

October 17, 2023

Ms. Sang-Mi Lee
Planning and Rules Manager
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4178

CITY OF LONG BEACH SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT MEMORANDUM OF UNDERSTANDING (MOU) – REVISED ANNUAL PROGRESS REPORT FOR CALENDAR YEAR 2022

Dear Ms. Lee,

Long Beach Airport (“LGB” or “the Airport”) is pleased to submit the Airport’s 2022 annual progress report as requested by the South Coast Air Quality Management District (“South Coast AQMD”). On December 6, 2019, a Memorandum of Understanding (MOU) was entered into by the South Coast AQMD and the Airport. This report details the progress achieved in Calendar Year (“CY”) 2022 and is intended to provide an overview of the Airport’s efforts to implement the MOU measure and quantify actual emission reductions. There is one measure in the LGB MOU related to non-aircraft commercial passenger airport mobile sources – the Ground Support Equipment (“GSE”) measure. Reportable information identified in the MOU for this measure and emissions estimates are provided in the following sections. This report does not apply to any source in operation at the Airport that is not specifically identified in the MOU measure.

On August 17, 2023, South Coast AQMD completed a preliminary review of the CY 2022 GSE inventory, which the Airport submitted on June 1, 2023, and provided comments. Several of the provided comments were applicable to only the CY 2022 inventory, while other comments were also applicable to the CY 2021 inventory, which had been most recently revised and resubmitted on February 8, 2023. The Airport provided responses to South Coast AQMD’s comments on September 15, 2023, and this revised annual progress report incorporates applicable revisions to the CY 2022 and CY 2021 inventories based on those comments, including: adjustments to deterioration rate calculations for low use equipment and revisions to the operating specifications of several specific GSE. Updated CY 2022 and CY 2021 inventories are provided to South Coast AQMD as part of this revised annual progress report.

The emergence of the COVID-19 pandemic in early 2020 significantly disrupted air travel for most of CY 2020, with passenger counts slowly recovering throughout 2021 and approaching but remaining below 2019 levels in 2022. In 2022, approximately 3.2 million passengers traveled through LGB, representing a 54 percent increase relative to 2021 and a 10 percent decrease relative to 2019 pre-pandemic levels. This recovery is tempered with the impact on prices due to inflation, global events, and staffing shortages in the airline industry and the related supporting service sector.

PROGRESS ON MOU MEASURES

MOU SCHEDULE NO. 1 – GROUND SUPPORT EQUIPMENT

Schedule No. 1 of the MOU requires the Airport to reduce nitrogen oxides (NOx) emissions from GSE to achieve a fleet average composite factor (“performance factor”) which is less than or equal to 0.93 grams of NOx per brake horsepower-hour (“g/bhp-hr NOx”) by January 1, 2023 and is less than or equal to 0.44 g/bhp-hr NOx by January 1, 2031. To achieve these targets, the Airport has been working with airlines and third-party GSE operators to accelerate the turnover of existing equipment to newer, lower-emission equipment.

A list of GSE subject to this measure with the required information specified in MOU Schedule No. 1 Section III.B.1., *List of Ground Support Equipment*, is provided in **Exhibit A, Table 1**. Information on the sale or retirement of non-zero emission GSE subject to this measure including information from the California Air Resources Board DOORS web portal and relocation details (as applicable) as required by MOU Schedule No. 1, Section III.B.2, *List of Sold, Retired, or Relocated Equipment*, is presented in **Exhibit A, Table 2**. As required by MOU Schedule No. 1, Section III.B.3, *Emission Inventory*, an inventory of emissions from GSE activity at the Airport has been developed. Information pertaining to the development of the GSE emissions inventory, including in-depth discussion of the performance factor and emission inventory calculation methodologies, can be found in **Exhibit A** with additional supporting documentation provided in **Exhibit B**.

RESULTS OF CY 2022 GSE SURVEY

In CY 2022, there were 187 units of in-use equipment with power ratings greater than 25 horsepower (i.e., reportable) GSE operating at the Airport – a net increase of 0 units relative to the count reported in CY 2021. While the total count of reportable GSE did not change, the airport composite fleet saw reductions to the overall count of reportable diesel and liquified petroleum gas (LPG) powered equipment to the measure of 8 and 2 fewer units respectively. The airport composite fleet also witnessed an increase to the overall count of reportable gasoline and electric powered GSE to the measure of 2 and 10 units respectively. Two additional units, which were reported as GSE in the CY 2021 annual report, were determined via dialogue with the equipment operator to be unreportable non-GSE equipment and were removed from the inventory in this CY 2022 report.

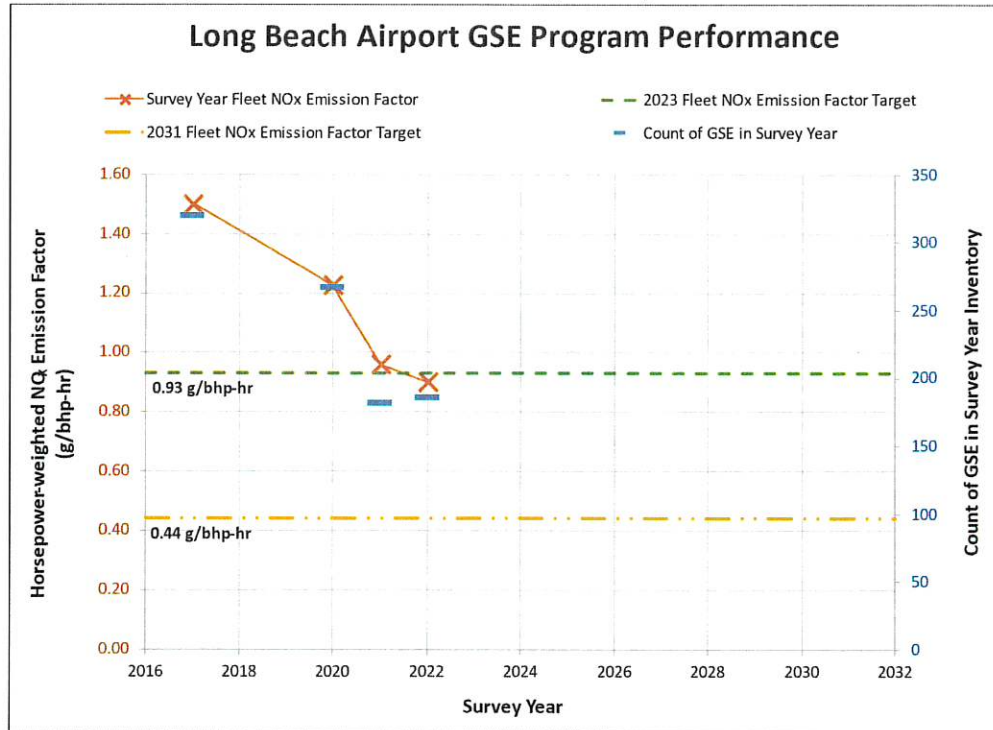
2022 Long Beach Airport MOU GSE Summary

Fleet Mix ¹					Fleet Emissions (tons per year; metric tons for CO _{2e}) ²						
Total	Electric	Diesel	Gas	Other	CO	ROG	NOx	PM ₁₀	PM _{2.5}	SOx	CO _{2e}
186	96	50	29	11	19.4	1.6	7.5	0.24	0.22	<0.01	1,302

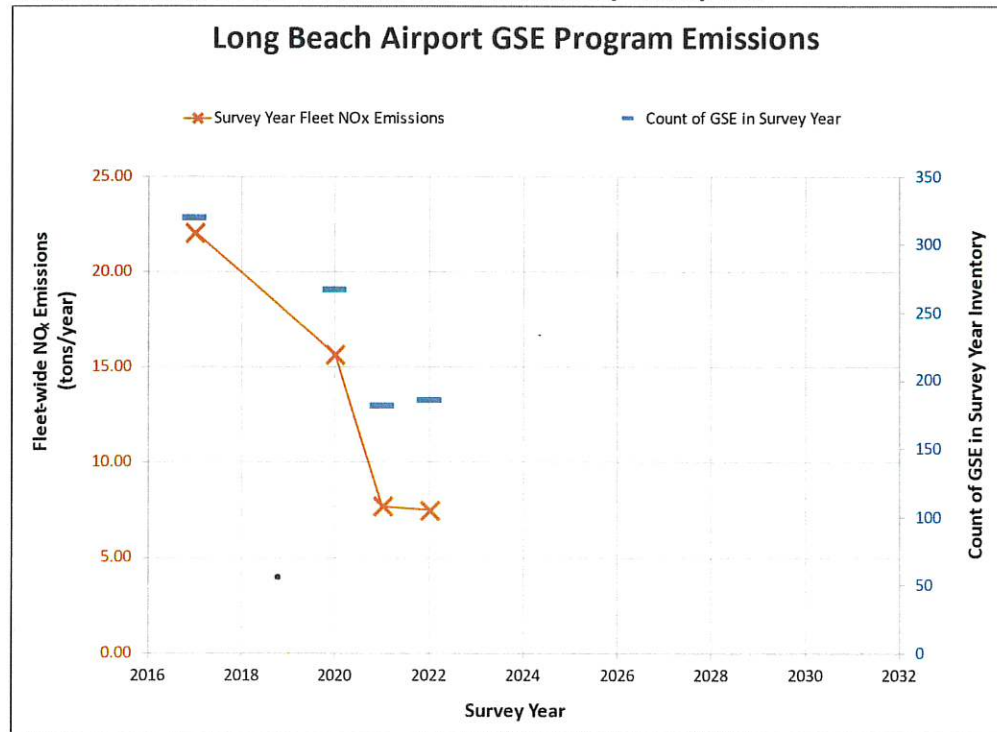
Notes:

1. Fleet counts include ≥25 horsepower in-use equipment used in the calculation of the NOx performance factor.
2. Fleet emissions include the operation of all reported equipment, including <25 horsepower and low-use (<200 hours per year) or emergency-use equipment.

Long Beach Airport MOU GSE Performance by Survey Year



Long Beach Airport MOU Annual GSE Emissions by Survey Year



In CY 2022, the Airport achieved a performance factor of 0.90 g/bhp-hr NO_x, demonstrating achievement of the MOU's January 1, 2023 target on schedule. This factor represents a steady decrease relative to the CY 2021 factor of 0.96 g/bhp-hr NO_x. This decrease was the result of the changeout of older diesel equipment in operation at the Airport in CY 2021 with comparable zero-emission electric and new low-emission gasoline units in CY 2022. LGB expects the performance factor to continue its downward trend in future reporting years as the Airport continues to coordinate with airport partners to replace or relocate older conventionally fueled equipment.

The total annual NO_x emissions associated with GSE operation at LGB were 7.48 tons in CY 2022, a substantial decrease relative to the CY 2021 total of 7.70 tons. Like the Airport's performance factor, the emissions decrease is attributable to the accelerated changeout of older, conventionally fueled GSE. Overall, in CY 2022 the GSE fleet at LGB achieved an annual reduction of 14.57 tons of NO_x (66.0 percent) relative to the NO_x emissions from GSE at the Airport in the MOU's baseline year (2019).

Sincerely,



Ryan McMullan
Long Beach Airport
Noise and Environmental Affairs Officer

Enclosed are the following documents.

- Exhibit A: MOU Schedule No. 1 – GSE 2022 MOU Report
- Exhibit B: MOU Schedule No. 1 – GSE 2022 Survey Report, October 2023