



Prepared by:

**CDM
Smith**

46 Discovery, Suite 250
Irvine, California 92618

Long Beach Airport (LGB)

Air Quality Improvement Plan
Revised Draft

Prepared for:

City of Long Beach

Project No. 234216

September 2019

Table of Contents

Section 1 Introduction and Overview	1-1
1.1 2016 AQMP Background.....	1-1
1.2 SCAQMD Workshops and Public Outreach	1-1
Section 2 Regulatory Background.....	2-1
2.1 Existing Mobile Source Regulations.....	2-1
2.1.1 SCAQMD Light, Medium, and Heavy-Duty Fleet Rules.....	2-1
2.1.2 CARB On-Road Heavy-Duty Diesel Vehicle (In-Use) Regulation	2-2
2.1.3 CARB In-Use Off-Road Diesel-Fueled Fleets Regulation.....	2-2
2.1.4 CARB Large Spark-Ignition Engine Fleet Regulation.....	2-2
2.2 Future Mobile Source Regulations.....	2-2
2.2.1 CARB Zero-Emission Airport Ground Support Equipment.....	2-3
2.2.2 CARB Zero-Emission Airport Shuttle.....	2-3
Section 3 Airport Mobile Source Inventories	3-1
3.1 2017 Baseline Emissions Inventory.....	3-1
3.2 2023 Business-as-Usual Emissions Inventory.....	3-2
3.3 2031 Business-as-Usual Emissions Inventory.....	3-3
Section 4 AQIP Measures and Initiatives	4-1
4.1 Clean Vehicles and Equipment Programs.....	4-1
4.1.1 GSE Emissions Reduction Measure	4-1
4.1.1.1 LGB GSE Policy Targets.....	4-1
4.1.1.2 LGB GSE Policy Implementation Plan.....	4-1
4.1.1.3 LGB GSE Emissions Reduction Policy Reporting and Enforcement	4-2
4.1.2 Clean Construction Policy.....	4-2
4.1.2.1 LGB Clean Construction Policy Targets	4-3
4.1.2.2 LGB Clean Construction Policy Reporting/Monitoring and Enforcement.....	4-3
4.1.2.3 LGB Clean Construction Policy Potential Exemptions.....	4-3
4.1.3 Airport-Owned Clean Fleet Policy.....	4-3
4.1.3.1 Airport-Owned Clean Fleet Policy Targets:	4-4
4.1.3.2 Airport-Owned Clean Fleet Policy Reporting/Monitoring and Enforcement	4-4
4.1.4 LGB Electric Vehicle Charging Infrastructure Initiative	4-4
4.2 Sustainable Design Programs	4-4
4.2.1 LGB Sustainable Design Policy	4-4
4.2.1.1 LGB Sustainable Design Policy Target.....	4-4
4.2.1.2 LGB Sustainable Design Policy Reporting/Monitoring and Enforcement.....	4-5
4.2.2 LGB Renewable Energy Policy.....	4-5
4.2.2.1 LGB Renewable Energy Policy Targets.....	4-5
4.2.2.2 LGB Renewable Energy Policy Reporting/Monitoring and Enforcement	4-5
Section 5 Summary of AQIP Potential Emission Reductions	5-1

List of Figures

Figure 3-1 LGB 2017 Baseline AQIP NO _x and VOC Emissions by Major Source Category	3-1
Figure 3-2 LGB 2023 AQIP BAU NO _x and VOC Emissions by Major Source Category.....	3-2
Figure 3-3 LGB 2031 AQIP BAU NO _x and VOC Emissions by Major Source Category.....	3-3

List of Tables

Table 3-1 LGB 2017 AQIP Baseline NO _x and VOC Emissions Inventory	3-1
Table 3-2 LGB 2023 AQIP BAU NO _x and VOC Emissions Inventory	3-2
Table 3-3 LGB 2031 AQIP BAU NO _x and VOC Emissions Inventory	3-3
Table 5-1. Potential AQIP Emission Reductions in 2023	5-1
Table 5-2. Potential AQIP Emission Reductions in 2031	5-1

Section 1

Introduction and Overview

Long Beach Airport (LGB or Airport) has developed this voluntary Air Quality Improvement Plan (AQIP or Plan) as part of a collaborative effort with the South Coast Air Quality Management District (SCAQMD) and other airports in the South Coast Air Basin (SCAB or Basin) (i.e., Hollywood Burbank Airport, Ontario International Airport, John Wayne International Airport, and Los Angeles International Airport, collectively Basin airports) to minimize and reduce air emissions related to mobile source activities at the Airport. This AQIP was developed specifically as it relates to SCAQMD Measure MOB-04 from the 2016 Air Quality Management Plan (2016 AQMP). MOB-04 is a measure in the 2016 AQMP to address mobile emissions from airports.

1.1 2016 AQMP Background

The 2016 AQMP is the SCAQMD's regional blueprint for achieving federal air quality standards in the Basin. The 2016 AQMP provides an analysis of existing and potential regulatory control options for the Basin and seeks to achieve multiple goals in partnership with other entities to reduce greenhouse gases and toxic risk, as well as provide efficiencies in energy use, transportation, and goods movement in a cost-effective manner. The 2016 AQMP demonstrates how and when the Basin will attain the ozone and particulate matter smaller than 2.5 microns in diameter (PM_{2.5}) standards within the latest statutory attainment date.¹ The 1997 8-hour ozone attainment date is 2023 and the 2008 8-hour ozone attainment date is 2031.

The 2016 AQMP specifically identifies various measures to reduce nitrogen oxides (NO_x) and reactive organic gases (ROG; also referred to as volatile organic compound (VOC)) emissions to achieve regional attainment. One of those measures requires Basin airports to reduce non-aircraft emission sources at their facilities (i.e., Facility-Based Measure for Mobile Sources Measure (MOB-04) for the Emissions Reductions at Commercial Airports). The SCAQMD adopted the 2016 AQMP on March 3, 2017.² The California Air Resources Board (CARB) adopted the 2016 AQMP on March 23, 2017,³ and as stated in the staff report, the 2016 AQMP addressed the facility based mobile source control measures including MOB-04.⁴ As further described below, the workshops and public outreach resulted in the SCAQMD shifting to a voluntary Memorandum of Understanding (MOU) approach to address the emission reduction objective of MOB-04.

1.2 SCAQMD Workshops and Public Outreach

In response to the Governing Board approval and direction of the facility based mobile source control measures (notably MOB-04), the SCAQMD held a series of working group meetings. The

¹ SCAQMD, 2016. Available at: <https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/executive-summary.pdf?sfvrsn=4>. Accessed: June 2019.

² SCAQMD, 2017. Governing Board Hearing, March 3. Available at: <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2017/2017-apr7-001.pdf?sfvrsn=4>. Accessed: June 2019.

³ CARB, 2017. Available at: <https://www.arb.ca.gov/planning/sip/planarea/scabsip/res17-8.pdf>. Accessed: June 2019.

⁴ CARB, 2017. Available at: https://www.arb.ca.gov/planning/sip/planarea/scabsip/2016AQMP_ARBstaffreport.pdf. Accessed: June 2019.

meetings were noticed and open to the public. The first introductory meeting for all facility based mobile source control measures occurred on May 8, 2017. More than 100 stakeholders, including representatives from industry, government, environmental, and community groups participated in the first working group meeting. The first MOB-04 working group meeting was held on May 31, 2017, where the SCAQMD presented MOB-04, including the background, working group process, metrics used to evaluate progress, measure development framework, emission sources, existing and future regulations, State Implementation Plan (SIP) credit requirements, example emission reduction opportunities, technologies currently available, and stakeholder input. There were a total of five open public meetings during the evaluation of MOB-04 culminating on February 1, 2018.⁵ In the fifth MOB-04 working group meeting, the SCAQMD presented staff's recommendation that the Governing Board pursue a voluntary MOU approach with the Basin airports to implement MOB-04. The Governing Board approved this approach in June 2018.⁶ Specifically, the Governing Board moved to "direct staff to pursue the approach for developing facility-based emission reduction strategies for commercial airports through voluntary measures only." LGB participated in the public meetings and working group meetings in this initial MOB-04 process.

Consistent with MOB-04, LGB has engaged in a collaborative process with the SCAQMD, Airlines for America (A4A), airlines not part of A4A, and Basin airports to develop an AQIP and an MOU with the SCAQMD for implementation of the AQIP. As part of this process, LGB has been involved in discussions with the SCAQMD and Basin airports in order to evaluate and identify possible initiatives and measures to achieve emission reductions consistent with the requirements of MOB-04. The SCAQMD has scheduled four working group meetings as part of the public outreach process in the development of the MOU and AQIP. On February 28, 2019, the first Airport MOU working group meeting was held. At this meeting, the SCAQMD presented an update on the MOU approach and the Basin airports provided a brief summary of the framework they would follow to implement MOB-04, including the development of an AQIP for each Basin airport with initiatives and measures to reduce emissions from non-aircraft mobile sources related to the airport.

The City of Long Beach (City) will review and approve the AQIP for LGB during a public meeting after notice is given in accordance with the Brown Act. The public notice will specify the date of the Commission meeting and will include the AQIP and other relevant documents. LGB will take into account the discussions with the SCAQMD, Basin airports, A4A and airlines, and other stakeholders in preparing the final draft AQIP for consideration and approval. Staff will prepare a final agenda staff report for City Council consideration with final recommendations based on recommendations and input received from the City Council and other stakeholders, and the City Council will make a final determination regarding approval of the AQIP.

⁵ SCAQMD, 2019. Available at: <https://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/facility-based-mobile-source-measures/fbmsm-mtngs>. Accessed: June 2019.

⁶ SCAQMD, 2019. Available at: <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2018/2018-jun1-001.pdf?sfvrsn=8>. Accessed: June 2019.

Section 2

Regulatory Background

There are both existing and proposed rules and regulations that could impact mobile sources related to airport activities. The following provides the regulatory background of the existing and proposed rules and regulations that were evaluated to assist in the development of the baseline and forecast emission inventories for the AQIP.

2.1 Existing Mobile Source Regulations

Both CARB and SCAQMD have developed regulations aimed to reduce emissions from mobile sources. These existing regulations are noted below, and include regulations on both on-road and off-road mobile sources.

2.1.1 SCAQMD Light, Medium, and Heavy-Duty Fleet Rules

The SCAQMD has various rules that are applicable to vehicle emission sources at airports. For example, Rule 1191, *Clean On-Road Light- and Medium-Duty Public Fleet Vehicles*, controls vehicle emissions by requiring certain fleets operating in the SCAB to utilize lower emitting vehicles.⁷ This rule applies to fleets operated by government agencies (including special districts like water, air, sanitation, school, etc.) with 15 or more non-exempt light- and medium-duty on-road gasoline, diesel, and alternative fueled vehicles. It requires applicable fleets operating within the SCAB (including those owned by or servicing LGB) to acquire low-emitting gasoline or alternative fuel vehicles beginning in July 1, 2001. Similarly, Rule 1196, *Clean On-Road Heavy-Duty Public Fleet Vehicles*, is a regulation with the same requirements that applies to fleets of on-road heavy-duty gasoline, diesel, and alternative fueled vehicles.⁸ Both rules include similar exemptions for certain fleets, such as those used for emergency response or law enforcement.

Airport vendors must also comply with Rule 1194, *Commercial Airport Ground Access*, which requires all public and private fleets providing passenger transportation services out of commercial airports operating in the SCAB to acquire cleaner burning or alternative-fueled vehicles.⁹ This rule applies to passenger cars, light-duty trucks, and medium- and heavy-duty transit vehicle fleets of 15 or more vehicles. Contracted passenger shuttle buses and taxi cabs serving airports must comply with this rule, as well as shuttles and other fleet operations not contracted by airports.

⁷ SCAQMD. 2000. Rule 1191 – Clean On-Road Light- and Medium-Duty Public Fleet Vehicles. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1191.pdf?sfvrsn=4>. Accessed: May 2019.

⁸ SCAQMD. 2008. Rule 1196 – Clean On-Road Heavy-Duty Public Fleet Vehicles. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1196.pdf?sfvrsn=6>. Accessed: May 2019.

⁹ SCAQMD. 2000. Rule 1194 – Commercial Airport Ground Access. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1194.pdf?sfvrsn=4>. Accessed: May 2019.

2.1.2 CARB On-Road Heavy-Duty Diesel Vehicle (In-Use) Regulation

The CARB currently requires emission controls for diesel trucks and buses via the statewide On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation.¹⁰¹¹ It requires applicable heavy-duty vehicles to be upgraded to meet emissions standards for criteria pollutants. These upgrades involve the installation of more efficient particulate filters or complete replacement of the vehicle or engine. This replacement has been occurring on a tiered schedule that started in 2015. By 2023, nearly all trucks and buses will be required to have model year 2010 engines (or equivalent) or newer. The compliance schedule for vehicle replacement is based on factors like the existing engine model year, type of vehicle (e.g., school bus, drayage truck), and gross vehicle weight. Thus, depending on these factors, certain heavy-duty vehicles operating at LGB may already be subject to the regulation, with the remaining requiring compliance by 2023. Exemptions to this regulation include emergency response vehicles, low-weight trucks for personal use, and vehicles subject to certain other sections of the California Code of Regulations.

2.1.3 CARB In-Use Off-Road Diesel-Fueled Fleets Regulation

The CARB currently requires emission reductions for certain classes and ages of off-road diesel fueled fleet vehicles via the statewide In-Use Off-Road Diesel-Fueled Fleets Regulation.¹¹ It applies to all off-road diesel vehicles 25 horsepower or greater and most two-engine vehicles, with exemptions for certain vehicles such as those used solely for agriculture and those for personal use. The regulation requires applicable vehicles to register with the CARB and restricts certain practices like idling and adding older vehicles to fleets. The regulation also requires fleets to reduce emissions by retiring, replacing, or repowering older engines or installing Verified Diesel Emission Control Strategies (VDECS).

2.1.4 CARB Large Spark-Ignition Engine Fleet Regulation

The CARB currently regulates emissions from certain vehicle types having large spark-ignition (LSI) engines via the LSI Engine Fleet Requirements Regulation.¹² This regulation applies to off-road LSI engine forklifts, sweepers/scrubbers, industrial tow tractors, and airport ground support equipment (GSE) operated for business purposes within the State of California. Additionally, it applies only to vehicles with engines of at least 25 horsepower (hp) and 1.0 liter displacement that are part of fleets of four vehicles or more. The regulation requires that applicable fleets achieve specific fleet average emission levels (FAELs) for hydrocarbons and NO_x. These standards became more stringent over time until reaching the lowest regulated FAEL in 2013.

2.2 Future Mobile Source Regulations

CARB is currently in the process of developing two regulations to reduce emissions from sources that specifically operate at airports: airport ground support equipment and airport shuttle buses.

¹⁰ California Code of Regulations. 2014. Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and Other Criteria Pollutants from In-Use Heavy-Duty Diesel-Fueled Vehicles. Available at: <https://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm>. Accessed: May 2019.

¹¹ CARB. 2019. In-Use Off-Road Diesel-Fueled Fleets Regulation. Available at: <https://www.arb.ca.gov/msprog/ordiesel/ordiesel.htm>. Accessed: May 2019.

¹² California Code of Regulations. 2016. Large Spark-Ignition (LSI) Engine Fleet Requirements Regulation. Available at: <https://www3.arb.ca.gov/msprog/offroad/orspark/largesparkappa-clean.pdf>. Accessed: May 2019.

2.2.1 CARB Zero-Emission Airport Ground Support Equipment

The CARB is currently in the process of developing a zero-emission initiative for GSE at airports around California.¹³ GSE is utilized for various functions at airports such as refueling aircraft, transporting cargo and passengers to and from aircraft, and providing maintenance. This new regulation would help the CARB achieve the emission reduction strategies included in the State's Mobile Source Strategy, SIP, and Sustainable Freight Action Plan. This rule is intended to advance GSE conversion to zero-emission (i.e., electric) technologies while accelerating the goals and requirements provided in the LSI Engine Fleet Requirements Regulation.¹⁴ The rule will apply to the tenant airlines at LGB and their ground-handling contractors that own/operate GSE.

2.2.2 CARB Zero-Emission Airport Shuttle

The CARB is currently in the process of developing a statewide zero-emission airport shuttle initiative that will promote the development and use of zero-emission ground transportation to and from airports around California.¹⁵ This will help the CARB achieve the emission reduction strategies included in the State's Mobile Source Strategy, SIP, and Sustainable Freight Action Plan. The CARB determined that vehicles like airport shuttles, which operate on fixed routes, travel at low average speeds, and are centrally maintained and fueled, are ideal targets for implementing zero-emission technologies. According to information from the CARB, this initiative will take the form of a regulation that will either supersede or work in combination with the existing SCAQMD airport commercial transportation rules for shuttles. Specific requirements and anticipated dates of implementation have not yet been determined, but the rule is expected to be published before the first AQMP target year of 2023.

¹³ CARB. Zero-Emission Airport Ground Support Equipment. Available at: <https://ww2.arb.ca.gov/our-work/programs/zero-emission-airport-ground-support-equipment/about>. Accessed: May 2019.

¹⁴ CARB. 2016. Final Regulation Order – Large Spark-Ignition (LSI) Engine Fleet Requirements Regulation. Available at: <https://ww3.arb.ca.gov/msprog/offroad/orspark/largesparkappa-clean.pdf>. Accessed: May 2019.

¹⁵ CARB. Zero-Emission Airport Shuttle. Available at: <https://ww2.arb.ca.gov/index.php/our-work/programs/zero-emission-airport-shuttle/about>. Accessed: May 2019.

This page intentionally left blank.

Section 3

Airport Mobile Source Inventories

Baseline emissions have been calculated for 2017, and emission forecasts have been estimated for 2023 and 2031 under the business-as-usual scenario. These inventories are summarized below.

3.1 2017 Baseline Emissions Inventory

LGB prepared a 2017 Baseline emissions inventory for LGB Mobile Sources that are subject to AQIP measures and initiatives. The 2017 Baseline inventory was prepared using the most accurate information available concerning airport activity and associated emissions of critical pollutants and greenhouse gases for the AQMP analysis years. A summary of the LGB 2017 mobile source emissions inventories for NO_x and VOC are presented in **Table 3-1**.¹⁶ The emissions by major source categories are shown graphically on **Figure 3-1**. Note that 48 percent of the GSE fleet at LGB has been converted to battery electric power prior to implementation of the AQIP.

Table 3-1 LGB 2017 AQIP Baseline NO_x and VOC Emissions Inventory

Airport Emission Source	Pollutant Emissions, tons per year	
	NO _x	VOC
Ground Support Equipment Subtotal	16.78	2.55
Traffic and Parking		
Regional Traffic	49.55	50.42
On-Airport Roadways & Parking Lots	2.25	1.99
Traffic and Parking Subtotal	51.80	52.41
Construction Subtotal	2.91	0.36
GRAND TOTAL	71.49	55.32

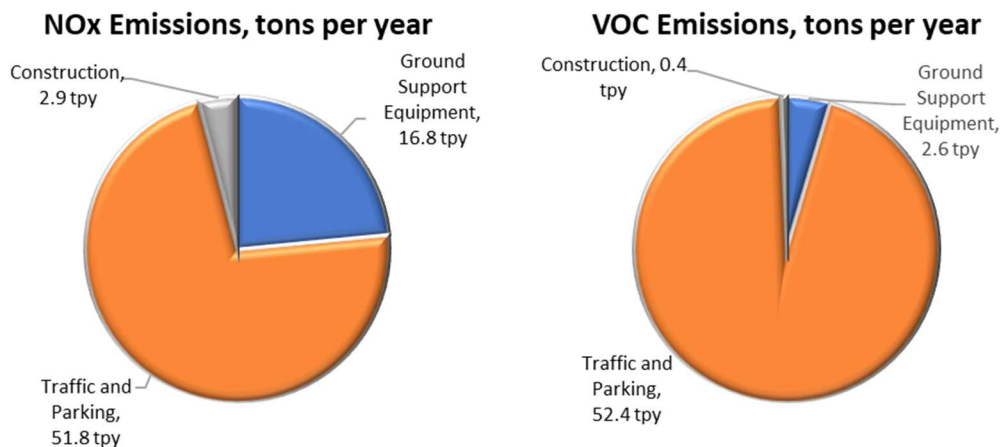


Figure 3-1
LGB 2017 Baseline AQIP NO_x and VOC Emissions by Major Source Category

¹⁶ City of Long Beach. 2019. Long Beach Airport (LGB) Air Quality Improvement Plan 2017 Emissions Inventory. July.

3.2 2023 Business-as-Usual Emissions Inventory

LGB prepared a 2023 business-as-usual (BAU) emissions inventory as a reference point for the AQIP, using the most accurate information available to LGB concerning associated emissions of critical air pollutants and greenhouse gases for the AQIP analysis years. A summary of the LGB 2023 AQIP BAU emissions inventories for NO_x and VOC are presented in **Table 3-2**.¹⁷ The emissions by major source categories are shown graphically on **Figure 3-2**.

Table 3-2 LGB 2023 AQIP BAU NO_x and VOC Emissions Inventory

Airport Emission Source		Pollutant Emissions, tons per year	
		NO _x	VOC
Ground Support Equipment Subtotal		13.23	2.04
Traffic and Parking			
	Regional Traffic	23.16	31.14
	On-Airport Roadways & Parking Lots	1.04	1.23
Traffic and Parking Subtotal		24.20	32.37
Construction Subtotal		8.59	6.17
GRAND TOTAL		46.02	40.58

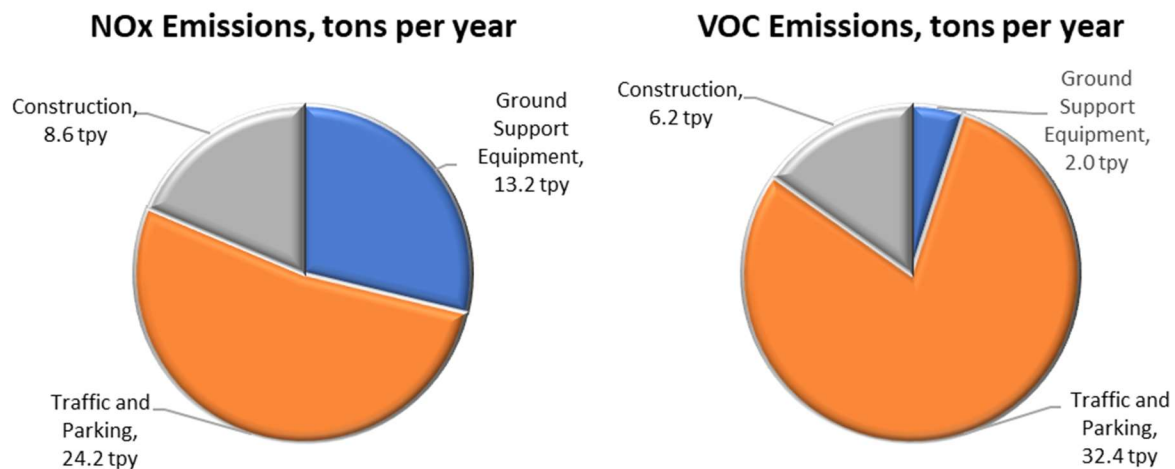


Figure 3-2
LGB 2023 AQIP BAU NO_x and VOC Emissions by Major Source Category

¹⁷ City of Long Beach. 2019. Long Beach Airport (LGB) Air Quality Improvement Plan 2023 Business-As-Usual Emissions Inventory. July.

3.3 2031 Business-as-Usual Emissions Inventory

LGB prepared a 2031 business-as-usual (BAU) emissions inventory as a reference point for the AQIP, using the most accurate information available to LGB concerning associated emissions of critical air pollutants and greenhouse gases for the AQIP analysis years. A summary of the LGB 2031 AQIP BAU emissions inventories for NO_x and VOC are presented in **Table 3-3**.¹⁸ The emissions by major source categories are shown graphically on **Figure 3-3**.

Table 3-3 LGB 2031 AQIP BAU NO_x and VOC Emissions Inventory

Airport Emission Source	Pollutant Emissions, tons per year	
	NO _x	VOC
Ground Support Equipment Subtotal	10.54	1.74
Traffic and Parking		
Regional Traffic	14.37	23.21
On-Airport Roadways & Parking Lots	0.62	0.91
Traffic and Parking Subtotal	14.99	24.12
Construction Subtotal	2.91	0.36
GRAND TOTAL	28.44	26.22

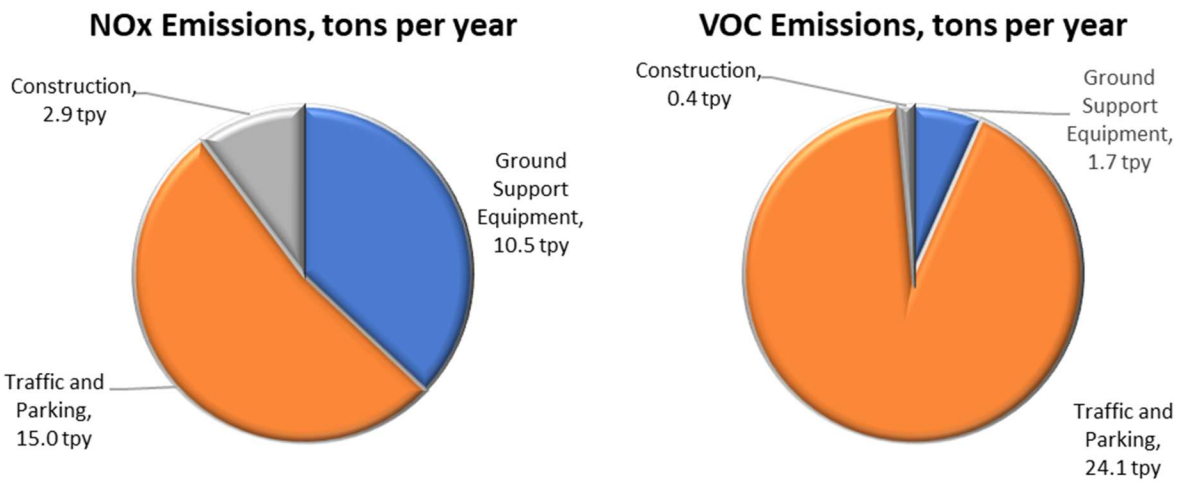


Figure 3-3
LGB 2031 AQIP BAU NO_x and VOC Emissions by Major Source Category

¹⁸ City of Long Beach. 2019. Long Beach Airport (LGB) Air Quality Improvement Plan 2031 Business-As-Usual Emissions Inventory. July.

This page intentionally left blank.

Section 4

AQIP Measures and Initiatives

The AQIP Measures and Initiatives are focused on reducing emissions from several mobile source types that operate at or come to the airport, as well as energy conservation efforts at the airport. These measures and initiatives are roughly divided into two types: (i) clean vehicles and equipment programs, and (ii) sustainable design programs. The first includes the ground support equipment (GSE) emission reduction measure, clean construction policy, airport-owned clean fleets policy, and an electric vehicle (EV) charging infrastructure initiative. The second includes the LGB Sustainable Design Policy and LGB Renewable Energy Policy.

4.1 Clean Vehicles and Equipment Programs

4.1.1 GSE Emissions Reduction Measure

Airlines and other entities own and operate Ground Support Equipment (GSE) to support arriving, departing, and parked aircraft at Long Beach Airport (LGB). LGB will enact a GSE Policy to ensure that LGB achieves the airport-wide GSE Emission Factor Targets. LGB will achieve an airport average composite emissions factor for its GSE Fleet which is equal to or less than the targets listed in Section 4.1.1.1, below. A GSE operator's "Long Beach Airport GSE Fleet" is comprised solely of GSE operated at LGB. Emissions performance of GSE operating at LGB cannot be averaged with emissions performance of GSE operating at other airports to demonstrate compliance with the LGB GSE Emission Factor Targets.

4.1.1.1 LGB GSE Policy Targets

The LGB GSE Policy Emission Factor Targets are:

- 0.93 g/bhp-hr of HC plus-NOx by January 1, 2023.
- 0.44 g/bhp-hr of HC plus-NOx by January 1, 2031.

4.1.1.2 LGB GSE Policy Implementation Plan

The GSE operators are to maintain In-Use Off-Road Diesel (ORD), Large Spark-Ignition (LSI), and Portable Engine Airborne Toxic Control Measure (ATCM) data as required by CARB regulations. "Low-Use" GSE may be excluded from GSE fleet average emission calculation. The criteria defining Low-Use GSE shall be based on the applicable program (i.e. ORD, LSI, ATCM).

Currently, six GSE electric chargers are available for airline usage. To encourage and further support the conversion to and/or use of alternative fuel low emissions GSE technology, LGB Airport is currently in the process of adding ten new, more energy efficient GSE chargers. Existing chargers will also be replaced with the new units. The installation of the new GSE units will be completed in early 2020.

4.1.1.3 LGB GSE Emissions Reduction Policy Reporting/Monitoring and Enforcement

LGB, in consultation with the GSE Operators, shall develop an agreed upon reporting approach, related rules and regulations, and lease and GSE License agreements to carry out this policy.

Beginning in 2020, on or before every August 1st annually, each GSE operator will be required to provide LGB its GSE fleet inventory data that is consistent with data provided to CARB and in a form or forms as requested by LGB. LGB will calculate the composite emissions factor for each GSE operator's fleet. Each GSE Operator must submit documentation to LGB, and LGB will evaluate whether the airport-wide GSE Fleet is in compliance with the 2023 and 2031 Emission Factor Targets.

The CARB ORD compliance requirements set forth specific emissions targets and allow, in the event that an annual emissions target is not achieved by a fleet owner, alternative compliance strategies such as application of Best Available Control Technology (BACT) and vehicle "turnover" (i.e., vehicle retirement, conversion to "low-use," repowering, or rebuilding engines to comply with more stringent emission limits). LGB may adopt CARB alternative compliance strategies when evaluating a GSE Operator's status and efforts towards achieving the 2023 and 2031 Emission Factor Targets.

4.1.2 Clean Construction Policy

For all Capital Improvement Projects (CIP), LGB will ensure contractors follow clean construction policies to reduce emissions of NOx such as using low-emission vehicles and equipment, recycling construction and demolition debris, and minimizing non-essential trips through better schedule coordination. After adoption of the MOU/AQIP by the City of Long Beach but no later than January 1, 2023, LGB will require all CIP contractors submit clean construction plans and comply with the following requirements:

- On-road medium-duty and larger diesel-powered trucks with a gross vehicle weight rating of at least 14,001 pounds shall comply with USEPA 2010 on-road emissions standards for PM10 and NOx. Contractor requirements to utilize such on-road haul trucks or the next cleanest vehicle.
- All off-road diesel-powered construction equipment greater than 50 horsepower shall meet, at a minimum, USEPA Tier 4 (final) off-road emissions standards. Contractor requirements to utilize Tier 4 (final) equipment or next cleanest equipment available.
- The on-road haul truck and off-road construction equipment requirements shall apply unless certain deemed infeasible by LGB, and the Contractor provides a written finding consistent with project contract requirements.
- All diesel-fueled equipment will be outfitted with best available emissions control devices where technologically feasible; applies to off-road equipment (such as construction machinery), diesel-fueled on-road vehicles (such as trucks), and stationary diesel-fueled engines (such as electric generators).

- The Contractor shall utilize grid-based electric power at the construction site where feasible. If diesel- or gasoline-fueled generators are necessary, generators using "clean burning diesel" fuel and exhaust emission controls shall be utilized.
- The contractor or builder shall designate a person or persons to monitor construction-related measure through direct inspections, record reviews, and investigations of complaints.

4.1.2.1 LGB Clean Construction Policy Targets

- 100% compliance with Clean Construction Policy and each contractor's fleet of construction vehicles and equipment achieving 90% Tier 4 Final and 10% Tier 4 Interim by January 1, 2023.
- 100% compliance with Clean Construction Policy and each contractor's fleet of construction vehicles and equipment achieving 100 % Tier 4 Final by January 1, 2031.

4.1.2.2 LGB Clean Construction Policy Reporting/Monitoring and Enforcement

Procurement documents will require compliance with LGB Clean Construction Policy. Each construction company shall submit a compliance plan for all above policies. PMs will be required to monitor compliance during construction, and report compliance annually.

4.1.2.3 LGB Clean Construction Policy Potential Exemptions

LGB may exempt construction contracts that are very short in duration or small in scope from one or more of the requirements listed above. The exemptions may be applied if the project will be completed in less than 21 calendar days from start of construction, project costs are less than \$100,000, or estimated project NO_x emissions are less than 0.1 ton per year. Procurement documents will require compliance with LGB Clean Construction Policy. Each construction company shall submit a compliance plan for all above policies. PMs will be required to monitor compliance during construction, and report compliance annually.

Once the LGB AQIP is approved by the City, the Clean Construction Policy will be imposed on all new capital improvement (CIP) projects at LGB. Starting no later than January 1, 2023, the City will ensure that contractors follow clean construction practices to reduce NO_x and VOC emissions. The targets under the policy include use of 2010 or newer truck emission standards for NO_x and PM₁₀ for medium and heavy duty trucks (over 14,000 pounds gross vehicle weight rating), meet USEPA Tier 4 Final emission standards for off-road construction equipment larger than 50 horsepower, install best available emissions control devices where technologically feasible on diesel-fueled off-road equipment, on-road trucks, and stationary engines, and utilize grid-based electric power at the construction site where feasible.

4.1.3 Airport-Owned Clean Fleet Policy

LGB is committed to operate a clean vehicle fleet, and to secure emission reductions in excess of SCAQMD Rule 1191. The Policy covers LGB-owned vehicles, except those used for safety purposes, such as police and fire vehicles.

The City intends to convert all airport-owned light, medium and heavy-duty fleets to vehicles that are certified at super ultra-low emission standards (SULEV), or be alternative-fueled, if permitted

by the City of Long Beach vehicle replacement policy. Beginning after adoption of the AQIP, the Airport will assess the purchase of commercially available passenger car, light-duty truck, or medium-duty vehicles that are certified SULEV or cleaner when adding or replacing a vehicle in its fleet. LGB will assess the cost-benefit of purchasing all-electric or plug-in hybrid sedans when replacing light-duty automobiles in its fleet.

4.1.3.1 Airport-Owned Clean Fleet Policy Targets:

- Sedans:
 - 100% SULEV or alternative fueled by January 1, 2023
- Medium and Heavy-Duty Fleets:
 - 75% SULEV or alternative fueled by January 1, 2023
 - 100% SULEV or alternative fueled by January 1, 2031

4.1.3.2 Airport-Owned Clean Fleet Policy Reporting/Monitoring and Enforcement

LGB procurement/bid specifications shall be consistent with the Clean Fleet Targets. LGB will identify new infrastructure and equipment needs to support the fleet conversion as part of the implementation of the Clean Fleet Policy. LGB will annually audit vehicle purchases and the recycling program to determine compliance with the policy. LGB will report compliance with this policy annually.

4.1.4 LGB Electric Vehicle Charging Infrastructure Initiative

LGB will assess feasibility and costs to install Electric Vehicle (EV) chargers in its existing parking structures and parking areas at the airport. The intent of this initiative is to increase the electric vehicle trips to LGB by increasing EV charging availability for airport users. The first target for this initiative is to complete a feasibility study on the potential installation of EV chargers by the end of 2020. The study will assess the feasibility and costs to supply 2 percent of the parking space inventory with EV charging capability by January 1, 2023.

4.2 Sustainable Design Programs

4.2.1 LGB Sustainable Design Policy

To reduce overall airport operational emissions, LGB will design, build, and deliver Phase 2 of the Terminal Improvements Project in an environmentally responsible and resource-efficient manner throughout the Project's life cycle, from the initial design, construction, operation, and maintenance phases.

4.2.1.1 LGB Sustainable Design Policy Target

LGB will develop a Sustainable Design Standard Policy for the Airport's Terminal Improvements Project – Phase 2, requiring the Project's Ticketing Building to achieve LEED Silver (or better) certification. This requirement shall be consistent with the City of Long Beach's green building standards found at Municipal Code 21.45.400.

4.2.1.2 LGB Sustainable Design Policy Reporting/Monitoring and Enforcement

LGB will include the Sustainable Design Policy requirements as part of its procurement for Terminal Improvements Project – Phase 2 Ticketing Building. LGB will develop a LEED monitoring checklist and assessment tool to ensure this building is constructed in accordance with LEED Silver standards at a minimum. At key construction phases the Project Managers (PMs) representing the Project shall be required to submit the monitoring forms to LGB for review and comment, and to ensure building is constructed in accordance with LEED Silver standards. LGB will provide compliance reports upon completion of Terminal Replacement Project.

4.2.2 LGB Renewable Energy Policy

To provide additional clean energy to Long Beach’s power grid, LGB has completed a solar power feasibility study for the campus to assess the viability of installing additional photovoltaic solar. The report consisted of a comprehensive siting analysis, study and application of FAA guidelines to the selected sites, and an evaluation of funding opportunities and implementation options for the proposed solar power systems.

The City of Long Beach has let a contract to begin design of solar power systems on the existing parking structures at LGB, and has an agreement to use solar-produced power from the provider.

4.2.2.1 LGB Renewable Energy Policy Targets

- Complete solar power system design by the end of 2019.
- Complete installation and begin operation of the solar power system by the end of 2020.

4.2.2.2 LGB Renewable Energy Policy Reporting/Monitoring and Enforcement

The City of Long Beach has committed resources to the design and construction of solar power systems at LGB. It is anticipated that the City’s Project Manager for these projects will be guiding the project to completion.

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.

This page intentionally left blank.

Section 5

Summary of AQIP Potential Emission Reductions

The potential emission reductions for several of the AQIP Measures and Initiatives are summarized in **Table 5-1** for 2023 and in **Table 5-2** for 2031. Note that these reductions are relative to the 2023 and 2031 BAU emission inventories presented in the reports provide in the Appendices.

Table 5-1. Potential AQIP Emission Reductions in 2023

AQIP Measure/Initiative	Pollutant Emissions, pounds per year (lbs/year)	
	VOC	NOx
GSE Measure	287	1,866
Clean Construction Policy	NA	NA
Airport-Owned Clean Fleets	55	50
EV Charger Initiative	NA	NA
Sustainable Design Policy	NA	NA
Renewable Energy Policy	NA	NA
Reductions from 2023 BAU	342	1,916

Source: CDM Smith 2019.

NA = Not analyzed. Although the AQIP measure is expected to produce emission reductions relative to the BAU scenario, the potential air quality benefit from this measure was considered too speculative to quantify.

Table 5-2. Potential AQIP Emission Reductions in 2031

AQIP Measure/Initiative	Pollutant Emissions, pounds per year (lbs/year)	
	VOC	NOx
GSE Measure	1,361	8,127
Clean Construction Policy	NA	NA
Airport-Owned Clean Fleets	255	129
EV Charger Initiative	NA	NA
Sustainable Design Policy	NA	NA
Renewable Energy Policy	NA	NA
Reductions from 2031 BAU	1,616	8,256

Source: CDM Smith 2019.

NA = Not analyzed. Although the AQIP measure is expected to produce emission reductions relative to the BAU scenario, the potential air quality benefit from this measure was considered too speculative to quantify.

This page intentionally left blank.