Introduction
The AQ Handbook Objectives

1) Provide Guidance and Procedures for Preparing FAA Air Quality Assessments

2) Help Ensure The Assessments Meet NEPA and CAA Requirements

3) Determine When an Air Quality Assessment is Necessary and What is Appropriate
The AQ Handbook Audience

- FAA Departments and Offices
- Other federal, state and local agencies
- Airport Sponsors
- Non-Governmental Agencies (NGOs)
- Seasoned Practitioners and Newcomers

[Hdbk. Pg. 2]
The AQ Handbook Features

- Updates 1997 Version and 2004 Addendum
- Current With FAA Orders, Policies and Guidelines
- Covers New Topics (HAPs, GHGs)
- Uses Latest Models (AEDT, MOVES)
- Internet “Links” to All References
- Guideline Materials Supported by Technical Appendices
- User-friendly and in plain English
The AQ Handbook Sections

Executive Summary
1. Introduction & Background
2. Regulatory Framework
3. Sources & Types of Air Emissions
4. Air Quality Assessment Process
5. Air Quality Assessment Models
6. Preparing an Emissions Inventory
7. Conducting Dispersion Modeling
8. Conformity
9. Coordination Best Practices
References, Glossary, Acronyms, Abbreviations
Appendices
Background Information
Sec. 2: Regulatory Framework

National Environmental Policy Act (NEPA)

FAA Order 1050.1F
Environmental Impacts: Policies and Procedures and Desk Reference

FAA Order 5050.4b
National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects

Order 1050.1F

Order 5050.4b
[Hdbk. Pgs. 4 - 6]
Sec. 2: Regulatory Framework

Clean Air Act (CAA)

- National Ambient Air Quality Standards (NAAQS)
- Attainment/Nonattainment Areas
- State Implementation Plans (SIPs)
- General/Transportation Conformity Rules

[Hdbk. Pgs. 5 - 9]
Sec. 3: Sources & Types of Emissions

Sources
- Aircraft
- Auxiliary Power Units (APUs)
- Ground Support Equipment (GSE)
- Ground Access Vehicles
- Stationary & Area Sources
- Construction

Types
- Criteria Pollutants (and their precursors)
- Hazardous Air Pollutants (HAPs)
- Greenhouse Gases (GHGs)

[Hdbk. Pgs. 10 - 17]
Process
Sec. 4: Air Quality Assessment Process

Following a 4-step approach, this section is designed to help *Handbook* users:

1. Determine when an air quality assessment is warranted,
2. Formulate an appropriate approach to preparing the assessment,
3. Conduct the assessment, and
4. Document the results.

[Hdbk. Pgs. 18 - 19]
Step 1: Determine Need for the Assessment

This section helps *Handbook* users determine the need for an air quality assessment taking into consideration such factors as:

- Project/Action Definition
- FAA’s Involvement & Documentation Requirements
- Potential Increased Emissions
- Scoping Comments

[Hdbk. Pgs. 20 - 22]
Air Quality Assessment Decision Flow Diagram

1. Will the action cause a reasonable foreseeable emission increase?
   - No: Prepare Qualitative Air Quality Assessment
   - Yes: Action located in an EPA-designated nonattainment or maintenance area?
     - No: Prepare Emissions Inventory and Disclose Results
     - Yes: For Nonattainment Pollutants:
       - Address General Conformity Applicability
       - For Attainment Pollutants:
         - Has dispersion modeling been called for in agency scoping and/or public involvement?
           - No: Conduct Dispersion Modeling and Disclose Results
           - Yes: Conduct Dispersion Modeling and Disclose Results
Step 2: Select the Assessment Methodology

This step helps the *Handbook* users to determine the type(s) of analyses that are appropriate for the air quality assessment. These include emissions inventories for:

- Operational Emissions,
- Construction Emissions,
- HAPs and GHGs, and

Dispersion modeling for:

- Airports and
- Roadways.

[Hdbk. Pgs. 23 - 26]
There is no single, universal criterion for determining what type of analysis is appropriate for FAA-supported projects or actions.
How appropriate is a particular analysis type?

- High
- Medium
- Low

There is no single, universal criterion for determining what type of analysis is appropriate for FAA-supported projects or actions.

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**NEW: Air Quality Assessment Example Guide**

<table>
<thead>
<tr>
<th>Project/Action Category</th>
<th>Operational Emissions</th>
<th>HAPs Emissions</th>
<th>GHG Emissions</th>
<th>Construction Emissions</th>
<th>Dispersion Modeling</th>
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<tr>
<td>New Airport</td>
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<td>❌</td>
<td>✔️</td>
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<tr>
<td>New Runway</td>
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*The symbols indicate the relative level of appropriateness of an analysis to a project/action: ❌ = High, □ = Medium, ◯ = Low

1. Importantly, the information provided in this figure is not meant to be definitive or all-inclusive in terms of dictating the type(s) of air quality assessments that are required for FAA projects or actions. Rather, the information is provided as a guide in determining which analyses are the most appropriate.
Step 3: Conduct the Assessment

This step helps the Handbook users to set up and conduct the air quality assessment. This is accomplished through the consideration of the following:

- Action/Project Alternatives
- Period(s) of Interest
- Emission Sources and Types of Pollutants
- Necessary Input Data

[Hdbk. Pgs. 27 - 28]
Step 4: Document the Results

This step helps *Handbook* users to coordinate, document and explain the air quality assessment results using methods that are both useful and appropriate.
Tools & Methods
Consistent Formats for Methodology Sections

For ease of understanding, each section follows the same format and sequence of information:

- Introduction and Background
- Agency Guidance (e.g. HAPs, GHGs)
- Methods
- Results
- Appendices

FAA HAPs and GHG Guidance Documents
Sec. 5: Air Quality Assessment Models

This section identifies and provides guidance on models and databases that are available to *Handbook* users for conducting air quality assessments.

<table>
<thead>
<tr>
<th>Models</th>
<th>Emissions Inventories</th>
<th>Dispersion Modeling</th>
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<td>Criteria Pollutants</td>
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<td>Airport Operation</td>
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<td>GHG</td>
<td>HAPs</td>
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[Hdbk. Pgs. 30 - 35]
Sec. 6: Preparing an Emissions Inventory

Following FAA guidance, this section aids *Handbook* users in the preparation of emissions inventories for three categories of emissions:

- Criteria Pollutants (and their precursors)
- Hazardous Air Pollutants (HAPs)
- Greenhouse Gases (GHGs)

![Example Table]

[Hdbk. Pgs. 36 - 55]
Sec. 7: Conducting Dispersion Modeling

Following U.S. EPA guidance, this section aids *Handbook* users in conducting atmospheric dispersion modeling in support of FAA actions/projects.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Averaging Period</th>
<th>NAAQS</th>
<th>Modeling Year (µg/m³)</th>
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<td></td>
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<td>2015</td>
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<td></td>
<td>No Action</td>
<td>Proposed Action</td>
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<td>NO₂</td>
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<td>188</td>
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<td>78.5</td>
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<td></td>
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<td>40,000</td>
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</table>

Note: Results include background concentrations. µg/m³ = micrograms per cubic meter.

[Hdbk. Pgs. 56 - 66]
Sec. 8: Conformity

This section aids *Handbook* users in the understanding and application of the CAA Conformity requirements and processes. Topics include the following:

- General and Transportation Conformity
- Applicability Analysis
- *De-minimis* Levels, Exemptions and Presumed to Conform
- Agency and Public Review
- FAA and ACRP Guidance

[Hdbk. Pgs. 67 - 75]
Sec. 9: Coordination Best Practices

This *Handbook* section identifies opportunities, objectives and methods for conducting coordination between the FAA, reviewing agencies and other stakeholders involved in the air quality assessment process.

Two common and effective methods are featured:

- NEPA Scoping Process
- Air Quality Assessment Protocol

[Hdbk. Pgs. 76 - 77]
Appendices

A1 - Aircraft Emission Inventory
A2 - APU Emission Inventory
A3 - GSE Emission Inventory
A4 - Ground Access Vehicle Emission Inventory
A5 - Stationary Sources Emission Inventory
A6 - Construction Emission Inventory
B - Emissions Inventory for HAPs
C - Emissions Inventory for GHGs
D - Atmospheric Dispersion Modeling
E - Roadway Dispersion Modeling
F - Data and Information Sources
For More Handbook Information

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