

Air Quality

Introduction

The purpose of the Clean Air Act (CAA) legislation and National Environmental Policy Act (NEPA) is to protect health and welfare by attaining and maintaining the National Ambient Air Quality Standards (NAAQS). These air quality guidelines implement CAA & NEPA and advise the project manager in complying with the regulations throughout the environmental review process.

Which Analyses You Need by Project

Air quality, at a project level, must be addressed during the NEPA process. The level of analysis will vary considerably in content and level of detail from one project to another based on the project scope, size, geographic location, background conditions, and anticipated impacts. At a project level, any required air quality analysis in Minnesota primarily addresses localized emissions of carbon monoxide (CO) and Mobile Source Air Toxics (MSATs) and is performed to assure that violations of the NAAQS will not occur because of the proposed project.

Legislative Background

The Clean Air Act (CAA), passed by Congress in 1970 and updated in 1977 and 1990, is comprehensive national legislation relating to air quality. The CAA of 1970 established six criteria pollutants (carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter, and sulfur dioxide) and required the United States Environmental Protection Agency (USEPA) to set NAAQS for these criteria pollutants at levels protective of vulnerable persons, with a margin of safety. These standards must be reviewed periodically to reflect new research findings.

The USEPA Conformity Rule, [40 CFR Part 93](#), requires each Metropolitan Planning Organization (MPO) in an air quality nonattainment or maintenance area to determine conformity of its Metropolitan Transportation Plans (MTP) and Transportation Improvement Programs (TIP). In Minnesota, conformity only applies in the Twin Cities Region. The MTP and TIP must conform to the implemented schedule of Transportation Control Measures (TCM) established in the air quality State Implementation Plan (SIP) and the SIP emissions budget. In addition, to the conformity requirements that apply to the plan and TIP, the United States Department of Transportation (USDOT) is also required to make conformity determinations for individual federal projects.

Conformity is demonstrated if the plan, program or project does not:

- Cause new violations of the air quality standards,
- Exacerbate existing violations of the standards, or
- Delay attainment of the standards or achievement of any required interim milestones.

The National Environmental Policy Act (NEPA) is a broad national framework for the protection of the environment. It establishes environmental policy, an interdisciplinary framework to prevent undue environmental damage, and procedures to be followed so that environmental factors are considered by decision-makers. The NEPA process is used as the mechanism for reporting the results and findings of conformity analyses for projects, as well as other types of air quality analysis, including Mobile Source Air Toxics (MSATs).

There are no established criteria for determining when MSAT emissions become a significant issue in the NEPA context because tools and techniques for assessing project-specific health outcomes are limited. The NEPA documentation may involve a *quantitative analysis* of emissions to compare or differentiate proposed project alternatives, a *qualitative analysis* to explore the general nature of the project and a method to inform interested parties, or *no analysis* depending on the circumstances set forth in the [Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents](#) (FHWA October 18, 2016).

Contact the appropriate MnDOT and MPCA personnel listed on the first page of this document if the following indicates that a *Conformity Determination* or an *NAAQS Analysis* may be needed, or if it indicates that MSATs need to be addressed.

Detailed Requirements by Criteria Pollutant and Geographic Location

Criteria Pollutant	Geographic Location: All of the Hennepin and Anoka Counties, plus portions of Carver, Scott, Dakota, Washington, and Wright Counties	Geographic Location: Ramsey County	Geographic Location: All other areas
Carbon Monoxide (CO)	<p>No</p> <p>The 20-year maintenance period for this area ended on November 29, 2019 and a CO maintenance plan/project level conformity analysis is no longer needed.</p> <p>Quantitative modeling could be required if an intersection in the project area exceeds 82,300 AADT or impacts one of the intersections on the Top Ten Hot Spot list. Consult with the appropriate MnDOT and MPCA personnel listed on the first page of this document.</p> <p>Map - Twin Cities CO Attainment Area</p>	<p>No</p> <p>The 20-year maintenance period for this area ended in November 29, 2019 and a CO maintenance plan/project level conformity analysis is no longer needed.</p> <p>Quantitative modeling could be required if an intersection in the project area exceeds 82,300 AADT or impacts one of the intersections on the Top Ten Hot Spot list. Consult with the appropriate MnDOT and MPCA personnel listed on the first page of this document.</p> <p>Map - Twin Cities CO Attainment Area</p>	<p>No</p>

Criteria Pollutant	Geographic Location: All of the Hennepin and Anoka Counties, plus portions of Carver, Scott, Dakota, Washington, and Wright Counties	Geographic Location: Ramsey County	Geographic Location: All other areas
PM ₁₀	No	<p>Yes</p> <p>Quantitative modeling could be required if the project is within the Ramsey County PM₁₀ Maintenance Boundary. Consult with the appropriate MnDOT and MPCA personnel listed on the first page of this document to determine if the project is one with an Air Quality Concern.</p> <p>Map – Ramsey County PM₁₀ Maintenance Area</p>	No
MSAT analysis	<p>Yes, qualitative discussion.</p> <p>Quantitative modeling is required if future traffic volumes within the project area exceed 140,000 – 150,000 ADT and the project is adding capacity.</p>	<p>Yes, qualitative discussion.</p> <p>Quantitative modeling is required if future traffic volumes within the project area exceed 140,000 – 150,000 ADT and the project is adding capacity.</p>	<p>Yes, qualitative discussion.</p> <p>Quantitative modeling is required if future traffic volumes within the project area exceed 140,000 – 150,000 ADT and the project is adding capacity.</p>
GHG analysis	<p>Yes, see separate GHG HPDP guidance for thresholds and example text.</p>	<p>Yes, see separate GHG HPDP guidance for thresholds and example text.</p>	<p>Yes, see separate GHG HPDP guidance for thresholds and example text.</p>

Carbon Monoxide (CO) Hot Spot Analysis

Carbon monoxide (CO) is the traffic-related pollutant that has previously been of concern in the Twin Cities Metropolitan area. In 1999, the EPA re-designated all of Hennepin, Ramsey, Anoka, and portions of Carver, Scott, Dakota, Washington, and Wright Counties as a maintenance area for CO. This means the area was previously classified as a nonattainment area, but has now been found to be in attainment. The 20-year maintenance period for this area ended in November 2019 and a CO maintenance plan/project-level conformity analysis is no longer required.

However, projects may still be subject to anti-backsliding regulations under the CAA. Due to these anti-backsliding requirements, a project may require a CO hot spot analysis if it is a federally funded project fitting the categories of [40 CFR 93.127](#) or [40 CFR 93.128](#), AND is at level of service D or below (a regionally significant project may also require hot spot analyses for signalized intersections within the project).

If the project meets the thresholds listed in the [Detailed Requirements Table](#) above, then consultation should occur with the appropriate MnDOT and MPCA personnel listed on the first page of this document to determine the level of CO Hot Spot analysis. A hot spot analysis is required to address the year of peak emissions over the life of the MTP. In most cases, conduct the analysis for the year the project is scheduled to open and the last year of the existing Metropolitan Council's plan or TIP.

If the project is located in Hennepin, Ramsey, Anoka, and portions of Carver, Scott, Dakota, Washington, and Wright Counties, then the project manager cannot take any action with respect to non-exempt projects in the CO maintenance area until an initial transportation plan/transportation improvement program (TIP) conformity determination is made by Met Council.

CO Hot Spot Screening Method

The Twin Cities area has an EPA approved screening method where each potential hot spot project is compared to a set of the "worst" intersections highest Annual Average Daily Traffic (AADT) and worst Level of Service (LOS). If the project does not meet the AADT benchmark criteria and does not affect one of the top ten modeled intersections, EPA has concluded it will not cause any carbon monoxide (CO) violations.

[Hot Spot Screening Method Flow Chart](#)

[Top Ten Intersections List](#)

PM₁₀ Hot Spot Analysis

The Clean Air Act conformity requirements include the assessment of localized air quality impacts of federally-funded or federally-approved transportation projects that are deemed to be projects of air quality concern located within PM_{2.5} or PM₁₀ nonattainment and maintenance areas. A portion of Ramsey County is a maintenance area for the PM₁₀ NAAQS. The initial nonattainment problem was caused by stationary and area source emissions. The Region and State have long considered that on-road emissions were not significant contributors to the area's PM₁₀ nonattainment problem. (See [40 CFR 93.109\(f\)](#).) Conformity applies in

maintenance areas, per Clean Air Act (CAA) section 176(c) (5)(B). However, the CAA does not provide any exceptions from transportation conformity requirements for areas whose air quality problems were caused by stationary or area sources.

If the project is within the Ramsey County PM₁₀ maintenance area ([see map](#)), the project manager cannot take any action with respect to a non-exempt project in the maintenance area until an initial transportation plan/transportation improvement program (TIP) conformity determination is made by Met Council.

If the project meets the thresholds listed in the [Detailed Requirements Table](#) above, then consultation should occur with the appropriate MnDOT and MPCA personnel listed on the first page of this document to determine if this is a project of Air Quality Concern. If it is determined to be an air quality concern then a quantitative PM₁₀ analysis is required. If not, then no PM₁₀ analysis is required.

Mobile Source Air Toxics Analysis

See the [Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents](#) pertaining to the following sections:

- **Exempt Projects or Projects with No Meaningful Potential MSAT Effects**
- **Projects with Low Potential MSAT Effects**
- **Projects with Higher Potential MSAT Effects**

If you have a project that does not fall within any of the types of projects listed above, but has the potential to substantially increase future MSAT emissions, contact the appropriate MnDOT and MPCA personnel listed on the first page of this document or the FHWA Office of Planning, Environment and Realty.

If a project falls under Category (3) Projects with Higher Potential for MSAT Effects (Quantitative modeling is required if future traffic volumes within the project area exceed 140,000 – 150,000 ADT and the project is adding capacity), then a quantitative modeling-based MSAT Analysis is required. If a quantitative MSATs analysis and/or CO hot-spot analysis is required, the following information will be needed:

- Traffic volumes (both total and hourly)
- Signal type and timing
- Turning movements and volumes
- Speed

Maps

Area Maps

[Map - Twin Cities CO Maintenance Area](#)

[Map – Ramsey County PM₁₀ Maintenance Area](#)

Other Resources

- [Project Level Conformity Flow Chart](#)
- [Hotspot Screening Method Flow Chart](#)
- [Top Ten Intersections](#)
- [Map of Top Ten Intersections](#)
- [Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents.](#)

Air Quality in NEPA Documents

Class I Actions (Environmental Impact Statements)

Scoping Documents - Conduct early assessment of magnitude and significance of potential air impacts -- consult with FHWA, MPCA, and MPO to see if regional emissions analysis and conformity determination will be needed.

Draft Environmental Impact Statement (DEIS) - When localized intersection modeling is required the DEIS should include background monitoring results at receptor sites along project alignment(s); the MPCA may provide you with background numbers to preclude the need to monitor under certain conditions. Modeling results of air pollutants for the alternatives should also be reported. Modeled pollutant concentrations should be compared to state and federal air quality standards. Mobile Source Air Toxics (MSAT) should be addressed as per [Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents](#).

Final Environmental Impact Statement (FEIS) - Model air quality impacts of preferred alternative. The preferred alternative must be in conformance with the SIP. Where conformity is required, include information needed for positive conformity determination. Mobile Source Air Toxic (MSAT) should be addressed as per [Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents](#).

Record of Decision (ROD) - The draft ROD is prepared through a consultation process between FHWA, OES, and the District. Include a summary statement on air quality. If not already, the project must be included in the conforming Met Council MTP and TIP. A final conformity determination is made in the ROD.

Class II Actions (Categorical Exclusions)

Categorical Exclusion (CATEX) - Determine if project is exempt from conformity determination and/or regional emissions analysis. If project is exempt, document this in the project report. If not, report result of hot spot analysis, or follow guidance for Scoping, DEIS and FEIS above.

Class III Actions (Environmental Assessments)

Environmental Assessment (EA) - Follow guidance for Scoping, DEIS and FEIS above.

Finding of No Significant Impact (FONSI) - Include summary statement on air quality.

For Class I, II, and III Actions, ensure that all mitigation commitments are incorporated into the Plan, Specifications, and Estimate (PS&E) package during detail design.

Glossary

Air Quality Analysis – The Clean Air Act requires EPA to set national air quality standards for six other pollutants considered harmful to public health and the environment (the other pollutants are ozone, nitrogen oxides, carbon monoxide, sulfur dioxide, lead and particulate matter). The air quality analysis is to ensure that all federally funded projects comply with the standards set by EPA.

CAAA - Clean Air Act Amendments are legislation that address the key issues of air pollution, mobile sources, air toxics, acid deposition, and stratospheric ozone protection.

CO - Carbon Monoxide

Conformity – Transportation conformity, as required by the CAA, ensures that federally funded or approved transportation plans, programs, and projects conform to the air quality objectives established in the SIP. Transportation conformity regulations are developed by EPA, with the United States Department of Transportation's (USDOT's) input and concurrence. The USDOT (through the FHWA and FTA) and Metropolitan Planning Organizations are responsible for implementing the conformity regulation in nonattainment and maintenance areas.

Conformity Determination – Project level conformity determinations require that the FHWA/FTA project must come from a conforming transportation plan/TIP or associated regional emissions analysis. In addition, in carbon monoxide and particulate matter nonattainment and maintenance areas, an analysis of localized emissions may be required for federally funded or approved projects. This analysis is called a "hot-spot" analysis. In Minnesota, conformity requirements only apply to the Twin Cities 7 County Metro Area and a portion of Wright County.

Transportation Policy Plan (TPP) – Metropolitan Transportation Plan in the MSP Region to developed according to Title 23 U.S.C. and the Federal Transit Act. The plan seeks to integrate regional transportation facilities into a metropolitan transportation system. A transportation conformity analysis is included in the TPP for nonattainment and maintenance areas. The TPP includes a financial plan that demonstrates how the plan can be implemented.

Maintenance Area - Any geographic region the Environmental Protection Agency (EPA) previously designated as nonattainment pursuant to the CAA, and which EPA subsequently re-designated to attainment status subject to the requirement to develop a maintenance plan. All of the Hennepin, Ramsey and Anoka Counties, plus portions of Carver, Scott, Dakota, Washington and Wright Counties.

MSAT - Mobile Source Air Toxics - The Clean Air Act identified 188 air toxics, also known as hazardous air pollutants. The EPA has identified a group of 21 (from the 188) as mobile source air toxics, which are set forth in an EPA final rule, *Control of Emissions of Hazardous Air Pollutants from Mobile Sources* (66 FR 17235). The FHWA extracted a subset list (from the 21) and labeled them as the nine priority MSAT (*1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter (diesel PM), ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter*).

The EPA considers the MSAT as priority transportation toxics, and stresses that the lists are subject to change and/or be adjusted in future rules.

MPCA - Minnesota Pollution Control Agency - Administers and enforces all federal and state laws relating to air

pollution in Minnesota.

MPO - Metropolitan Planning Organization – Is the forum for cooperative decision making and the organization designated, together with the state, as being responsible for conducting the continuing, cooperative, and comprehensive planning process under 23 U.S.C. 134 and 49 U.S.C. 5303.

NAAQS - National Ambient Air Quality Standards - Federal standards that set allowable concentrations and exposure limits for various pollutants.

NEPA - The National Environmental Policy Act (NEPA):

Title I of NEPA contains a Declaration of National Environmental Policy. This policy requires the federal government to use all practicable means to create and maintain conditions under which man and nature can exist in productive harmony. Section 102 in Title I of the Act requires federal agencies to incorporate environmental considerations in their planning and decision-making through a systematic interdisciplinary approach. Specifically, all federal agencies are to prepare detailed statements assessing the environmental impact of and alternatives to major federal actions significantly affecting the environment. These statements are commonly referred to as Environmental Impact Statements (EIS) and Environmental Assessments (EA).

Title II of NEPA established the President's [Council on Environmental Quality \(CEQ\)](#) to oversee NEPA implementation. The duties of CEQ include:

Ensuring that federal agencies meet their obligations under NEPA

Overseeing federal agency implementation of the environmental impact assessment process

Issuing regulations and other guidance to federal agencies regarding NEPA compliance.

Nonattainment Area - A geographic region of the United States that the EPA has designated as not meeting the NAAQS.

PM (2.5/10) - Particulate matter maximum diameter in microns.

PPM - parts per million

Regional Emissions Analysis - An estimation of emissions, resulting in a regional total emissions released over a given period of time. The Metropolitan Council is responsible for performing this analysis for the Twin Cities' maintenance area. The Environmental Protection Agency (EPA) does not require a regional emissions analysis for the cities of Duluth and St. Cloud.

A transportation project (other than an exempt project) that is on a facility which serves regional transportation needs (such as access to and from the area outside of the region, major activity centers in the region, major planned developments such as new retail malls, sports complexes, etc., or transportation terminals as well as most terminals themselves) and would normally be included in the modeling of a metropolitan area's transportation network, including at a minimum all principal arterial highways and all 15 fixed guideway transit facilities that offer an alternative to regional highway travel. A project is generally considered regionally significant in the Twin Cities maintenance area if it adds one or more travel lanes for over one mile, it involves the addition of an interchange, or it involves the reconfiguration of an interchange such that a movement is added or eliminated.

SIP - State Implementation Plan - A plan mandated by the CAAA that contains procedures to monitor, control, maintain, and enforce compliance with the National Ambient Air Quality Standards (NAAQS).

TCMs - Transportation Control Measures - Any measure in a SIP directed toward reducing emissions of air pollutants from transportation.

TIP - Transportation Improvement Program - A program that consists of transportation projects drawn from or consistent with the Transportation Policy Plan (TPP) and developed pursuant to Title 23, U.S.C. and the Federal Transit Act.