sources, including heating/cooling; construction and operation equipment; construction haul trips and construction worker commute trips.

- Indirect Emissions: Indirect sources of GHG emissions related to the proposed MSC North Project and future phase(s) of the MSC Program include the consumption of purchased electricity, solid waste disposal, water usage, and wastewater treatment.

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 MSC North Project and future phase(s) of the MSC Program.

As related to the proposed MSC North Project and future phase(s) of the MSC Program, direct GHG emissions would include those from any direct changes in aircraft and GSE operations, busing operations, and emissions from the use of natural gas for heating and cooling of facilities. Indirect emissions would include consumption of purchased electricity, the disposal and decomposition of waste generated by the operation of the proposed MSC North Project and future phase(s) of the MSC Program, water consumption, and wastewater treatment.

This analysis considers only those GHG emissions resulting from the proposed MSC North Project and future phase(s) of the MSC Program that would contribute to an incremental (net) increase compared to existing conditions. The future operation of the proposed MSC North Project would not result in long-term operational changes to surface traffic activity and surface traffic flows within the Airport area and, in the long-term, the proposed MSC North Project would not change the number of airline passengers traveling to/through the Airport. Thus, new on-road vehicle traffic would not be generated and emissions from vehicle traffic are not included for the 2019 Without Project and With Project scenarios. Since potential impacts resulting from GHG emissions are long-term rather than acute, GHG emissions are calculated on an annual basis.

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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.

While the MSC North Project-related emissions are assessed on a project level, GHG emissions associated with any future phase(s) of the MSC Program are also discussed on a program-level. A project-level environmental review for future phase(s) of the MSC Program will be initiated at such time as LAWA determines the specific timing of future phase(s). As related to the MSC Program, direct incremental GHG emissions would include those from aircraft and GSE operations, on-Airport roadways, and stationary sources. Indirect emissions would include consumption of purchased electricity, the disposal and decomposition of waste generated by the operation of the MSC Program, water consumption, and wastewater treatment.

4.2.2.1 MSC North Project

This section discusses the methodologies used in quantifying GHG emissions associated with construction and operation of the proposed MSC North Project. These methodologies meet the requirements of the South Coast Air Quality Management District (SCAQMD) and CARB for evaluations conducted under CEQA.

Construction

GHG emissions associated with construction of the proposed MSC North Project were calculated based on methodologies provided in The Climate Registry *General Reporting Protocol* (GRP) Version 2.0.[10] The GRP is the guidance document that LAWA and other members of The Climate Registry must use to prepare annual GHG inventories for the Registry. Therefore, for consistency, the GRP also was used in this study. However, to adapt the GRP for CEQA purposes, a refinement 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). This analysis focuses on GHG emissions affected by the proposed MSC North Project.

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

- Off-road construction equipment
- On-road equipment and delivery/haul trucks
- Construction worker commute vehicles

The parameters used to develop construction GHG emissions for these sources, including construction schedule, equipment usage, and load factors, are generally the same as those outlined for construction criteria air pollutant emissions, presented in Section 4.1, *Air Quality*.

In accordance with SCAQMD guidance, GHG emissions from construction have been amortized over the 30-year lifetime of the proposed MSC North Project to enable comparison to the SCAQMD and LA CEQA thresholds of significance (i.e., total construction GHG emissions were divided by 30 to determine an annual construction emissions estimate comparable to operational emissions).

[10] California Climate Action Registry, General Reporting Protocol, Version 3.1, January 2009.

Operations

In accordance with the State *CEQA Guidelines* and the *L.A. CEQA Thresholds Guide*, the operational GHG impacts were assessed based on the net new incremental increase in emissions to determine significance under CEQA. Impacts were assessed for the following scenarios: the 2012 With Project compared to the 2012 existing conditions, and the 2019 With Project compared to the 2019 Without Project scenario.

As discussed in Chapter 2, *Project Description*, the intent of the proposed MSC North Project is to provide LAWA with the flexibility to accommodate existing demand for aircraft gates while modernizing other terminals at LAX, rehabilitating apron and taxilane pavement within the CTA, and reducing reliance on the West Remote Pads/Gates. In doing so, the proposed MSC North Project would only change the location of aircraft gates, where passengers will board and de-board. This will not result in changes to air traffic patterns or an increase in the number or type of airport operations. As a result, the MSC North Project will not increase surface vehicle traffic for passengers traveling to or from LAX. The MSC North Project would increase the number of employees at the Airport by less than 2 percent, which as stated in the Initial Study is not anticipated to be significant. Thus, on-road motor vehicle GHG emissions were not included in the inventory, since there would be few vehicle trips associated with the operation of the proposed MSC North Project. The future operation of the proposed MSC North Project would not result in long-term operational changes to surface traffic or traffic flows within the Airport area.

Aircraft

Information on the number and types of aircraft operations at LAX for 2012 and 2019 was developed for the MSC North Project. The aircraft activity levels for the baseline conditions are from calendar year 2012. The aircraft activity levels for future conditions were based on aircraft activity growth forecasts for LAX in the year 2019. These data were used to develop airport simulation models (SIMMOD) of aircraft operations for baseline and future conditions, without and with the proposed Project. The SIMMOD is an industry accepted tool used to generate information about airport facilities and operations that predicts specific timing, volume, and location (e.g., runway used) for future aircraft operations.

The analysis of aircraft emissions was conducted by estimating taxi and idle times without and with the proposed MSC North Project using the LAX MSC North Project SIMMOD results. The completion of the proposed MSC North Project would have a slight beneficial impact on taxi/idle times of aircraft moving around the airfield at LAX (compared to Without Project conditions in the same timeframe), based on analysis of arriving and departing passengers that could use the new gates at MSC North instead of having to use the West Remote Pads/Gates under the existing 2012 facilities. As no other phases of the landing-takeoff (LTO) cycle (approach, taxi/idle, takeoff, and climbout) and no changes to the runways at the airport would occur from the proposed MSC North Project, only taxi/idle emissions were analyzed. A summary of the taxi times are shown in **Table 4.2-2**.

Table 4.2-2

Assumed Aircraft Operations and Taxi Times, MSC North Project by Calendar Year

Year/Scenario	Operations	Average Taxi-In Time (minutes)	Average Taxi-Out Time (minutes)
2012 Existing Conditions	605,480	9.96	11.89
2012 Existing With MSC North Project	605,480	9.94	11.82
2019 Future Without MSC North Project	631,242	9.76	12.37
2019 Future With MSC North Project	631,242	9.74	12.30

Source: Ricondo & Associates, Inc., 2013.

Aircraft CO_2 emissions were calculated using FAA's Emissions and Dispersion Modeling System (EDMS), Version 5.1.4.1.[11] EDMS is an air quality model that estimates certain pollutant emissions from airport sources based on information input into the model. Emissions produced by LAX activity during four aircraft operational modes (approach, taxi/idle, takeoff, and climbout) were calculated for each scenario. The taxi/idle times were derived from the SIMMOD results. The EDMS default times-in-mode were the basis for climbout, approach, and takeoff times; however, climbout and approach times were adjusted according to the average mixing height adjustment parameters contained in EDMS. For LAX, a mixing height of 1,806 feet above mean sea level was used in the emissions modeling.

CH_4 and N_2O emissions are not directly estimated by EDMS; therefore, it was necessary to estimate emissions using other methods. Emissions were calculated using fuel burn from EDMS and emission factors from the U.S. Energy Information Administration.[12]

Ground Support Equipment (GSE) and Auxiliary Power Units (APU)

Data on specific GSE types and times-in-mode were determined on a per aircraft basis using the default assignments in EDMS for the fleet mix of each scenario (2012 Existing Conditions, 2012 With Project, 2019 Future Without Project, and 2019 Future With Project). The GSE types were then compared against a 2013 GSE survey at LAX. This information, combined with emission factors obtained from OFFROAD2007 were used to determine CO_2, NH_4, and N_2O emissions.

Although operations of APUs are expected to contribute to GHG emissions, EDMS does not estimate CO_2 emissions or fuel consumption; therefore APUs are not included in the emissions inventory. Thus, the emissions estimates associated with the proposed MSC North Project are conservative, as they do not reflect the emissions reductions that would occur from aircraft being relocated from the West Remote Pads/Gates that would have preconditioned air and gate power, such that aircraft APUs for those operations would be substantially reduced.

[11] U.S. Department of Transportation, Federal Aviation Administration, Emissions and Dispersion Modeling System (EDMS 5.1.3) User's Manual (FAA-AEE-07-01 Rev. 8 - 11/15/10), 2010.

[12] U.S. Energy Information Administration, "Voluntary Reporting of Greenhouse Gases Program Fuel Emission Coefficients," January 31, 2011, available: www.eia.gov/oiaf/1605/coefficients.html#tbl7.

Busing Operations

As discussed in Chapter 2, *Project Description*, passengers would access the MSC North building by airfield buses powered by clean fuel, traveling between existing CTA terminal facilities and the MSC North building. The distance from the CTA to the MSC North is substantially shorter than existing busing operations today, including those to the West Remote Pads/Gates and the American Eagle Commuter Terminal. As the MSC North Project is intended to reduce existing busing operations to the West Remote Pads/Gates, the distance per trip would be reduced. However, even with the reduction in distance, the potential number of operations to the MSC could result in an increase of daily bus trips and total vehicle miles traveled (see Appendix B).

Total emissions from buses were calculated using the same methodology assumed for on-road construction vehicles discussed in Chapter 4.1, *Air Quality*. The 2012 baseline fleet mix includes 15 diesel-fueled buses and 12 compressed natural gas (CNG) buses. GHG emissions factors for diesel buses were obtained from EMFAC2011; GHG emission factors for CNG buses were obtained from USEPA data.[13] Emission factors were multiplied by the total daily busing distance and number of annual bus trips to obtain emissions in metric tons (MT) of CO_2 per year. For the purposes of this EIR, it's assumed that the LAX bus fleet in 2019 is comprised of all CNG buses.

Building Emissions

Building emissions could occur directly from natural gas combustion used for space heating and indirectly from electricity and solid waste disposal. In addition to electricity purchased by LAWA and its tenants to operate LAX, electricity is also used indirectly to supply water to LAX and to deliver water and wastewater treatment facilities.

Changes in the size of facilities on the MSC North Project site between the existing (2012) and Project year (2019) were used to estimate the change in GHG emissions that would occur from natural gas combustion, purchased electricity, wastewater treatment, water consumption, and solid waste disposal. Implementation of the proposed MSC North Project would include the removal of several existing nearby buildings in order to construct components of the MSC North Project. As described in Section 2.5, *Project Characteristics*, all facilities would be relocated in-kind or consolidated with an existing facility, aside from the U.S. Coast Guard Facility. As such, the 2012 baseline and 2019 Without Project scenarios only quantify the GHG emissions from the U.S. Coast Guard facility. The 2019 With Project scenario quantifies the emissions from the operations of the completed MSC North building. Natural gas combustion for heating and cooling needs, as part of the MSC North Project, would be accommodated through the existing Central Utility Plant (CUP); new boilers are not anticipated to be constructed as part of the MSC North Project. Natural gas GHG emissions for the MSC North are based on an increase in load at the CUP.

[13] U.S. Environmental Protection Agency, Emission Factors for Greenhouse Gas Inventories, September 26, 2011, available: www.epa.gov/climateleadership/documents/emission-factors.pdf.

Direct and indirect building emissions were estimated based on facility square footages using the California Emissions Estimator Model (CalEEMod), Version 2013.2.2.[14] Default model assumptions were adjusted based on site specific data (see Appendix B). Emissions are given in units of metric tons of CO_2e ($MTCO_2e$).

4.2.2.2 Future Phase(s) of the MSC Program

The MSC Program components that are not part of the MSC North Project, as discussed in Chapter 2, *Project Description*, have only been conceptually planned; thus, only a program-level GHG analysis of these components is possible. For those MSC Program components receiving only programmatic environmental review in the MSC EIR, further project-level environmental review under CEQA will be required in the future before they can be implemented. Project-level environmental documents for future phase(s) of the MSC Program will be initiated at such time as LAWA determines the specific timing.

Any future phase(s) of the MSC Program would contribute to GCC through the emissions of GHG, including direct and indirect emissions. Emissions in this GHG analysis are presented in terms of a projected future Program operational date of 2025, as presented in LAWA's Specific Plan Amendment Study (SPAS) Final EIR since GHG emissions were not analyzed in the LAX Master Plan Final EIR.

For purposes of this analysis construction emissions for the future phase(s) of the MSC Program are assumed to be equal to the construction emissions of the MSC North Project. This assumption was made because the future phase(s) of the MSC Program have only been conceptually planned. Although the MSC North Project as proposed would include 11 gates and the future phase(s) of the MSC Program could include up to 18 gates, the MSC North building includes the northern half of the building, as well as the central core. The southern extension of the MSC (including associated aircraft apron and the extension of Taxilane C12) would be roughly equivalent to the northern half of the building while the CTP would be roughly equivalent to the central core of the MSC in terms of building size. Because the MSC North Project also includes the demolition and relocation of various facilities, the construction of Taxiway C14, and the construction of tunnels to the CTP, the assumption that construction emissions for the future phase(s) of the MSC Program would be equal to the construction emissions estimated for the MSC North Project is over-stated, but reasonable for this Program-level analysis.

Direct emissions from aircraft and GSE operations with the future phase(s) of the MSC Program were assumed equal to the 2025 SPAS Alternative 3 (LAX Master Plan Alternative D), as this represents the future condition with the full MSC Program, including the CTP. Like the MSC North Project, the future phase(s) of the MSC Program would not result in changes to air traffic patterns or an increase in airport operations when compared to the without Program condition,

[14] South Coast Air Quality Management District, California Emissions Estimator Model, prepared by ENVIRON International Corporation, available: http://www.caleemod.com/.

as the full MSC Program is only changing the location of aircraft gates. The taxi-times associated with the 2025 Future Without MSC Program and 2025 Future With MSC Program are shown in **Table 4.2-3**.[15]

Table 4.2-3

Assumed Aircraft Operations and Taxi Times, MSC Program by Calendar Year

Year/Scenario	Annual Operations	Taxi-In Time (minutes per operation)	Taxi-Out Time (minutes per operation)
2012 Existing Conditions	605,480	9.96	11.89
2012 Existing With MSC Program	605,480	9.94	11.82
2025 Future Without MSC Program	707,151	10.86	13.72
2025 Future With MSC Program	707,151	10.84	13.64

Source: Ricondo & Associates, Inc., 2013.

As the LAX Master Plan Final EIR did not account for public traffic circulation within the CTA, GHG emissions are also included for on-Airport roadways. Emissions were calculated using roadway volumes and mode splits, along with other assumptions, from the traffic analysis found in Section 4.6, *On-Airport Transportation*. Emission factors were obtained from EMFAC2011.

The future phase(s) of the MSC Program include provisions for an electric Automated People Mover (APM) to connect the MSC concourse with the CTA. As such, the future phase(s) of the MSC Program do not require the busing of passengers. GHG emissions for the APM have been quantified in terms of purchased electricity. Building emissions for the full MSC Program, including those from natural gas combustion, purchased electricity, solid waste disposal, water consumption, and wastewater treatment, have been calculated using CalEEMod and the same methodology for the MSC North Project, as outlined in Section 4.2.2.1.2. Specific model assumptions can be found in Appendix B.

[15] The approved LAX Master Plan includes a gate cap limit at LAX, which effectively limits the number of aircraft passengers that can be processed/accommodated at LAX. This was established in the Final EIS/EIR for the LAX Master Plan, which showed forecasted activity levels for the No Action/No Project alternative essentially the same as for the approved Alternative D. The MSC, while providing modern aircraft gates, does not increase the passenger processing capabilities of the airport and would have no effect on the number or type of aircraft operations at LAX. Therefore, the MSC North Project and the future phase(s) of the MSC Program will comply with the gate cap as discussed in the LAX Master Plan. The MSC North Project will allow LAWA to modernize the existing terminal area without having to reduce the number of available gates and will reduce the number of operations at the West Remote Pads/Gates. Once the future phase(s) of the MSC Program is completed, the West Remote Pads/Gates would be eliminated.

4.2.3 Existing Conditions

4.2.3.1 Regulatory Setting

International and Federal Regulations and Directives

International Governmental Panel on Climate Change (IPCC)

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 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 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 Kyoto Protocol in 1998. However, in order for the Kyoto 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 Kyoto 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 USEPA regulate four GHGs, including CO_2, under Section 202(a)(1) of the 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 and that the USEPA has statutory authority to regulate emissions of GHGs from motor vehicles.

Endangerment Finding

The USEPA subsequently published its endangerment finding for GHGs in the Federal Register,[16] which responds to the court case noted above. 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.

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

[16] 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.

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. Emission estimates included in this analysis account for the Pavley II standards.

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 LAX 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 per capita reduction 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

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 Low Carbon Fuel Standard (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.[17] 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. CARB's motion to stay the decision was also subsequently denied on January 24, 2012 (Rocky Mountain Farmers Union v. Goldstene, E.D. Cal., No. 09-cv-02234).

Senate Bill 97 (SB 97)

SB 97 requires the Office of Planning and Research (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 State *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.[18]

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) 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 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

[17] 17 California Code of Regulations, Section 95480 et seq., "Low Carbon Fuel Standard."

[18] Senate Bill 97, August 24, 2007.

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.[19]

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* (Green LA).[20] 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 LA's 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* (Climate LA).[21] 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.

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

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19 Los Angeles Department of Water and Power, "Power Content Label," https://www.ladwp.com. Accessed August 2013.

20 City of Los Angeles, Green LA - An Action Plan to Lead the Nation in Fighting Global Warming, 2007.

21 City of Los Angeles, Climate LA - Municipal Program Implementing the Green LA Climate Action Plan, 2008.

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 California Energy Commission (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.

LAWA Sustainability Plan

LAWA's Sustainability Plan,[22] developed in April 2008, describes LAWA's current sustainability practices and sets goals and actions that LAWA will undertake to implement the initiatives described above (Green LA, Climate LA, and LAGBC). The Sustainability Plan presents initiatives for the fiscal year 2008-2009 and long-term objectives and targets to meet the fundamental objectives identified above.

[22] City of Los Angeles, Los Angeles World Airports, Sustainability Plan, April 2008.

LAWA has developed *Sustainable Airport Planning, Design and Construction Guidelines for Implementation on All Airport Projects* (LAWA Guidelines).[23] The LAWA Guidelines were developed to provide a comprehensive set of performance standards focusing on sustainability specifically for Airport projects on a project-level basis. A portion of the LAWA Guidelines is based on the LEED® rating systems for buildings. The LAWA Guidelines incorporate a "LAWA-Sustainable Rating System" based on the number of planning and design points and construction points a project achieves, based on the criteria and performance standards defined in the LAWA Guidelines.

Based on the above, LAWA has taken steps to increase its sustainability practices related to daily Airport operations, many of which directly or indirectly contribute to a reduction in GHG emissions. Actions that LAWA has been undertaking include promoting and expanding the Fly Away non-stop shuttle service to the Airport in an effort to reduce the number of vehicle trips to the Airport, establishment of an employee Rideshare Program, use of alternative fuel vehicles, purchasing renewably generated Green Power from LADWP, and reducing electricity consumption by installing energy-efficient lighting, variable demand motors on terminal escalators, and variable frequency drives on fan units at terminals and LAWA buildings.

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 its 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 Los Angeles Municipal Code, 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

[23] City of Los Angeles, Los Angeles World Airports, Sustainable Airport Planning, Design and Construction Guidelines for Implementation on All Airport Projects, February 2010.

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). Tier 1 refers specific practices that are to be incorporated into projects to "achieving enhanced construction levels by incorporating additional green building measures." 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/tenant 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 LAWA's Annual Sustainability Reports in accordance with the GRI Sustainability Reporting Guidelines and Airport Operators Sector Supplement.

The proposed MSC North Project and future phase(s) of the MSC Program would comply with the mandatory requirements for nonresidential buildings including the mandatory requirements for LAGBC Tier 1 conformance, which are provided in **Table 4.2-4**. Not all measures are applicable to the proposed MSC North Project or future phase(s) of the MSC Program, as some measures provide requirements for residential buildings or facilities not proposed as part of the MSC North Project or future phase(s) of the MSC Program. The specific measures that are applicable and would be included as parts of the design of the proposed MSC North Project and future phase(s) of the MSC Program are indicated in the right-hand column in Table 4.2-4.

Table 4.2-4

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

	Measures		
Checklist for the City of Los Angeles	**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)
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**		Not applicable; See A5.106.4.1 See 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% of visitor motorized vehicle parking capacity, with a minimum of one two-bike capacity rack.	**X**		Not applicable; MSC will not have landside access for visitor traffic
A5.106.4.2 Long-term bicycle parking. For buildings with over ten tenant-occupants, provide secure bicycle parking for 5% of motorized vehicle parking capacity, with a minimum of one space.	**X**		Not applicable, no parking will be provided

Table 4.2-4

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

	Measures		
Checklist for the City of Los Angeles	**Mandatory**	**CALGreen Tier 1**	**Applicable to Proposed Project**
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**	Not applicable; no parking will be provided
A5.106.5.3.2 Electric vehicle supply wiring. Provide a minimum number of 208/240 V 40 amp, grounded AC outlet(s), that is equal to 5% of the total number of parking spaces.	**X**		Not applicable; no parking will be provided
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 ft 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 TDV 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
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**		Not applicable; equipment and appliances will be commercial grade
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**

Table 4.2-4

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

Checklist for the City of Los Angeles	Measures: Mandatory	Measures: CALGreen Tier 1	Measures: Applicable to Proposed Project
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; will 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 gal/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 gal/day.	X		X
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 gal/day.	X		X
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		X
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 of 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

Table 4.2-4

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

Checklist for the City of Los Angeles	Measures: Mandatory	Measures: CALGreen Tier 1	Measures: Applicable to Proposed Project
4. Public lavatory faucets	X		X
5. Public metering self-closing faucets	X		X
6. Residential bathroom lavatory sink faucets	X		Not applicable; residential uses are not part of MSC
7. Residential kitchen faucets	X		Not applicable; residential uses are not part of MSC
8. Residential shower heads	X		Not applicable; residential uses are not part of MSC
9. Single shower fixtures served by more than one showerhead	X		X
Outdoor Water Use			
A5.304.1 Water budget. A water budget shall be developed for landscape irrigation use.[2]	X		Not applicable; there will be no landscaping as part of MSC
A5.304.2 Outdoor potable water use. Buildings 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		Not applicable; there will be no landscaping as part of MSC
A5.304.3 Irrigation design. Buildings on sites 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.			
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		Not applicable; there will be no landscaping as part of MSC
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		Not applicable; there will be no landscaping as part of MSC
A5.304.4 Potable water reduction. Provide water efficient landscape irrigation design that reduces by use of potable water.			

Table 4.2-4

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

Checklist for the City of Los Angeles	Measures: Mandatory	Measures: CALGreen Tier 1	Measures: Applicable to Proposed Project
A5.304.4.1 Tier 1 – Reduce the use of potable water to a quantity that does not exceed 60 percent of ETo times the landscape area.		X	Not applicable; there will be no landscaping as part of MSC
A5.304.4.3 Verification of compliance. A calculation demonstrating the applicable potable water use reduction required by this section shall be provided.		X	Not applicable; there will be no landscaping as part of MSC
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 (RCV)		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.[1]	X		X
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		Not applicable; no clearing of vegetated, non-developed areas will occur
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.[1]	X		X

Table 4.2-4

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

Checklist for the City of Los Angeles	Measures: Mandatory	Measures: CALGreen Tier 1	Measures: Applicable to Proposed Project
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
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 (BOD). 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 at 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 at 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
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		Not applicable for buildings greater than 10,000 square feet
A5.410.4.3 Procedures. Perform testing and adjusting in accordance with industry best practices and applicable national standards on each system.	X		Not applicable for buildings greater than 10,000 square feet

Table 4.2-4

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

Checklist for the City of Los Angeles	Measures		
	Mandatory	CALGreen Tier 1	Applicable to Proposed Project
A5.410.4.3.1 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		Not applicable for buildings greater than 10,000 square feet
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		Not applicable for buildings greater than 10,000 square feet
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		Not applicable for buildings greater than 10,000 square feet
A5.410.4.5.1 Inspections and reports. Include a copy of all inspection verifications and reports required by the Department.	X		Not applicable for buildings greater than 10,000 square feet
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; MSC will not include fireplaces or woodstoves
A5.503.1.1 Woodstoves. Woodstove shall comply with US EPA Phase II emission limits.	X		Not applicable; MSC will 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 4.2-4

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

Checklist for the City of Los Angeles	Measures: Mandatory	Measures: CALGreen Tier 1	Measures: 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 ROC in section 94522(a)(3) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances (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
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: 1. Product certification and specifications 2. Chain of custody certifications 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 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

Table 4.2-4

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

Checklist for the City of Los Angeles	Measures		
	Mandatory	CALGreen Tier 1	Applicable to Proposed Project
A5.504.4.7 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
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 MERV 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.[2]	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.[2]	X		X
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).[2]	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.[2]	X		X

Table 4.2-4

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

	Measures		
Checklist for the City of Los Angeles	**Mandatory**	**CALGreen Tier 1**	**Applicable to Proposed Project**
A5.508.1.2 Halons. Install fire suppression equipment that does not contain Halons.[2]	**X**		**X**

Notes:
1 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.
2 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 million metric tons of CO_2e ($MMTCO_2e$), 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 19 percent of worldwide GHG emissions.[24] 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 (i.e., the latest year for which data are available), California emitted 452 $MMTCO_2e$ *including* emissions resulting from imported electrical power in 2010 and 408 $MMTCO_2e$ *excluding* emissions related to imported power.[25] **Table 4.2-5** identifies and quantifies statewide anthropogenic GHG emissions and sinks 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.[26]

Between 1990 and 2010, the population of California grew by approximately 7.5 million (from 29.8 to 37.3 million).[27] This represents an increase of approximately 25 percent from 1990 population levels. In addition, the California economy, measured as gross state product, grew

24 U.S. Environmental Protection Agency, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2010, (2012).

25 California Air Resources Board, California Greenhouse Gas 2000-2010 Inventory by Scoping Plan Category - Summary, Available: www.arb.ca.gov/cc/inventory/data/data.htm, accessed October 2013.

26 California Air Resources Board, California Greenhouse Gas 2000-2010 Inventory by Scoping Plan Category - Summary, Available: www.arb.ca.gov/cc/inventory/data/data.htm, accessed October 2013.

27 U.S. Census Bureau, Data Finders, Available: 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: www.dof.ca.gov/research/demographic/reports/estimates/e-5/2011-20/view.php, Accessed October 2013.

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).[28] Despite the population and economic growth, California's net GHG emissions only grew by approximately 6 percent. The California Energy Commission attributes the slow rate of growth to the success of California's renewable energy programs and its commitment to clean air and clean energy.[29]

Table 4.2-5

State of California GHG Emissions [1]

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 [2]	–	–	7.0	2%
High GWP/Non-Specified [3]	1.3	<1%	15.7	3%
Agriculture	23.4	5%	32.5	7%
Forestry	0.2	<1%	0.2	<1%
Forestry Sinks	-6.7	–	– [4]	–
Net Total	**426.6**	**100%**	**451.6**	**100%**

Notes:
1 Numbers may not add up exactly due to rounding.
2 Included in other categories for the 1990 emissions inventory.
3 High GWP gases are not specifically called out in the 1990 emissions inventory.
4 Revised methodology under development (not reported for 2010).

Source: CARB, 2007, 2013

The baseline Project-related operational emissions (2012), including those from aircraft, GSE, busing operations, and on-Airport roadways, are shown in **Table 4.2-6**. Indirect off-Airport emissions, including the consumption of purchased electricity, disposal of solid waste, and water consumption, are shown as they relate to current uses of the MSC North Project site; these emissions are not representative of the entire Airport.

28 California Department of Finance, Gross Domestic Product, California, Available: 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 as of June 2012.

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

Table 4.2-6

Existing (2012) Operational GHG Emissions

	Annual Emissions (metric tons CO_2e [1,2] per year)			
Emission Source	**CO_2 [3]**	**CH_4 [4,9]**	**N_2O [5,9]**	**Total**
Aircraft	688,996	399	6,764	696,159
Ground Support Equipment	31,305	217	768	32,290
Auxiliary Power Units [6]	N/A	N/A	N/A	N/A
Busing Operations [7]	321	<1	<1	321
On-Airport Roadways [8]	46,253	174	1,099	47,526
On-Airport Stationary	9	<1	<1	9
On-Airport Subtotal	**766,884**	**790**	**8,631**	**776,305**
Building Electricity	191	<1	<1	191
Solid Waste Disposal	17	<1	<1	17
Indoor Water Usage	80	<1	<1	80
Off-Airport Subtotal	**288**	**<1**	**<1**	**288**
Total Existing Emissions	**767,172**	**790**	**8,631**	**776,593**

Notes:
1 CO_2e = carbon dioxide equivalent
2 CO_2e emissions are determined by multiplying the individual pollutant emissions by its respective GWP. The GWP for CH_4 is 21 and the GWP for N_2O is 310.
3 CO_2 = carbon dioxide
4 CH_4 = methane
5 N_2O = nitrous oxide
6 The EDMS model does not provide GHG emissions or fuel consumption data for APUs; therefore GHG emissions cannot be estimated.
7 Busing emissions only include GHG emissions from diesel-fueled buses (approximately 54 percent of the existing fleet); emissions factors for GHG pollutants were not available for alternatively-fueled buses.
8 This inventory only includes traffic traveling through the central terminal area (CTA).
9 CH_4 and N_2O emissions were estimated from the Los Angeles World Airports *GHG Emissions Inventory* (CDM, 2008).

Source: Ricondo & Associates, Inc., 2013.

4.2.4 Thresholds of Significance

As noted in the MSC Initial Study, for the purposes of this EIR, and in accordance with Appendix G of the State *CEQA Guidelines*, environmental impacts related to GHG emissions is considered significant if the proposed Project would:

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

The *L.A. CEQA Thresholds Guide* does not contain significance thresholds or criteria for use in evaluating GHGs.

Section 15064.7 of the State *CEQA Guidelines* defines a threshold of significance as an identifiable quantitative, qualitative or performance level of a particular environmental effect,

compliance with which determines the level of impact significance. CEQA 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 project-level specific quantitative significance thresholds for GHG emissions. In the latest State *CEQA Guidelines* amendments, which went into effect on March 18, 2010, the Governor's Office of Planning and Research (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.

In addition to the above guidelines, in October 2008, CARB published draft preliminary guidance to agencies on how to establish interim significance thresholds for analyzing GHG emissions in *Recommended Approaches for Setting Interim Thresholds for Greenhouse Gases under the California Environmental Quality Act*. For industrial projects, the CARB guidance proposed that projects that emit less than 7,000 $MTCO_2e$ per year (with a 30-year amortization of emissions), as well as meeting performance standards for construction and transportation, may be considered less than significant. This threshold would apply to project-related emissions above the baseline.

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 and 3,000 $MTCO_2e$ per year for residential and commercial projects, under which 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; similarly, the 3,000 $MTCO_2e$ 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 residential and commercial sector.[30] For projects with GHG emissions increases greater than 10,000 $MTCO_2e$ per year (for industrial projects) or 3,000 $MTCO_2e$ (for residential and commercial projects), 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." As noted earlier, SCAQMD also proposes that projects amortize construction emissions over the 30-year lifetime of any given project for comparison relative to these thresholds. Proposed project construction emissions can be amortized by calculating total construction period emissions and dividing by the 30-year lifetime of the project.

Since there are currently no formally adopted significance thresholds for daily GHG emission for either construction or transportation operations, amortized emissions from the MSC North Project and future phase(s) of the MSC Program were compared to the 10,000 $MTCO_2e$ SCAQMD threshold (total GHG emissions above the baseline) for industrial projects.

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

4.2.5 Applicable LAX Master Plan Commitments and Mitigation Measures

As part of the LAX Master Plan, LAWA adopted commitments and control measures pertaining to air quality (denoted with "AQ") in the LAX Master Plan (Alternative D MMRP). Of the three commitments and four control measures that were designed to address air quality impacts related to implementation of the LAX Master Plan, none of the commitments are applicable to the proposed MSC North Project or future phase(s) of the MSC Program, but all of the control measures are applicable and were considered in the GHG analysis herein (denoted below as LAX-AQ-1, LAX-AQ-2, LAX-AQ-3, and LAX-AQ-4). The portions of the air quality control measures that would be applicable to the proposed Project and that would provide co-benefits of reducing GHG emissions are summarized below in **Table 4.2-7**, **Table 4.2-8, Table 4.2-9** and **Table 4.2-10**.

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 the proposed MSC North Project and future phase(s) of the MSC Program. Specific measures are identified in **Table 4.2-7**.

Table 4.2-7

General Air Quality Control Measures [1]

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.[2]	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

Notes:
NQ = Not Quantified
1 These measures are from LAX Master Plan Mitigation Measure MM-AQ-1, unless otherwise noted.
2 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.

Sources: City of Los Angeles, Los Angeles World Airports (LAWA), and FAA, Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047, April 2004; Los Angeles World Airports and LAX Coalition for Economic, Environmental, and Educational Justice, Cooperation Agreement, Los Angeles International Airport Master Plan Program, December 2004; Los Angeles World Airports, Design and Construction Handbook, November 2012.

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 construction-related mobile and stationary sources used in construction. Some components of LAX-AQ-2 are not readily quantifiable, but will be implemented as part of the proposed MSC North Project and future phase(s) of the MSC Program. Several of these mitigation strategies, presented in Table 4.2-8 are expected to further reduce construction-related CO_2 emissions associated with the MSC North Project and future phase(s) of the MSC Program.

Table 4.2-8

Construction-Related Control Measures [1]

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
2g	Specify combination of electricity from power poles and portable diesel- or gasoline-fueled generators using "clean burning diesel" fuel and exhaust emission controls.[2]	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.[3]	Mobile	NQ

Table 4.2-8

Construction-Related Control Measures [1]

Measure Number	Measure	Type of Measure	Quantified Emissions Reductions
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.[4]	Off-Road Mobile	Assumed in modeling

Notes:
NQ = Not Quantified
1 These measures are from LAX Master Plan Mitigation Measure MM-AQ-2, unless otherwise noted.
2 From LAX Master Plan Mitigation Measure MM-AQ-2 and LAWA's Design and Construction Handbook, Section 1.31.9.
3 From Community Benefits Agreement Measure X.N.
4 From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-1.

Sources: City of Los Angeles, Los Angeles World Airports (LAWA), and FAA, Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047, April 2004; Los Angeles World Airports and LAX Coalition for Economic, Environmental, and Educational Justice, Cooperation Agreement, Los Angeles International Airport Master Plan Program, December 2004; Los Angeles World Airports, Specific Plan Amendment Study, Final Environmental Impact Report, January 2013.

LAX-AQ-3 – Transportation-Related Mitigation Measures

- This measure applies to mass transit, surface traffic, and on-site parking facilities. The principal feature of this measure is to replicate and expand the current LAX FlyAway service to other communities within regions of Los Angeles County. This initiative also includes a public outreach program to encourage the use of both the existing and new facilities. The remaining, secondary transportation-related air quality control measures may also be implemented. It should be noted that no estimate of the air quality benefit (i.e. emissions reduction) of these secondary measures is made in this analysis. Specific measures are identified in **Table 4.2-9**.

Table 4.2-9

Traffic-Related Air Quality Control Measures [1]

Measure Number	Measure	Type of Measure
3c	Link Intelligent Transportation Systems (ITS) with off-airport parking facilities with ability to divert/direct trips to these facilities to reduce traffic/parking congestion and the associated air emissions in the immediate vicinity of the airport.	Highway/Roadway Improvements

Table 4.2-9

Traffic-Related Air Quality Control Measures [1]

Measure Number	Measure	Type of Measure
3d	Expand ITS and Adaptive Traffic Control Systems (ATCS), concentrating on I-405 and I-105 corridors, extending into South Bay and Westside surface street corridors to reduce traffic/parking congestion and associated air emissions in the immediate vicinity of the airport.	Highway/Roadway Improvements
3f	Develop a program to minimize use of conventional-fueled fleet vehicles during smog alerts to reduce air emissions from vehicles at the airport.	Highway/Roadway Improvements
3g	Provide free parking and preferential parking locations for ultra low emission vehicles/super low emission vehicles/zero emission vehicles (ULEV/SULEV/ZEV) in all (including employee) LAX lots; provide free charging stations for ZEV; include public outreach to reduce air emissions from automobiles accessing airport parking.	Parking
3h	Develop measures to reduce air emissions of vehicles in line to exit parking lots such as pay-on-foot (before getting into car) to minimizing idle time at parking check out, including public outreach.	Parking
3i	Implement on-site circulation plan in parking lots to reduce time and associated air emissions from vehicles circulating through lots looking for parking.	Parking
3j	Encourage video conferencing capabilities at various locations on the airport to reduce off-site local business travel and associated VMT and air emissions in the vicinity of the airport.	Parking
3k	Expand LAWA's rideshare program to include all airport tenants.	Additional Ridership
3l	Promote commercial vehicles/trucks/vans using terminal areas (LAX and regional intermodal) to install SULEV/ZEV engines to reduce vehicle air emissions.	Clean Vehicle Fleets
3m	Promote "best-engine" technology for rental cars using on-airport rent-a-car facilities to reduce vehicle air emissions.	Clean Vehicle Fleets
3n	Consolidate non-rental car shuttles using SULEV/ZEV engines to reduce vehicle air emissions.	Clean Vehicle Fleets
3o	Cover, if feasible, any parking structures that receive direct sunlight, to reduce volatile emissions from vehicle gasoline tanks; and install solar panels on these roofs where feasible to supply electricity or hot water to reduce power production demand and associated air emissions at utility plants.	Energy Conservation
3p	LAWA will develop an information technology system that LAWA employees and the general public can utilize with consumer electronics that will provide real-time information regarding local and regional traffic conditions for travel to and from LAX.[2]	Traffic Management
3q	LAWA will incorporate quick entry and exit parking systems in the project level design of future parking lots/structures associated with the SPAS project.[3]	Parking
3r	LAWA will include advanced signage in the design of future parking structures that could advise airport users of available parking spaces within the structure.[4]	Parking

Table 4.2-9

Traffic-Related Air Quality Control Measures [1]

Measure Number	Measure	Type of Measure

Notes:
1 These measures are from LAX Master Plan Mitigation Measure MM-AQ-3, unless otherwise noted.
2 From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-2.
3 From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-2.
4 From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-2.

Sources: City of Los Angeles, Los Angeles World Airports (LAWA), and FAA, Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047, April 2004; Los Angeles World Airports, Specific Plan Amendment Study, Final Environmental Impact Report, January 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 are identified in **Table 4.2-10**.

Table 4.2-10

Operations-Related Air Quality Control Measures [1]

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.[2]	Airside Operations
4b	All passenger gates newly constructed at LAX shall be equipped with and able to provide grid electricity to parked aircraft (for lighting and ventilation) from and after the date of initial operation. LAWA will ensure that all aircraft (unless exempt) use the gate-provided grid electricity in lieu of electricity provided by operation of an auxiliary or ground power unit. This provision applies in conjunction with construction or modification of passenger gates.[3]	Airside/Terminal

Table 4.2-10

Operations-Related Air Quality Control Measures [1]

Measure Number	Measure	Type of Measure
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.[4]	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.[5]	Operational Vehicles

Notes:

1 These measures are from LAX Master Plan Mitigation Measure MM-AQ-4, unless otherwise noted.

2 From Community Benefits Agreement Measure X.F.

3 From Community Benefits Agreement Measure X.A.

4 From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-3.

5 From Community Benefits Agreement Measure X.N.

Sources: City of Los Angeles, Los Angeles World Airports (LAWA), and FAA, Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047, April 2004; Los Angeles World Airports and LAX Coalition for Economic, Environmental, and Educational Justice, Cooperation Agreement, Los Angeles International Airport Master Plan Program, December 2004; Los Angeles World Airports, Specific Plan Amendment Study, Final Environmental Impact Report, January 2013.

4.2.6 Impact Analysis

4.2.6.1 MSC North Project

Construction

Construction of the MSC North Project is expected to begin in July 2014 and be completed by June 2019, for a total of five years of construction. Construction of the MSC North Project would not affect the existing runways or movement of aircraft around the airfield. Thus, construction-related GHG emissions for the MSC North Project are associated with construction equipment and vehicle exhaust. Consistent with SCAQMD guidance, GHG emissions have been quantified from on-site construction activities, off-site hauling, vendor deliveries, and construction worker commuting as generated by the proposed MSC North Project. Annual GHG emissions for construction of the MSC North Project are presented in **Table 4.2-11**.

SCAQMD recommends that construction emissions be amortized over the lifetime of a proposed project, which is assumed to be 30 years. The total CO_2e amortized over the life of the MSC North Project is equal to 5,015 $MTCO_2e$ 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- and operations-related GHG emissions for the proposed MSC North Project.

Table 4.2-11

Construction Greenhouse Gas Emissions

	CO_2e (Metric Tons)						
Emission Source	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**Total**
On-site Equipment	9,222	12,756	18,920	21,096	16,690	4,184	82,868
On-site Trucks	4,657	5,339	6,518	9,752	13,388	3,212	42,867
Off-site Deliveries	235	186	2,105	948	999	688	19,559
Off-site Workers	2,658	3,633	3,010	3,374	5,619	1,264	5,160
Total [1]	**16,772**	**21,914**	**30,554**	**35,169**	**36,696**	**9,348**	**150,454**
30 year Amortized Total							**5,015**

Note:
1 Numbers may not total due to rounding.

Source: Ricondo & Associates, Inc., 2013.

Operations

Operation of the proposed MSC North Project would not result in changes to air traffic patterns or an increase in Airport operations as the MSC North Project would only change the location of aircraft gates.[31] However, this change in location of gates would result in shorter average aircraft taxi distances and thus a decrease in overall average aircraft taxi/idle times as compared to the 2019 Without Project scenario. The proposed MSC North Project would, however, result in additional GHG emissions from passenger busing trips and building operations of the MSC North facility when compared to existing uses of the MSC North Project site.

31 The approved LAX Master Plan includes a gate cap limit at LAX, which effectively limits the number of aircraft passengers that can be processed/accommodated at LAX. This was established in the Final EIS/EIR for the LAX Master Plan, which showed forecasted activity levels for the No Action/No Project alternative essentially the same as for the approved Alternative D. The MSC, while providing modern aircraft gates, does not increase the passenger processing capabilities of the airport and would have no effect on the number or type of aircraft operations at LAX. Therefore, the MSC North Project and the future phase(s) of the MSC Program will comply with the gate cap as discussed in the LAX Master Plan. The MSC North Project will allow LAWA to modernize the existing terminal area without having to reduce the number of available gates and will reduce the number of operations at the West Remote Pads/Gates. Once the future phase(s) of the MSC Program is completed, the West Remote Pads/Gates would be eliminated.

The analysis presented below compares emissions from the following scenarios: the 2012 With Project compared to the 2012 existing conditions, and the 2019 With Project compared to the 2019 Without Project scenario.

Comparison of 2012 With MSC North Project and 2012 Existing Conditions

Operational GHG emissions, including direct emissions from aircraft, ground support equipment, busing operations, and natural gas consumption, and indirect emissions from the consumption of purchased electricity, disposal of solid waste, and water consumption, for the 2012 MSC North Project compared to the 2012 existing conditions are presented in **Table 4.2-12**. Indirect emissions represent mitigated emissions based on the specific measures that would be included as part of the MSC North Project design, as included in Table 4.2-4 and outlined in Section 4.2.3.1.

Table 4.2-12 also shows the incremental emissions of the MSC North Project compared to the significance threshold. As shown, total GHG emissions from amortized construction and operation of the 2012 MSC North Project compared against the 2012 existing conditions would exceed the SCAQMD's proposed threshold of 10,000 $MTCO_2e$ per year for industrial projects. Therefore, GHG emissions resulting from the 2012 MSC North Project construction and operations would have a significant impact on climate change over the 2012 existing conditions based on a significance threshold of 10,000 $MTCO_2e$ per year.

Table 4.2-12

2012 MSC North Project Greenhouse Gas Emissions Compared to Existing (2012) Conditions

Emission Source	2012 Existing Conditions CO_2e (Metric Tons)	2012 MSC North Project CO_2e (Metric Tons)	Incremental Difference CO_2e (Metric Tons)
Aircraft [1]	696,159	694,603	-1,556
Ground Support Equipment [1]	32,290	32,290	-
Busing Operations [1]	321	830	509
On-Airport Stationary [2]	9	347	338
Building Electricity [2]	191	5,525	5,334
Solid Waste Disposal [2]	17	92	75
Indoor Water Usage [2]	80	1,191	1,111
Construction (Amortized) [2]	-	5,015	5,015
Total Net	**729,067**	**739,893**	**10,844**
SCAQMD GHG Threshold for Industrial Projects			10,000
Above the Threshold?			**Yes**

Notes:
1 Total emissions for LAX.
2 Emissions for MSC North Project site only.

Source: Ricondo & Associates, Inc., 2013.

Comparison of 2019 Future With MSC North Project and 2019 Future Without MSC North Project

Operational GHG emissions, including direct emissions from aircraft, ground support equipment, busing operations, and natural gas consumption, and indirect emissions from the consumption of purchased electricity, disposal of solid waste, and water consumption, for 2019 conditions Without and With the proposed MSC North Project are presented in **Table 4.2-13**. Indirect emissions represent mitigated emissions based on the specific measures that would be included as part of the MSC North Project design, as included in Table 4.2-4 and outlined in Section 4.2.3.1.

Table 4.2-13 also compares the incremental increase in operational emissions of the proposed MSC North Project including amortized construction GHG emissions, to the significance threshold. As shown, total GHG emissions from amortized construction and operation of the proposed MSC North Project would exceed the significance threshold of 10,000 $MTCO_2e$ per year. Based on the above analysis, GHG emissions resulting from proposed MSC North Project construction and operations would have a significant impact on climate change.

Table 4.2-13

2019 Future With MSC North Project Greenhouse Gas Emissions Compared to 2019 Future Without MSC North Project Conditions

Emission Source	2019 Future Without MSC North Project CO_2e (Metric Tons)	2019 Future With MSC North Project CO_2e (Metric Tons)	Incremental Difference CO_2e (Metric Tons)
Aircraft [1]	772,056	770,528	-1,528
Ground Support Equipment [1]	34,269	34,188	-81
Busing Operations [1]	572	760	188
On-Airport Stationary [2]	9	347	338
Building Electricity [2]	191	5,525	5,334
Solid Waste Disposal [2]	17	92	75
Indoor Water Usage [2]	80	1,191	1,111
Construction (Amortized) [2]	-	5,015	5,015
Total Net	**807,194**	**817,646**	**10,452**
SCAQMD GHG Threshold for Industrial Projects			10,000
Above the Threshold?			**Yes**

Notes:
1 Total emissions for LAX.
2 Emissions for MSC North Project site only.

Source: Ricondo & Associates, Inc., 2013.

4.2.6.2 Future Phase(s) of the MSC Program

The impacts discussed below provide a program-level GHG analysis of conceptually planned components of the future phase(s) of the MSC Program. Further project-level environmental review under CEQA will be required in the future before any of these components can be implemented. Project-level environmental documents for future phase(s) of the MSC Program will be initiated at such time as LAWA determines the specific timing of such improvements.

As stated previously, construction GHG emissions for the future phase(s) of the MSC Program are assumed to be equal to the construction GHG emissions estimated for the MSC North Project. Operational GHG emissions, including both direct and indirect emissions for the MSC Program, have been calculated for the full MSC building, the CTP, and APM Maintenance Facility. For the purposes of this analysis, it is assumed that the MSC Program would be fully implemented by 2025. Direct emissions include those from aircraft, ground support equipment, and natural gas consumption for space heating. As the LAX Master Plan Final EIR did not account for public traffic circulation within the CTA, GHG emissions are also included for on-airport roadways. Indirect emissions include the consumption of purchased electricity, disposal of solid waste, and water consumption. The future phase(s) of the MSC Program may include an Automated People Mover (APM), for which indirect emissions have been calculated.

The analysis presented below compares emissions from the following scenarios: the 2012 With Program compared to the 2012 existing conditions, and the 2025 With Program compared to the 2025 Without Program scenario.

Comparison of 2012 With MSC Program and 2012 Existing Conditions

Operational GHG emissions, including direct emissions from aircraft, ground support equipment, on-airport roadways, and natural gas consumption, and indirect emissions from the consumption of purchased electricity, disposal of solid waste, and water consumption, for the 2012 With MSC Program compared to the 2012 existing conditions are presented in **Table 4.2-14**. Indirect emissions represent mitigated emissions based on the specific measures that would be included as part of the future phase(s) of the MSC Program design, as included in Table 4.2-4 and outlined in Section 4.2.3.1.

Table 4.2-14 also shows the incremental emissions of the MSC Program compared to the significance thresholds. As shown, total GHG emissions from amortized construction and operation of the 2012 MSC Program compared against the 2012 existing conditions would exceed the significance threshold of 10,000 $MTCO_2e$ per year. Therefore, GHG emissions resulting from the 2012 MSC Program construction and operations would have a significant impact on climate change over the 2012 existing conditions.

Table 4.2-14

2012 With MSC Program Greenhouse Gas Emissions Compared to Existing (2012) Conditions

Emission Source	2012 Existing CO_2e (Metric Tons)	2012 With MSC Program CO_2e (Metric Tons)	Incremental Difference CO_2e (Metric Tons)
Aircraft [1]	696,159	694,603	-1,556
Ground Support Equipment [1]	32,290	32,290	-
On-Airport Roadways [1]	47,526	47,526	-
On-Airport Stationary [2]	9	799	790
Building Electricity [2]	191	12,858	12,667
Solid Waste Disposal [2]	17	211	194
Indoor Water Usage [2]	80	2,705	2,625
Construction (Amortized) [3]	-	10,030	10,030
Total Net	**776,272**	**801,022**	**24,750**
SCAQMD GHG Threshold for Industrial Projects			10,000
Above the Threshold?			**Yes**

Notes:
1 Total emissions for LAX.
2 Emissions for MSC Program site only.
3 For purposes of this analysis, it was assumed that amortized construction emissions would be double the emissions of the MSC North Project for the full MSC Program.

Source: Ricondo & Associates, Inc., 2013; Los Angeles World Airports, *LAX Specific Plan Amendment Study Draft EIR*, 2012.

Comparison of 2025 Future With MSC Program and 2025 Future Without MSC Program

Table 4.2-15 quantifies the operational GHG emissions for the 2025 Future With MSC Program and the 2025 Future Without MSC Program for direct emissions from aircraft, ground support equipment, on-airport roadways, and natural gas consumption, and indirect emissions from the consumption of purchased electricity, disposal of solid waste, and water consumption. Table 4.2-15 also compares the incremental increase in operational emissions against the significance thresholds. As shown, total GHG emissions from amortized construction and operation of the MSC Program would exceed the significance threshold of 10,000 $MTCO_2e$ per year. Therefore, the proposed MSC Program would also result in a significant impact with regard to GHG emissions.

Table 4.2-15

2025 Future With MSC Program Greenhouse Gas Emissions Compared to 2025 Future Without MSC Program Conditions

Emission Source	2025 Future Without MSC Program CO_2e (Metric Tons)	2025 Future With MSC Program CO_2e (Metric Tons)	Incremental Difference CO_2e (Metric Tons)
Aircraft [1]	1,002,195	1,000,287	-1,908
Ground Support Equipment [1]	78,838	78,838	-
On-Airport Roadways [1]	26,305	25,199	-1,106
On-Airport Stationary [2]	347	799	452
Building Electricity [2]	5,525	12,858	7,333
Solid Waste Disposal [2]	92	211	119
Indoor Water Usage [2]	1,191	2,705	1,514
Construction (Amortized) [3]	-	10,030	10,030
Total Net	**1,114,493**	**1,130,927**	**16,434**
SCAQMD GHG Threshold for Industrial Projects			10,000
Above the Threshold?			**Yes**

Notes:
1 Total emissions for LAX.
2 Emissions for affected facilities only.
3 For purposes of this analysis, it was assumed that amortized construction emissions would be double the emissions of the MSC North Project for the full MSC Program.

Source: Ricondo & Associates, Inc., 2013; Los Angeles World Airports, *LAX Specific Plan Amendment Study Draft EIR*, 2012.

4.2.6.3 Consistency with Greenhouse Gas Reduction Plans

As discussed previously, the proposed MSC North Project and future phase(s) of the MSC Program would comply with the LAWA Guidelines and 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).

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) non-residential and high-rise residential buildings; and (3) additions and alterations to non-residential and high-rise residential buildings. The proposed MSC North Project and future phase(s) of the MSC Program 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 MSC North Project and future phase(s) of the MSC Program design are listed in Table 4.2-4. 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 MSC North Project and future phase(s) of the MSC Program would be consistent with plans to reduce GHG emissions.

4.2.6.4 Summary of Impacts

Based on the information presented above in Section 4.2.6.1, construction of the MSC North Project would result in the generation of 150,454 metric tons of construction-related GHG, primarily in the form of CO_2 over the approximately 5-year construction period. Although construction activities would comply with LAWA's current program for sustainability and reducing GHG emissions in project design and construction, construction-related GHG emissions for the MSC North Project would create a substantial increase in GHG emissions compared to baseline emission levels.

Development of the MSC North building would be consistent with LAWA's plans related to sustainability and the LAGBC Tier 1 requirements; however, the building square footage under the proposed MSC North Project would create a larger energy demand associated with heating, cooling, and lighting, than existing uses at the MSC North Project site, and therefore an increase in GHG emissions.

As such, the operation of the proposed MSC North Project, combined with the amortized construction GHG emissions, would result in a substantial increase in GHG emissions and impact to climate change.

Development of the MSC Program would be consistent with LAWA's plans related to sustainability and the LAGBC Tier 1 requirements; however, the increase in facility square footage under the future phase(s) of the MSC Program would create a larger energy demand associated with the heating, cooling, and lighting, than existing uses at the Project site, and therefore an increase in GHG emissions.

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, the *CEQA Guidelines* leave that decision to the discretion of the lead agency (§15064.4).[32] The California Natural Resources Agency (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:[33]

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

It is the accumulation of GHGs in the atmosphere that may result in global climate change. Climate change impacts are cumulative in nature, and thus no typical single project would result in emissions of such a magnitude that it, in and of itself, would be significant on a project basis. A typical single project's GHG emissions will be small relative to total global or even statewide GHG emissions. 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 MSC North Project's combined amortized construction and operational GHG emissions would exceed the significance threshold of 10,000 $MTCO_2e$ per year. Similarly, the combined amortized construction and operational GHG emissions for the future phase(s) of the MSC Program would exceed the significance threshold of 10,000 $MTCO_2e$ per year. Therefore, in accordance with the discussion above, the proposed MSC North Project and the future phase(s) of the MSC Program would cause cumulatively considerable impacts with respect to GHG emissions.

4.2.8 Mitigation Measures

The proposed MSC North Project and future phase(s) of the MSC Program include design features to reduce construction equipment operations/duration, as described in Section 4.2.5. This includes the reduction of GHG emissions associated with the proposed MSC North Project and future phase(s) of the MSC Program through compliance with the Tier 1 requirements of the

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[32] 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: October 2013.

[33] 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: October 2013.

LAGBC. There are no other feasible mitigation measures to reduce construction-related GHG emissions other than those already identified above in Section 4.2.5, *Applicable LAX Master Plan Commitments and Mitigation Measures*, and in Chapter 4.1, *Air Quality*, of this EIR.

For operational impacts, the proposed MSC North Project and future phase(s) of the MSC Program would comply with the requirements of the City of Los Angeles Green Building Ordinance 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. As noted in OPR's Technical Advisory on CEQA and Climate Change, LAWA's programmatic efforts to address GHG emissions agency-wide can be a more effective approach than mitigating GHG emissions at a project level.[34] **Tables 4.2-16** and **4.2-17** present a comprehensive list of suggested mitigation measures for new development projects throughout the state of California. The list presented in Table 4.2-16 is prepared by the California Office of the Attorney General relative to addressing GHG emissions and climate change impacts within an EIR.[35] The list presented in Table 4.2-17 is prepared by the OPR and presents examples of measures that have been used by some public agencies to reduce GHG emissions.[36] Tables 4.2-16 and 4.2-17, and the text below, indicate how the proposed MSC North Project and future phase(s) of the MSC Program, as well as LAWA's overall sustainability actions and objectives, relate to each of the applicable measures.

[34] State of California, Governor's Office of Planning and Research, Technical Advisory – CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review, June 19, 2008.

[35] State of California Department of Justice, Office of the California Attorney General, Addressing Climate Change at the Project Level, available: ag.ca.gov/globalwarming/pdf/GW_mitigation_measures.pdf

[36] State of California, Governor's Office of Planning and Research, Technical Advisory – CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review, Attachment 3, June 19, 2008.

Table 4.2-16

Evaluation of Potential GHG Mitigation Measures from the California Office of the Attorney General

Measure	Discussion
Incorporate green building practices and design elements.	Development of the MSC North Project and future phase(s) of the MSC North Program would be subject to LAWA's sustainability guidelines (i.e., LAWA Sustainable Airport Planning, Design and Construction Guidelines for Implementation on All Airport Projects [LSAG] and/or the City of Los Angeles Green Building Ordinance). Those guidelines and ordinance requirements address green building practices and design elements. LAWA requires new terminal facilities to achieve LAGBC Tier 1 conformance.
Meet recognized green building and energy efficiency benchmarks.	As noted above, the MSC North Project and future phase(s) of the MSC Program would be subject to LSAG and/or the Green Building Ordinance, which include provisions for energy efficiency and conservation. For example, the Green Building Ordinance requires that a project exceed CEC 2008 Energy Efficiency Standards by 15 percent.
Install energy efficient lighting (e.g., light emitting diodes [LEDs]), heating and cooling systems, appliances, equipment, and control systems.	The use of energy efficient lighting, systems, and equipment in new facilities is standard practice by LAWA and is generally reflected in the requirements of the Green Building Ordinance.
Use passive solar design, e.g., orient buildings and incorporate landscaping to maximize passive solar heating during cool seasons, minimize solar heat gain during hot seasons, and enhance natural ventilation. Design buildings to take advantage of sunlight.	Utilization of passive solar design features in new development is an option available through LSAG and would be considered during design of the MSC North Project and future phase(s) of the MSC Program.
Install light colored “cool” roofs and cool pavements.	LSAG includes provisions for "heat island" reduction including the use of cool roofs as an option available for the MSC North Project and future phase(s) of the MSC Program.
Install efficient lighting (including LEDs) for traffic, street, and other outdoor lighting.	As indicated above, the use of energy efficient lighting is standard practice by LAWA and would also occur in meeting the energy conservation requirements of the Green Building Ordinance, which would be applicable to the MSC North Project and future phase(s) of the MSC Program. With regard to traffic lights, LAWA and LADOT install LEDs for any major upgrades to existing signals or addition of new signals.
Reduce unnecessary outdoor lighting.	Any developments involving outdoor lighting under the MSC North Project and future phase(s) of the MSC Program is anticipated to avoid unnecessary lighting, as a means to help achieve the energy conservation requirements of the Green Building Ordinance.

Table 4.2-16

Evaluation of Potential GHG Mitigation Measures from the California Office of the Attorney General

Measure	Discussion
Provide education on energy efficiency to residents, customers, and/or tenants.	Provisions for education of LAWA contractors, suppliers, tenants, and the community relative to the benefits of sustainability measures are included in the LSAG, which are applicable to the MSC North Project and future phase(s) of the MSC Program.
Renewable Energy and Energy Storage	
Meet “reach” goals for building energy efficiency and renewable energy use.	While the ability to achieve "zero net energy" buildings in conjunction with the MSC North Project and future phase(s) of the MSC Program is uncertain, the energy efficiency and conservation provisions of Green Building Ordinance would support progress towards such a goal.
Install solar, wind, and geothermal power systems and solar hot water heaters.	Based on land constraints and airfield safety considerations, it is generally infeasible to install alternative energy systems at the airport. LAWA is, however, committed to, and a participant in, LADWP's "Green Power for LA" program, which promotes the use of green power provided through LADWP.
Install solar panels on unused roof and ground space over carports and parking areas.	As noted above, land constraints and airfield safety considerations limit the opportunities for solar panels at the airport.
Where solar systems cannot feasibly be incorporated into the project at the outset, build “solar ready” structures.	Please see above.
Incorporate wind and solar energy systems into agriculture projects where appropriate.	Not applicable.
Include energy storage where appropriate to optimize renewable energy generation systems and avoid peak energy use.	Although separate from the MSC Program, the LAX Central Utility Plant (CUP) Replacement Project, currently under construction, includes a thermal energy storage system (i.e., large tank below grade to store cooled water, which can reduce needs during peak energy use periods). The new CUP will provide the heating and cooling needs of the MSC North Project and possibly the future phase(s) of the MSC Program.
Use on-site generated biogas, including CH_4, in appropriate applications.	Not applicable.
Use combined heat and power (CHP) in appropriate applications.	The CUP Replacement Project, described above, also includes cogeneration for the production of electricity from heat generated during the production of steam.
Water Conservation and Efficiency	

Table 4.2-16

Evaluation of Potential GHG Mitigation Measures from the California Office of the Attorney General

Measure	Discussion
Incorporate water-reducing features into building and landscape design.	Provisions for incorporating water-reducing features into building and landscape design are included in the Green Building Ordinance, which would be applicable to the MSC North Project and future phase(s) of the MSC Program.
Create water-efficient landscapes.	Not applicable.
Install water-efficient irrigation systems and devices, such as soil moisture-based irrigation controls and use water-efficient irrigation methods.	Not applicable.
Make effective use of gray water. (Gray water is untreated household wastewater from bathtubs, showers, bathroom wash basins, and water from clothes washing machines. Gray water to be used for landscape irrigation.)	Not applicable; generation of such gray water from the types of uses associated with MSC North Project and future phase(s) of the MSC Program would be negligible.
Implement low-impact development practices that maintain the existing hydrology of the site to manage storm water and protect the environment.	The MSC North Project and future phase(s) of the MSC Program would comply with the City's Low Impact Development (LID) Ordinance requirements, as applicable.
Devise a comprehensive water conservation strategy appropriate for the project and location.	As indicated above, the Green Building Ordinance includes provisions for water conservation, which would be applicable to the MSC North Project and future phase(s) of the MSC Program.
Design buildings to be water-efficient. Install water-efficient fixtures and appliances.	Please see above.
Offset water demand from new projects so that there is no net increase in water use.	Please see above.
Provide education about water conservation and available programs and incentives.	Provisions for education of LAWA contractors, suppliers, tenants, and the community relative to the benefits of sustainability measures, which water conservation is an element, are included in the LSAG.
Solid Waste Measures	
Reuse and recycle construction and demolition waste (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard.)	The Green Building Ordinance includes provisions for waste reduction and management, including, but not limited to, reuse and recycling of construction and demolition waste, which would be applicable to the MSC North Project and future phase(s) of the MSC Program.
Integrate reuse and recycling into residential, industrial, institutional, and commercial projects.	In addition to the requirements of the Green Building Ordinance, LAWA has a comprehensive facility-wide solid waste diversion/recycling program at LAX, which would be applicable to the MSC North Project and future phase(s) of the MSC Program.
Provide easy and convenient recycling opportunities for residents, the public, and tenant businesses.	Please see above.

Table 4.2-16

Evaluation of Potential GHG Mitigation Measures from the California Office of the Attorney General

Measure	Discussion
Provide education and publicity about reducing waste and available recycling services.	Please see above.
Land Use Measures	
Ensure consistency with "smart growth" principles – mixed-use, infill, and higher-density projects that provide alternatives to individual vehicle travel and promote the efficient delivery of services and goods.	Not applicable.
Meet recognized "smart growth" benchmarks.	Not applicable.
Educate the public about the many benefits of well-designed, higher density development.	Not applicable.
Incorporate public transit into the project's design.	Not applicable.
Preserve and create open space and parks. Preserve existing trees and plant replacement trees at a set ratio.	Not applicable.
Develop "brownfields" and other underused or defunct properties near existing public transportation and jobs.	Not applicable.
Include pedestrian and bicycle facilities within projects and ensure that existing non-motorized routes are maintained and enhanced.	Not applicable.
Transportation and Motor Vehicles	
Meet an identified transportation-related benchmark.	Not applicable.
Adopt a comprehensive parking policy that discourages private vehicle use and encourages the use of alternative transportation.	Not applicable.
Build or fund a major transit stop within or near the development.	Not applicable.
Promote "least polluting" ways to connect people and goods to their destinations.	The 2019 LAX bus fleet wil be comprised of clean-fueled CNG vehicles to provide transportation of passengers to the MSC North facility. As part of the future phase(s) of the MSC Program, an electric Automated People Mover could be constructed.
Incorporate bicycle lanes, routes, and facilities into street systems, new subdivisions, and large developments.	Not applicable.
Require amenities for non-motorized transportation, such as secure and convenient bicycle parking.	Not applicable. Such facilities are already available at the airport.
Ensure that the project enhances, and does not disrupt or create barriers to, non-motorized transportation.	Not applicable.
Connect parks and open space through shared pedestrian/bike paths and trails to encourage walking and bicycling. Create bicycle lanes and walking paths direction to the location of schools, parks, and other destination points.	Not applicable.
Work with the school districts to improve pedestrian and bicycle access to schools and to restore or expand school bus service using lower-emitting vehicles.	Not applicable.

Table 4.2-16

Evaluation of Potential GHG Mitigation Measures from the California Office of the Attorney General

Measure	Discussion
Institute teleconferencing, telecommute, and/or flexible work hour programs to reduce unnecessary employee transportation.	The basic nature of the MSC North Project and future phase(s) of the MSC Program requires the physical presence of workers. However, LAWA does offer flexible work hour programs to employees, which would continue agency-wide and is not particular to the MSC North Project or future phase(s) of the MSC Program.
Provide information on alternative transportation options for consumers, residents, tenants, and employees to reduce transportation-related emissions.	It is anticipated that any transit access improvements at LAX would be reflected in the routes, schedules, and other information available from the affected transit agencies.
Educate consumers, residents, tenants, and the public about options for reducing motor vehicle-related GHG emissions. Include information on trip reduction; trip linking; vehicle performance and efficiency (e.g., keeping tires inflated); and low or zero-emission vehicles.	Not applicable..
Purchase, or create incentives for purchasing, low or zero-emission vehicles.	The majority of LAWA's vehicle fleet is comprised of low-emissions vehicles, and LAWA continues to increase that percentage. LAWA would continue that program agency-wide, but is it not specific to the MSC North Project or future phase(s) of the MSC Program.
Create a ridesharing program. Promote existing ridesharing programs e.g., by designating a certain percentage of parking spaces for ridesharing vehicles, designating adequate passenger loading and unloading for ridesharing vehicles, and providing a website or message board for coordinating rides.	Please see above.
Create or accommodate car sharing programs, e.g., provide parking spaces for car share vehicles at convenient locations accessible by public transportation.	Please see above.
Provide a vanpool for employees.	Please see above.
Create local "light vehicle" networks, such as neighborhood electric vehicle systems.	Not applicable.
Enforce and follow idling time limits for commercial vehicles, including delivery and construction vehicles.	The LAX Master Plan MMRP and state law include provisions to limit construction vehicle idling, which would apply to the MSC North Project and future phase(s) of the MSC Program.
Provide the necessary facilities and infrastructure to encourage the use of low or zero-emission vehicles.	Not applicable. Such facilities are already available at the airport.
Require best management practices in agriculture and animal operations to reduce emissions, conserve energy and water, and utilize alternative energy sources, including biogas, wind, and solar.	Not applicable.
Preserve forested areas, agricultural lands, wildlife habitat and corridors, wetlands, watersheds, groundwater recharge areas, and other open space that provide carbon sequestration benefits.	Not applicable.

Table 4.2-16

Evaluation of Potential GHG Mitigation Measures from the California Office of the Attorney General

Measure	Discussion
Protect existing trees and encourage the planting of new trees. Adopt a tree protection and replacement ordinance.	Not applicable.

Source: Ricondo & Associates, Inc., 2013.

Table 4.2-17

Evaluation of Potential GHG Mitigation Measures from the California Office of Planning and Research

Measure	Discussion
Land Use and Transportation	
Implement land use strategies to encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density development along transit corridors. Encourage compact, mixed-use projects, forming urban villages designed to maximize affordable housing and encourage walking, bicycling, and use of public transit systems.	Not Applicable.
Encourage infill, redevelopment, and higher-density development, whether in incorporated or unincorporated settings.	Not Applicable.
Encourage new developments to integrate housing, civic, and retail amenities (jobs, schools, parks, and shopping opportunities) to help reduce VMT resulting from discretionary automobile trips.	Not Applicable.
Apply advanced technology systems and management strategies to improve operational efficiency of transportation systems and movement of people, goods, and services.	The MSC North Project and future phase(s) of the MSC Program include provisions for tunneling of a future Automated People Mover (APM). Also, LAWA's Sustainability Plan includes an objective to reduce single occupancy vehicle trips to, from, and within LAX by measures such as an employee Rideshare program, the LAX FlyAway shuttles, hotel shuttle consolidation, plans for a consolidated rental car facility, and traffic mitigation program.
Incorporate features into project design that would accommodate the supply of frequent, reliable, and convenient public transit.	Not applicable.
Implement street improvements that are designed to relieve pressure on a region's most congested roadways and intersections.	Not applicable. Beyond the scope/control of the project.
Limit idling time for commercial vehicles, including delivery and construction vehicles.	The LAX Master Plan MMRP and state law include provisions to limit construction vehicle idling, which would apply to the proposed MSC North Project and future phase(s) of the MSC Program.

Table 4.2-17

Evaluation of Potential GHG Mitigation Measures
from the California Office of Planning and Research

Measure	Discussion
Urban Forestry	
Plant trees and vegetation near structures to shade buildings and reduce energy requirements for heating/cooling.	Not applicable.
Preserve or replace on-site trees (that are removed due to development) as a means of providing carbon storage.	Not applicable.
Green Buildings	
Encourage public and private construction of LEED®-certified (or equivalent) buildings.	The MSC North Concourse would be designed and constructed to LAGBC Tier 1 conformance.
Energy Conservation Policies and Actions	
Recognize and promote energy saving measures beyond Title 24 requirements for residential and commercial projects.	The MSC North Concourse would be designed and constructed to LAGBC Tier 1 conformance.
Where feasible, include in new buildings facilities to support the use of low/zero carbon fueled vehicles, such as charging of electric vehicles from green electricity sources.	The promotion of the use of alternative fuel vehicles at LAX is part of LAWA's Sustainable Airport Planning, Design and Construction Guidelines for Implementation on All Airport Projects. Additionally, new contact gates to be constructed as part of the MSC North Project and future phase(s) of the MSC Program would be equipped with the electrical infrastructure necessary to support charging stations for electric ground service equipment.
Educate the public, schools, other jurisdictions, professional associations, business, and industry about reducing GHG emissions.	Provisions for education of LAWA contractors, suppliers, tenants, and the community relative to the benefits of sustainability measures are included in the LSAG, which would apply to the proposed MSC North Project and future phase(s) of the MSC Program.
Replace traffic lights, street lights, and other electrical uses to energy efficient bulbs and appliances.	The use of energy efficient lighting is standard practice by LAWA and would also occur in meeting the energy conservation requirements of the Green Building Ordinance, which would be applicable to the proposed MSC North Project and future phase(s) of the MSC Program.
Purchase Energy Star equipment and appliances for public agency use.	The utilization of Energy Star equipment is required by the Green Building Ordinance, and would apply to the proposed MSC North Project and future phase(s) of the MSC Program.

Table 4.2-17

Evaluation of Potential GHG Mitigation Measures
from the California Office of Planning and Research

Measure	Discussion
Incorporate on-site renewable energy production, including installation of photovoltaic cells or other options.	Although separate from the MSC North Project and future phase(s) of the MSC Program, the LAX Central Utility Plant (CUP) Replacement Project, currently under construction, includes a thermal energy storage system (i.e., large tank below grade to store cooled water, which can reduce needs during peak energy use periods). It also includes cogeneration for the production of electricity from heat generated during the production of steam. The new CUP will provide the heating and cooling needs of the MSC North Project and possibly the future phase(s) of the MSC Program. Also, utilization of passive solar design features in new development is an option available through LSAG and would be considered during design of the MSC North Project and future phase(s) of the MSC Program.
Execute an Energy Savings Performance Contract with a private entity to retrofit public buildings. This type of contract allows the private entity to fund all energy improvements in exchange for a share of the energy savings over a period of time.	Not applicable.
Design, build, and operate schools that meet the Collaborative for High Performance Schools best practices.	Not applicable.
Retrofit municipal water and wastewater systems with energy efficient motors, pumps, and other equipment, and recover wastewater treatment methane for energy production.	LAX has water efficient computer controlled irrigation systems. Energy efficient utility systems, including water conservation, would be applied to the MSC North Project and future phase(s) of the MSC Program.
Convert landfill gas into energy sources for use in fueling vehicles, operating equipment, and heating buildings.	Not applicable.
Purchase government vehicles and buses that use alternative fuels or technology, such as electric hybrids, biodiesel, and ethanol. Where feasible, require fleet vehicles to be low-emission vehicles. Promote the use of these vehicles in the general community.	The majority of LAWA's vehicle fleet is comprised of low-emissions vehicles, and LAWA continues to increase that percentage. LAWA would continue that program agency-wide, but is it not specific to the MSC North Project and future phase(s) of the MSC Program. Additionally, the new contact gates to be constructed as part of the MSC North Project and future phase(s) of the MSC Program would be equipped with the electrical infrastructure necessary to support charging stations for electric ground service equipment.
Offer government incentives to private businesses for developing buildings with energy and water efficient features and recycled materials. The incentives can include expedited plan checks and reduced permit fees.	Not applicable.
Offer rebates and low-interest loans to residents that make energy-saving improvements on their homes.	Not applicable.

Table 4.2-17

Evaluation of Potential GHG Mitigation Measures
from the California Office of Planning and Research

Measure	Discussion
Create bicycle lanes and walking paths directed to the location of schools, parks, and other destination points.	Not applicable.
Programs to Reduce Vehicle Miles Traveled	
Offer government employees financial incentives to carpool, use public transportation, or use other modes of travel for daily commutes.	LAWA has a comprehensive rideshare and vanpool program available to all employees. LAWA's Rideshare Program offers financial incentives and discounts to participating employees. This program would continue agency-wide and is not specific to the MSC North Project and future phase(s) of the MSC Program.
Encourage large businesses to develop commute trip reduction plans that encourage employees who commute alone to consider alternative transportation modes.	Please see above.
Develop shuttle systems around business district parking garages to reduce congestion and create shorter commutes.	Beyond the scope/control of the project.
Create an online ridesharing program that matches potential carpoolers immediately through email.	LAWA's Rideshare Program uses RideMatch.info which provides one-stop ride-matching services to employees.
Develop a Safe Routes to School Program that allows and promotes bicycling and walking to school.	Not applicable.
Programs to Reduce Solid Waste	
Create incentives to increase recycling and reduce generation of solid waste by residential users.	Not applicable.
Implement a Construction and Demolition Waste Recycling Ordinance to reduce the solid waste created by new development.	LSAG includes provisions for waste reduction and management, including, but not limited to, reuse and recycling of construction and demolition waste, which would be applicable to the MSC North Project and future phase(s) of the MSC Program.
Implement a Construction and Demolition Waste Recycling Ordinance to reduce the solid waste created by new development.	LAWA has an ongoing waste reduction and recycling program.

Source: Ricondo & Associates, Inc., 2013.

4.2.9 Level of Significance after Mitigation

Based on the discussion above, the amount of greenhouse gas emissions associated with construction and operation of the proposed MSC North Project and future phase(s) of the MSC Program would be substantial. Although the project would comply with Tier 1 requirements of the LAGBC, and LAWA policies and programs related to sustainability, the MSC North Project and MSC Program impacts, as well as the cumulative potential impacts related to global climate change, are considered to be significant and unavoidable. There are no additional feasible Project-specific mitigation measures that are not already incorporated under previous plans.