

Chapter 12
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Chapter 12

AIR QUALITY

12.1 NDOT AIR QUALITY ANALYSIS

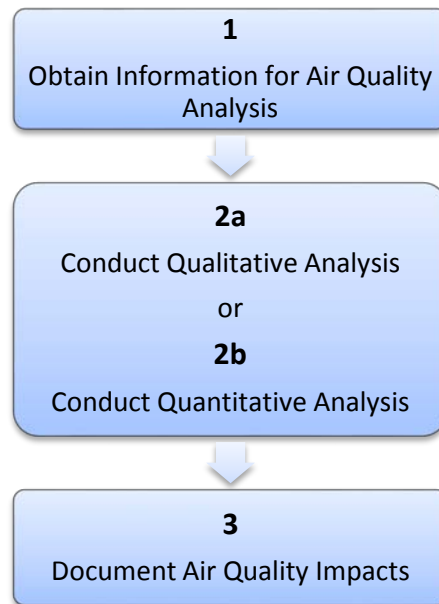


Figure 12-A — AIR QUALITY ANALYSIS

ACTIVITY NO. 1:	Obtain Information for Air Quality Analysis
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The Environmental Services Division performs air quality assessment solely for transportation projects, related construction activities, and maintenance activities.

To perform an air quality analysis, the Environmental Services Division will require the level of project design and traffic information necessary to determine the requisite analysis, as follows:

1. Design Files. Digital files of the project plans and, if a quantitative analysis is necessary, roadway geometry for the existing condition and the design-year condition preferred alternatives. These files will be in compatible MicroStation format, complete with elevation data. Design files for the project are provided by NDOT's Design Division, NDOT's Project Management Division, or the project consultant.
2. Traffic Data. As applicable to complete the appropriate analysis, link/roadway segment activity data for the design-year (i.e., no-build and preferred-build alternatives) traffic volume,

and the free-flow speed data for each affected intersection or freeway link. For intersections, peak-hour approach and departure volumes (veh/hr) are required. For freeway segments, directional peak-hour volumes are required. For intersection approach and departure links and freeway segments, the average peak-hour free flow speed is required data. For intersections, the total cycle length, red time and delay time, signal type, arrival rate, and saturation flow rate are required.

Traffic activity data, including vehicle miles travelled (VMT) and average annual daily traffic (AADT), are requested from NDOT's Traffic Information and Traffic Engineering Divisions or the project consultant. The project consultant's methodology and data shall be approved by the necessary NDOT Traffic Divisions prior to use in the air quality analysis.

Vehicle mix information (i.e., proportions of vehicle types) is not available for individual projects but is available for the regional transportation system. The analyst will consult the local metropolitan planning organization (MPO) or air quality agency to obtain vehicle mix data, regional fuel data, and I/M data (inputs for developing project level MOVES). NDOT's Traffic Information Division may have updated vehicular mix data, but the analyst must use the same vehicular mix data used by the local air agency or MPO.

3. Traffic Analysis Reports. Traffic Analysis Reports, which include detailed traffic forecast and design alternative information for project corridors or regional-scale transportation systems, to perform mobile source air toxics (MSAT) emission inventories. Consultant-provided Traffic Analysis Reports shall be approved by the necessary NDOT Traffic Divisions prior to use in the air quality analysis.

ACTIVITY NO. 2a:

Conduct Qualitative Analysis

For projects where an air quality analysis is required, the Environmental Services Division will complete a qualitative analysis, when applicable.

ACTIVITY NO. 2b:

Conduct Quantitative Analysis

When necessary, emission factor modeling and air dispersion modeling will be performed per regulatory and agency requirements to demonstrate that the proposed project will not cause new violations, or exacerbate existing violations, of the NAAQS.

Quantitative modeling will be performed for CO as follows:

1. Emission Factor Modeling. To compute emission factors for various pollutants, the Environmental Services Division will use the most current Emission Factor Model, Motor Vehicle Emission Simulator (MOVES), as approved by the US Environmental Protection Agency (EPA).

Consult the local air quality agency or MPO for local inputs to be used in the emission factor model (e.g., Clark County Department of Air Quality [CCDAQ], Washoe County – Division of Air Quality Management [WC-DAQM]).

2. Air Dispersion (Hot-Spot) Modeling. Use the most current EPA-approved model for CO dispersion modeling. The model requires traffic activity data, plus the emission factors.

CO hot-spot modeling will be performed for the design-year BUILD condition for the preferred design alternative. If this first-pass analysis produces a model exceedance, then the design-year NO BUILD condition will be analyzed.

For quantitative CO modeling, the local background concentration will be added to the model concentrations for each receptor to determine compliance with the NAAQS. To derive background concentrations, use monitoring data from an EPA-approved network operated by the local air quality agency. These data are requested from the local agency or retrieved from the EPA's AirData website. Plan each modeling task on a case-by-case basis, using best judgment and available guidance to determine the appropriate background value.

It is not unusual for BUILD model concentrations to be higher than NO BUILD concentrations. Model concentrations are dependent upon both the emission rate of CO and traffic activity. As long as the total impact for the design year (i.e. background + model concentrations) does not exceed the NAAQS, then no operational phase mitigation measures for the project are required.

3. Qualitative Assessments for PM₁₀ and PM_{2.5}. Projects in PM₁₀ and PM_{2.5} non-attainment and maintenance areas are subject to hot-spot analyses to determine air quality impacts. Dispersion modeling is not required, but NDOT will perform a qualitative assessment of local factors to demonstrate the proposed project will not create new violations of the NAAQS.

Nevada is attaining the NAAQS for PM_{2.5}, so a qualitative assessment for this pollutant is not required. Clark County (hydrographic area [HA] 212) and Washoe County (HA87) are in non-attainment for PM₁₀. Therefore, impacts for these pollutants must be assessed for projects in these areas.

Follow EPA guidance for quantitative and qualitative PM₁₀ assessments. For EIS projects, IAC (Interagency Consultation) with representatives from FHWA, EPA, county officials, NDOT, and the consultant is to be conducted before the air quality document is accepted.

4. Assessing Ozone Impacts. Ozone is an area-wide pollutant assessed as part of the development of state implementation plans (SIPs). State and local air quality agencies develop SIPs for non-attainment areas. In addition, ozone is evaluated as a regional pollutant by MPOs, using emissions inventories for its precursors, NO_x and VOCs, as part of the regional conformity process. Ozone is not a concern as a hot spot pollutant.
5. Mobile Source Air Toxics (MSATs). The EPA has currently established a list of six priority MSATs. The EPA defines the priority MSATs as those most likely to present the highest risks to human health.

The priority MSATs include the following volatile organic compounds (VOCs): benzene; formaldehyde; acetaldehyde; acrolein; 1,3-butadiene; and Diesel Particulate Matter (DPM), a fine aerosol composed of solid and liquid particles. MSATs are emitted from highway vehicles (e.g., cars, trucks, buses) and non-road sources (e.g., aircraft, marine vessels, construction equipment).

Air toxics analysis is an ongoing area of research by the EPA and FHWA.

In contrast to criteria pollutants, there are no ambient standards for MSATs. Therefore, it is not possible to determine whether project-specific MSAT emission levels should be considered significant. It is possible to determine MSAT emission trends over time and to determine whether meaningful differences in MSAT emission levels occur between project alternatives.

The Environmental Services Division will complete an MSAT analysis, per FHWA requirements. The EPA's Emission Factor Model (most recent version of MOVES) has functionality to calculate emission factors for the six priority MSATs, and its use is required by the EPA and FHWA for quantitative MSAT assessments. Emission factors for MSATs vary as a function of speed, vehicle mix, fuel composition, and diurnal fluctuations in temperature.

Follow the most recent FHWA guidance for performing and interpreting MSAT emissions inventories for transportation project alternatives.

Greenhouse Gases (GHGs):

The Environmental Services Division shall include language pertaining to GHGs, as required.

ACTIVITY NO. 3:	Document Air Quality Impacts
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The Environmental Services Division will prepare a statement of the air quality impacts and mitigation measures to be included in the NEPA document, and a technical memorandum or report for the administrative record. This is a summary report of air dispersion modeling results to show compliance with the NAAQS and to outline operational and construction phase mitigation measures that may be required. Each document is described below:

1. Outline for Technical Memorandum:

- Executive Summary. A one-page summary of results and recommendations.
- Introduction. Summarize the project and the proposed action/alternative.
- Existing Conditions. Summarize the existing air quality conditions. Include tabulations of monitoring data and a statement of the attainment status of the various criteria pollutants.
- Operational Phase Impacts. Describe the CO modeling methodology and model results in tabular format. Describe the PM₁₀ analysis and assess PM₁₀ impacts, if necessary.

- Write a short statement assessing ozone. Describe operational phase mitigation measures, if required.
- **Construction Impacts and Mitigation.** Discuss that there may be short-term localized increases in CO and PM₁₀ due to construction activity. Mitigation for these impacts is done through enforcement of existing air quality regulations by State or local air quality agencies.
 - **Transportation Conformity.** A statement that the two requirements for project-level transportation conformity have been satisfied. Mention IAC was conducted, if required.
 - **Mobile Source Air Toxics (MSATs).** Discuss the results of the MSAT analysis.
 - **Appendices.** Attach emission factor and dispersion model input and output files, maps of roadway geometry and model receptor points, and the MSAT analysis. All data and supporting documents will be provided electronically for the administrative records.
2. **NEPA Document.** The NEPA document will contain pertinent information needed to support the analysis of air quality impacts of project alternatives and will include a discussion of mitigation measures for the air quality impacts.

See Section 2.3 “Preparing an Administrative Record.”

12.2 NDOT AIR QUALITY COMPLAINT RESPONSE

The Environmental Services Division receives complaints from citizens and local air quality agencies. The most common complaints relate to fugitive dust. Each complaint is handled on a case-by-case basis.

The State and local air quality agencies enforce air quality regulations and standards. Contractors working for NDOT are required to comply with air quality regulations and are responsible for knowing what air quality regulations apply, and what types of air quality permits are required.

NDOT complies with air quality regulations during its day-to-day operations, as specified in the most recent guidance for maintenance personnel.

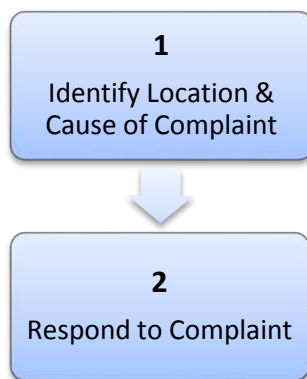


Figure 12-B — AIR QUALITY COMPLAINT RESPONSE

ACTIVITY NO. 1:**Identify Location and Cause of Complaint**

Determine if the complaint pertains to NDOT and whether the activities of a contractor or NDOT precipitated the air quality complaint.

ACTIVITY NO. 2:**Respond to Complaint**

1. Complaint Against a Contractor. If the actions of a Contractor prompt an air quality complaint, the Environmental Services Division will inform the Resident Engineer and/or the Project Manager.
2. Complaint Against the Department. If the actions of NDOT prompt an air quality complaint, the Environmental Services Division will notify the District in which the alleged air quality violation occurred as to the nature of the complaint.

12.3 NDOT AIR QUALITY PERMITTING

NDOT districts apply for and manage air quality permits, as required and dictated by the type of activity performed. The Environmental Services Division is not involved in managing or renewing these permits.

NDOT does not acquire or hold air quality permits on behalf of contractors. Contractors shall obtain, pay for, and comply with any required permit. Contractors are required to implement best management practices and adhere to federal, state, and local regulations, laws, and ordinances.