

Los Angeles International Airport (LAX)

Air Quality Improvement Measures -
LAWA'S Voluntary Air Quality Improvement Measures & Initiatives

Draft

Los Angeles World Airports

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Section 1

Introduction

Los Angeles World Airports (LAWA) is implementing the Los Angeles International Airport (LAX) Air Quality Improvement Measures (AQIM) that are designed to reduce air pollutant emissions from various airport sources. Most of the individual programs that make up the AQIM have been implemented at LAX for a decade or more and are being consolidated into the AQIM to more efficiently track progress towards achieving multiple air quality improvement goals and align with the larger LAX Sustainability Action Plan. Reductions in criteria pollutant emissions of carbon monoxide (CO); volatile organic compounds (VOC); oxides of nitrogen (NO_x); sulfur oxides (SO_x), respirable particulate matter (PM₁₀); and fine particulate matter, (PM_{2.5}); as well as the major greenhouse gas pollutant carbon dioxide (CO₂) are key metrics for evaluating progress towards reaching these goals and are thus presented in this report.

Three programs in the AQIM will be incorporated into a Memorandum of Understanding (MOU) with the South Coast Air Quality Management District (SCAQMD) to provide voluntary emission reductions of the ozone precursors (NO_x and VOC). The MOU negotiated between LAWA and SCAQMD will be similar to MOUs that SCAQMD is negotiating with each of the commercial passenger airports in the South Coast Air Basin, including Orange County John Wayne Airport, Ontario International Airport, Hollywood Burbank Airport, and Long Beach Airport. The intent of the MOUs is to provide voluntary emissions reductions that can be applied to the South Coast Ozone State Implementation Plan (SIP), as updated with the 2016 South Coast Air Quality Management Plan (2016 AQMP).

The emissions inventories are provided for calendar years 2023, and 2031, per SCAQMD's request to match various attainment dates for the ozone National Ambient Air Quality Standards (NAAQS). The Baseline year (2017) was selected as the most recent, complete year for developing inventories for the airports. The inventories for 2023 and 2031 are each provided in the report for two scenarios: (i) Business-As-Usual (BAU Scenario), and (ii) With Implementation of the AQIM (AQIM Scenario). The BAU scenario assumes that existing air quality programs at LAX will be maintained at current (2017) level of implementation. The AQIM scenario includes enhancements and additions to the current programs that are captured in the AQIM.

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Section 2

AQIM Measures and Initiatives

The AQIM Measures and Initiatives are focused on reducing emissions from several mobile source types that operate at or come to the airport. These measures and initiatives are roughly divided into two types: (i) clean vehicles and equipment programs, and (ii) comprehensive trip reduction programs. The first includes ground support equipment (GSE) emission reduction programs, an alternative fuels program, and a LAWA clean fleets program. The second includes the LAX Landside Access Modernization Program, LAX FlyAway Program, airport employee rideshare program, and smart parking systems.

2.1 Clean Vehicles and Equipment Programs

2.1.1 GSE Emission Reduction Programs

2.1.1.1 GSE Emission Reduction Policy

LAWA developed the GSE Emission Reduction Policy in 2015 and has successfully implemented it since then. The LAWA Board of Airport Commissioners will be presented with the AQIM for approval, which includes an enhanced GSE policy with new GSE emission factor targets to be achieved before 2023 and 2031. The AQIM targets will be to achieve a 1.8 gram per horsepower-hour (g/hp-hr) airport-wide emission factor by December 31, 2022; and achieve a 1.0 g/hp-hr airport-wide emission factor by December 31, 2030.

2.1.1.2 GSE Incentive Program

In addition to the LAX GSE Emission Reduction Policy, LAWA has implemented a one-time incentive program to replace older GSE at LAX. The LAX Electric Ground Support Equipment Incentive Program adopted by the Board of Airport Commissioners on July 18, 2019, seeks to partner with owner-operators of airport GSE to replace older diesel or other fossil-fueled GSE with new, zero-emission electric GSE (eGSE). LAWA has provided \$500,000 in funding for the program with individual grant amounts based on the “incremental cost” of eGSE as compared to conventionally-fueled GSE. The targets from the incentive program are to expend the funds by December 31, 2022, which could potentially fund the purchase of 30 or more clean GSE by the end of 2022.

2.1.3 LAX Alternative Fuel Vehicle Programs

2.1.3.1 LAX Alternative Fuel Vehicle Policy

LAWA initiated the LAX Alternative Fuel Vehicle (AFV) Policy in 2007. The AFV Policy requires operators of medium- and heavy-duty vehicles over 8,500 lbs gross vehicle weight rating (GVRW) to utilize clean fueled vehicles which meet CARB’s LEV III or Optional Low-NOx standards and use engines that are no older than thirteen (13) model years. The target for this policy under the AQIM is to achieve 100 percent compliance with the policy by December 31, 2021.

2.1.3.2 LAX Alternative Fuel Vehicle Incentive Program

In addition to the LAX Alternative Fuel Vehicle requirements, LAWA has implemented a one-time incentive program to replace conventionally-fueled heavy-duty vehicles with zero or near-zero emission vehicles at LAX. The LAX Alternative Fuel Vehicle Incentive Program will distribute \$500,000 in funding to applicants based on the “incremental cost” of the zero or near-zero emission vehicles as compared to conventionally-fueled equivalents. The target for this program under the AQIM is to expend the incentive funds on the purchase of up to 20 zero or near-zero emission vehicles to replace existing conventional-fueled vehicles by December 31, 2021.

2.1.4 LAWA Clean Fleet Program

LAWA’s clean fleet program is a continuation of its long-standing commitment to operate a clean vehicle fleet. Under the AQIM, the clean fleet program will apply to light-duty vehicles, medium and heavy-duty vehicles, and buses owned by LAWA.

2.1.4.1 Light-Duty Vehicle Program

The Clean Fleet Policy will require all new sedan purchases to be electric, except those used for safety purposes such as police and fire vehicles. The Policy is aligned with the City of Los Angeles’ Sustainable City pLAN. The target under the pLAN is that new vehicle purchases will be 100 percent electric vehicles (EVs) by 2021. The AQIM targets are to achieve 25 percent EVs in the LAWA-owned sedan fleet by 2023, and 100 percent EVs in the LAWA-owned sedan fleet by 2031.

2.1.4.2 Medium and Heavy-Duty Fleet Policy

LAWA will apply its LAX AFV Policy (Section 1.1.1.3) to all of the medium-duty and heavy-duty vehicles owned by LAWA. The AQIM target is to achieve 100 percent compliance with the policy by 2023.

2.1.4.3 Zero-Emission Bus Program

Under the AQIM, new bus purchases for LAWA-owned buses will be electric. This program includes buses used for guests traveling to off-airport parking, traveling between terminals at LAX, and on-airfield passenger transport between gates and terminals. Through new bus purchases, the AQIM target is to achieve 20 percent electric buses in the fleet by 2023, and achieve 100 percent electric buses in the fleet by 2031.

2.2 Comprehensive Trip Reduction Programs

2.2.1 LAX Landside Access Modernization Program

LAWA is working on executing the multi-billion-dollar LAX Landside Access Modernization Program (LAMP), which is a comprehensive transportation infrastructure program to support employee and passenger vehicle trip reductions at LAX. LAWA will construct an elevated automated people mover system, consolidated rental car facility, intermodal transportation facilities, and a direct connection to the LA Metro Rail system’s LAX/Crenshaw Line at the new Airport Metro Connector station. The LAMP Project is expected to reduce traffic in the Central Terminal Area during peak hours, improve traffic at 30 off-airport intersections, reduce vehicle miles traveled to and from LAX, improve air quality around the airport, and promote sustainability at LAX.

2.2.2 LAX FlyAway Program

LAWA has been operating the LAX FlyAway program since the mid-1990s. The FlyAway Program provides scheduled ground service between LAX and area locations to reduce traffic congestion and improve air quality. As of July 2019, the FlyAway® offers four different routes including locations to/from Van Nuys, Union Station in Downtown Los Angeles, Hollywood, and Long Beach. The LAX Flyaway Program is designed to reduce the traffic to and from LAX by using regional locations where LAX employees and passengers can access a LAX-dedicated, clean-fueled bus to get to LAX and back.

2.2.3 LAX Employee Rideshare Program

LAWA offers a multi-faceted Employee Rideshare program that benefits employees and improves air quality in the region. LAWAs Rideshare Program began in 1990 with the purchase of four vans for employees to use as vanpool vehicles. The Program offers LAWAs employees various commuting options, including vanpools, carpools, and public transportation. It also promotes riding bikes and the use of alternative fuel vehicles. The Program consistently exceeds the Average Vehicle Ridership Target under SCAQMD Rule 2022 with 21% of LAWAs employees participating in the program in 2018.

2.2.4 Smart Parking Systems for LAX

Smart automated parking systems are designed to reduce time to park vehicles at the airport by providing information and direction to nearest space, both visually and electronically. LAWAs will implement a smart parking management system to provide a seamless, efficient, cost-effective parking operation at LAX and have the capability to expand and integrate the latest technology which would include smart parking/navigational capability which reduces time to park vehicles at the airport by providing information and direction to nearest space, both visually and electronically. The AQIM targets for smart parking include installation of smart parking systems in all new parking garages and developing an implementation schedule for future installation of smart parking systems in the existing parking garages.

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Section 3

Summary of AQIM Potential Emission Reductions

The potential emission reductions for several of the AQIM Measures and Initiatives are summarized in **Table 3-1** for 2023 and in **Table 3-2** for 2031. Note that these reductions are relative to the 2023 and 2031 BAU emission inventories presented in Section 4.

Table 3-1. Potential AQIM Emission Reductions in 2023

AQIM Measure/Initiative	Pollutant Emissions, tpy						CO ₂ e MT/yr
	CO	VOC	NO _x	SO ₂	PM ₁₀ *	PM _{2.5} *	
GSE Policy	599.19	9.09	56.17	0.07	1.04	0.90	7,966
LAX LAMP	133.21	13.46	3.99	0.33	16.66	5.08	30,215
Alternative Fuel Vehicle Programs	92.33	6.38	6.98	NA	0.13	0.05	NA
Light-Duty Vehicle Program	0.16	0.01	0.01	<0.01	0.01	<0.01	42
Zero-Emission Bus Program	35.05	0.06	0.35	<0.01	0.08	0.03	1,476
Smart Parking Systems	3.60	0.19	0.24	0.02	0.03	0.02	1,560
Reductions from 2023 BAU	863.54	29.19	67.74	0.42	17.95	6.08	41,259

Source: CDM Smith 2019.

Table 3-2. Potential AQIM Emission Reductions in 2031

AQIM Measure/Initiative	Pollutant Emissions, tpy						CO ₂ e MT/yr
	CO	VOC	NO _x	SO ₂	PM ₁₀ *	PM _{2.5} *	
GSE Policy	1,083.81	11.12	86.16	0.21	1.51	1.27	17,029
LAX LAMP	NA	NA	NA	NA	NA	NA	NA
Alternative Fuel Vehicle Programs	300.36	8.50	9.18	NA	2.39	1.04	NA
Light-Duty Vehicle Program	0.48	0.04	0.03	<0.01	0.03	0.01	141
Zero-Emission Bus Program	175.18	0.32	1.73	<0.01	0.38	0.15	6,470
Smart Parking Systems	4.28	0.15	0.21	0.02	0.03	0.03	2,260
Reductions from 2031 BAU	1,564.11	20.13	97.31	0.23	4.34	2.5	25,900

Source: CDM Smith 2019.

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Section 4

Baseline and Business-As-Usual Emission Inventories

A summary of the LAX 2017 Baseline emissions inventory is presented in **Table 4-1**. The LAX 2023 and 2031 Business-As-Usual emission inventories are summarized in **Table 4-2** and **Table 4-3**, respectively.

Table 4-1. LAX 2017 Baseline Emissions Inventory

Airport Emission Source	Pollutant Emissions, tons per year						CO ₂ (MT/yr)
	CO	VOC	NO _x	SO _x	PM ₁₀	PM _{2.5}	
Ground Support Equipment Total	1,141.40	25.93	184.93	0.23	4.83	4.27	23,369
Traffic & Parking							
Regional Traffic	6,333.96	661.83	1,319.59	13.65	201.71	95.14	1,258,667
On-Airport Traffic & Parking	316.39	33.47	83.04	0.71	11.02	5.46	65,832
Paved Road Dust	---	---	---	---	332.26	83.07	---
Traffic & Parking Total	6,650.35	695.30	1,402.63	14.36	545.00	183.67	1,324,499
GRAND TOTAL	7,791.75	725.23	1,587.56	14.59	549.83	187.94	1,347,868

Source: CDM Smith 2019

Table 4-2. LAX 2023 Business-As-Usual Emissions Inventory

Airport Emission Source	Pollutant Emissions, tons per year						CO ₂ (MT/yr)
	CO	VOC	NO _x	SO _x	PM ₁₀	PM _{2.5}	
Ground Support Equipment Total	1,307.15	20.62	150.69	0.25	3.58	3.11	25,222
Traffic & Parking							
Regional Traffic	4,004.85	420.93	472.51	11.85	190.89	80.52	1,104,735
On-Airport Traffic & Parking	194.61	20.34	25.29	0.59	9.50	4.01	55,153
Paved Road Dust	---	---	---	---	361.39	90.35	---
Traffic & Parking Total	4,199.46	441.27	497.80	12.44	561.78	174.88	1,159,888
GRAND TOTAL	5,506.61	461.89	648.49	12.69	565.36	177.99	1,185,110

Source: CDM Smith 2019

Table 4-3. LAX 2031 Business-As-Usual Emissions Inventory

Airport Emission Source	Pollutant Emissions, tons per year						CO ₂ (MT/yr)
	CO	VOC	NO _x	SO _x	PM ₁₀	PM _{2.5}	
Ground Support Equipment Total	1,436.51	16.41	121.31	0.31	2.31	1.91	27,671
Traffic & Parking							
Regional Traffic	3,348.36	332.48	368.39	11.39	221.28	91.72	1,061,253
On-Airport Traffic & Parking	162.61	16.07	21.11	0.57	11.02	4.57	53,103
Paved Road Dust	---	---	---	---	424.91	106.23	---
Traffic & Parking Total	3,510.97	348.55	389.50	11.96	657.21	202.52	1,114,356
GRAND TOTAL	4,947.48	364.96	510.81	12.27	659.52	204.43	1,142,027

Source: CDM Smith 2019