Aircraft Forecast & Fleet Mix

South Coast AQMD 2022 AQMP

Presented to: 2022 AQMP Aircraft Working Group

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Federal Aviation Administration

Topics that affect aircraft NOx emissions estimates

- **FAA Terminal Area Forecast**
- **Fleet Mix**
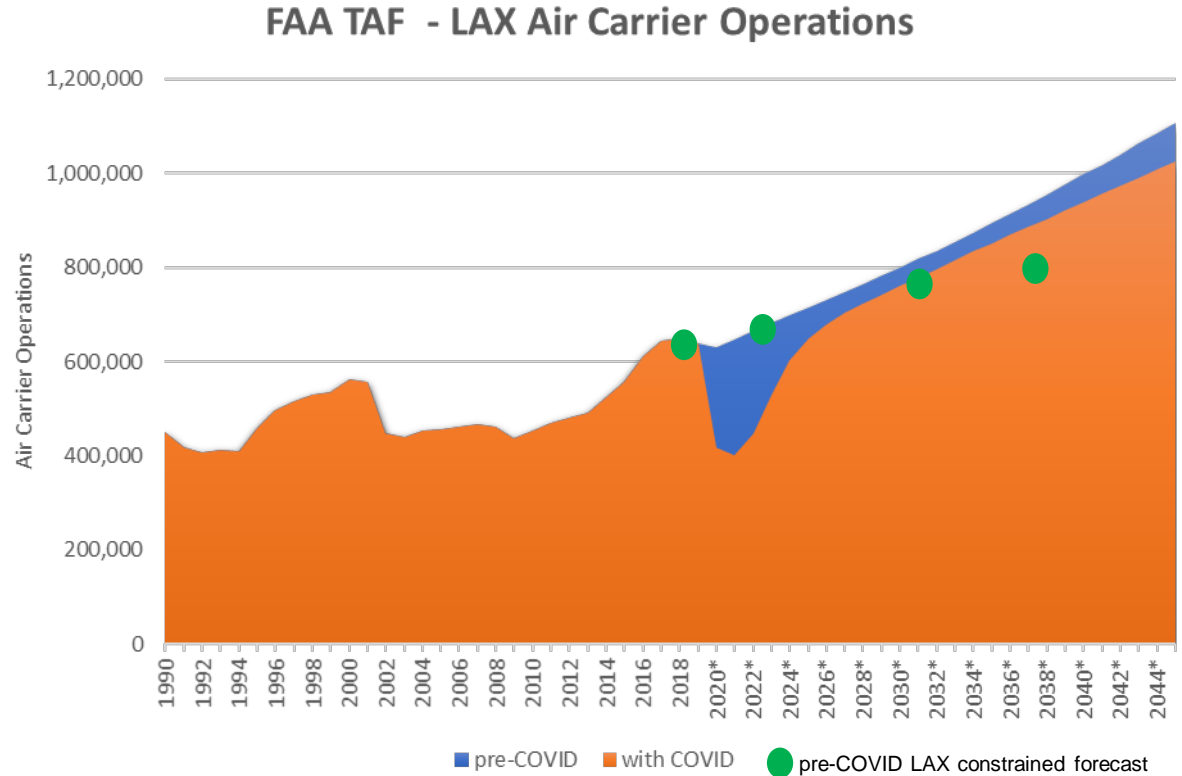
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FAA Terminal Area Forecast

- **Public planning tool**
  - Historic data + demand-driven forecast
    - Updated annually
  - Predicts Enplanements (passengers)
  - Predicts Operations for 4 Aircraft Categories:
    - Air Carrier, Air Taxi, General Aviation, Military
      - Scheduled & Local
  - Based on trends, local & national economic factors, airline data, airport reports, Bureau of Transportation Statistics, etc.
  - Constrained and unconstrained

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TAF – COVID effects, LAX example

- **TAF forecast is unconstrained**
- **Defer to the airport to modify forecasted aircraft activities according to real-world circumstances**

FAA TAF - LAX Air Carrier Operations

Legend: pre-COVID | with COVID | pre-COVID LAX constrained forecast

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Fleet Mix

- **Aircraft / Engine combinations**
  - Allow for a more accurate NOx emissions inventory
  - Reflect the best representation of airlines future fleet operations based on
    - Announced aircraft/engine purchases
    - Aircraft retirements
    - Aircraft registrations
    - Markets served

Example Fleet Mix Changes

B747-8 → B777-9   -55% NOx

B767-300 → B787-900   -4% NOx

A320 ceo → A320 neo   -28% NOx

Summary

- **Two ways to improve the accuracy of NOx emissions in the SIP are:**
  - Incorporate COVID effects into the forecast
  - Select representative airframe/engine combinations

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Input on Draft Emissions Inventory and Emissions Reduction "Strategies" Discussed to Date

South Coast Air Quality Management District – Aviation Working Group Meeting #3
June 8, 2021

Tim A. Pohle – Sr. Managing Director, Environmental Affairs

About A4A

A4A is the principal trade and service organization of the U.S. airline industry with its membership and regional partners accounting for more than 90% of U.S. airline passenger and cargo traffic

MEMBER AIRLINES

Alaska AIRLINES   American Airlines   ATLAS AIR WORLDWIDE   DELTA   FedEx Express

HAWAIIAN AIRLINES   jetBlue   Southwest   UNITED   UPS

ASSOCIATE MEMBER AIRLINES   AIR CANADA

A4A and Members Committed to Environmental Progress

Safety is our number one priority – we view responsible environmental stewardship as essential to our business and embrace the need to work proactively to address environmental concerns and achieve concomitant public health objectives

A4A Recognizes the Need to Attain the NAAQS and Fully Supports Efforts to Achieve the NAAQS

- Long history of working with the District and California Air Resources Board to achieve emissions reductions.
- Includes cooperating in development of suite of CARB regulations applicable to Airport Ground Support Equipment
- Also includes support for Airport-District MOUs reached in 2016 AQMP process

March 30, 2021, A4A Adopted New, Very Ambitious Climate Goals

Near Term – Maintain *existing carbon-neutral growth goal* relative to *2019 baseline* (accounting for COVID19 downturn)

Medium Term – 2030 SAF Goal: 2 billion gallons of cost-competitive *Sustainable Aviation Fuel (SAF)* supply in 2030

Long Term – 2050 NZC Goal: *Net-zero carbon emissions by 2050*

District's Draft Emissions Inventory

- **<u>Projected Levels of Aircraft Operations</u>**:
  - Impacts of COVID-19 need to be taken into account
  - Airline recovery is underway, return to traffic growth expected in longer term

- **<u>Projected Aircraft-Engine Configuration</u>s:**
  - Current Draft Inventory projection of operations appears to include aircraft-engine configurations in future years that are not expected to be operated in those years
  - Need to reflect changes in aircraft fleet mix resulting from COVID-19 (accelerated retirements of older, less fuel-efficient aircraft)

- **<u>Need for District to Establish Process for Review of Inventory and Stakeholder Input</u>**
  - District should define a specific process for updating the Inventory with appropriate stakeholder input

Emission Reduction "Strategies"

- **Strategies discussed thus far involve aircraft operations (e.g., de-rated takeoffs, single-engine taxiing, APU usage) or aircraft equipage (electrification of APUs) that are beyond District's (and State's) regulatory authority**
  - **These are not viable options for "control strategies" because they are beyond District / State authority to control**
- **Generally, airlines already maximize use of operational "strategies" to reduce fuel consumption / aircraft maintenance**
  - **Viable approach could be to support measures that could increase use of these "strategies" – e.g., airport infrastructure needed to support**
  - **Support R&D of emission-reducing aircraft/engine technologies**
  - **Support development/deployment of innovative taxiing concepts**
- **Use of "Incentives" – the District must better define what it means by incentives and how it would propose to structure such incentives to generate SIP-creditable reductions**
  - **Such an approach must be consistent with limitations on District/State authority**