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SECTION - 600.00 AIR QUALITY

SECTION 610.00 - INTRODUCTION

Air quality is to be a consideration for all transportation projects involving vehicle emissions. The level of consideration (including analysis and documentation) appropriate for a federally-funded project will depend on a number of factors but particularly the nature of the project, projected traffic volumes, vehicle characteristics, and the air quality status and history of the area. Discussions between ITD, FHWA and the Idaho Department of Environmental Quality (IDEQ) have determined that the following technical guidance be prepared to provide an overview of project level air quality analysis:

1. Pollutants of Concern
 - Carbon Monoxide [CO]
 - Particulate Matter [PM10 and PM2.5]
 - Mobile Source Air Toxics [MSAT]
2. Areas of Concern
3. Screening & Analysis Guidance
4. Project Documentation
5. Mitigation Considerations (Includes road Construction air quality impacts)

NOTE:

-A process flow chart for addressing project level air quality requirements for carbon monoxide and particulate matter is provided in [Exhibit 680-1](#).

-Handling and disposal of asbestos (as a result of construction and maintenance activities) is discussed in [Section 1400 of the Environmental Process Manual \(EPM\)](#).

- Fugitive dust is particulate matter generated by natural or human activities that is suspended in the air by wind. Projects that require earthwork or otherwise have the potential to create fugitive dust are required to utilize best management practices (BMPs) to control dust at ITD project sites.

610.01 Summary of Requirements

All transportation projects requesting federal funding must be evaluated, and where warranted, analyzed for air quality. The Idaho Department of Environmental Quality (IDEQ) monitors air quality in Idaho. IDEQ's activities in protecting air quality in Idaho are in response to the requirements of:

- Ø the federal Clean Air Act;
- Ø the state Implementation Plan for the Control of Air Pollution;
- Ø yearly agreements between the state and the Environmental Protection Agency (EPA);

It is the responsibility of the Idaho Transportation Department (ITD) to satisfactorily identify and assess the potential impacts of all transportation projects in the State of Idaho. Similarly, it is the responsibility of the Federal Highway Administration (FHWA) to assure compliance with applicable laws and regulations.

610.02 Abbreviations and Acronyms

Abbreviations and acronyms used in this chapter are listed below. Others are found in the general list in the appendix.

BMP	Best Management Practices
CAA	Clean Air Act (Federal)
CAAA	Clean Air Act Amendments
CAWA	Clean Air Idaho Act
CMAQ	Congestion Mitigation and Air Quality Improvement Program
CO	Carbon Monoxide
HC	Hydrocarbons
ISTEA	Intermodal Surface Transportation Efficiency Act
LOS	Level of Service- A qualitative measure describing operational conditions within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience.
MPO	Metropolitan Planning Organization
MSAT	Mobile Source Air Toxics
NAAQS	National Ambient Air Quality Standards
NO _x	Nitrogen Oxides
O ₃	Ozone
PM ₁₀	Respirable or fine particulate matter, smaller than 10 micrometers in diameter
PM _{2.5}	Respirable or fine particulate matter, smaller than 2.5 micrometers in diameter
PPM	Parts per million
PSD	Prevention of Significant Deterioration
SIP	State Implementation Plan
TCM	Transportation Control Measure
TIP	Transportation Improvement Program
TSP	Total Suspended Particulates

610.03 Glossary

Definitions used in this section are listed below.

Carbon Monoxide (CO) – A by-product of the burning of fuels in motor vehicle engines. Though this gas has no color or odor, it can be dangerous to human health. Motor vehicles are the main source of carbon monoxide, which is generally a wintertime problem during still, cold conditions.

Conformity – Projects are in conformity when they do not (1) cause or contribute to any new violation of any standards in any area, (2) increase the frequency or severity of any existing violation of any standard in any area, or (3) delay timely attainment of any standard or any required interim emission reductions or other milestones in any area (EPA’s Conformity Rule).

Criteria Pollutants – Carbon monoxide, sulfur dioxide, particulate matter, ground level ozone, lead, and nitrogen dioxide.

Exempt Projects – Listed in federal and state regulations (40 CFR 93.126 and WAC 173-420-110). These projects improve safety, mass transit, or air quality, or preserve or maintain existing transportation facilities, and are considered to have a neutral impact on air quality.

Fugitive Dust – Particulate matter that is suspended in the air by wind or human activities and does not come out of a stack.

Hot-spot Analysis – An estimate of likely future localized CO and PM₁₀ pollutant concentrations and a comparison of those concentrations to the National Ambient Air Quality Standards. Hot-spot analysis assesses impacts on a scale smaller than the entire non-attainment or maintenance area (for example, congested roadway intersections and highways or transit terminals), and uses an air quality dispersion model to determine the effects of emissions on air quality (40 CFR 93.101). See 40 CFR 93.116 for analysis procedure.

Maintenance Area – An area that previously was considered a “Non-attainment Area” but has achieved compliance with the NAAQS.

Non-attainment Area – Area that exceeds health-based NAAQS for certain air pollutants designated by the EPA. Current non-attainment areas are shown in ITD’s GIS Workbench (see Section 600.05 (1c)).

Ozone (O₃) – A highly reactive form of oxygen that occurs naturally in the earth’s upper atmosphere (stratosphere). Stratospheric ozone is a desirable gas that filters the sun’s ultraviolet (UV) radiation. Ozone at ground level is not emitted directly into the air; instead it forms in the atmosphere as a result of a series of complex sunlight-activated chemical transformations between oxides of nitrogen (NO_x) and hydrocarbons that together are precursors of ozone.

Particulate Matter (PM₁₀ and PM_{2.5}) – Includes both naturally occurring and man-made particles with a diameter of less than 10 microns or 2.5 microns respectively. Sources of particulate matter include sea salt, pollen, smoke from forest fires and wood stoves, road dust, industrial emissions, and agricultural dust. Particles of this size are small enough to

be drawn deep into the respiratory system where they can contribute to infection and reduced resistance to disease.

District Significant Project – A transportation project (other than an exempt project) that serves District transportation needs (such as access to and from the region, major activity centers in the region, major planned developments such as new retail malls, sports complexes, or transportation terminals as well as most terminals themselves). Such projects would normally be included in the modeling of a metropolitan area's transportation network, including at a minimum all principal arterial highways and all fixed guide way transit facilities that offer an alternative to District highway travel (40 CFR 93.101).

State Implementation Plan (SIP) – Framework for complying with federal law (40 CFR Part 51) requiring that the state take action to quickly reduce air pollution to healthful levels in a non-attainment area, and to provide enough controls to keep the area clean for 20 years. States have to develop a SIP that explains how it will do its job under the CAA. A SIP is a collection of the regulations a state will use to clean up polluted areas. EPA must approve the SIP, and if a SIP is not acceptable, EPA can take over, enforcing the CAA in that state. ITD projects must conform to the SIP before the FHWA and the EPA can approve construction.

Transportation Improvement Program (TIP) – A staged, multiyear, intermodal program of transportation projects covering a metropolitan planning area which is consistent with the state and metropolitan transportation plan, and developed pursuant to 23 CFR Part 450. The entire program must conform to the NAAQS in order for any federal funding to be granted for individual projects.

SECTION 620.00 – APPLICABLE STATUTES AND REGULATIONS

620.01 National Environmental Policy Act.

The National Environmental Policy Act (NEPA), 42 USC 4231, requires that all actions sponsored, funded, permitted, or approved by federal agencies undergo planning to ensure that environmental considerations such as impacts on air quality are given due weight in project decision-making. Federal implementing regulations are at 23 CFR 771 (FHWA) and 40 CFR 1500-1508 (CEQ). For details see [Section 200.00](#) of the EPM.

620.02 Clean Air Act (CAA).

The Clean Air Act (CAA) of 1970, 42 USC 7401 et seq., was enacted to protect and enhance air quality and to assist state and local governments with air pollution prevention programs.

620.03 Clean Air Act Amendments (CAAA).

The Clean Air Act Amendments of 1990 are intended to significantly affect transportation decision-making, not only to achieve air quality goals but also to affect broader environmental goals related to land use, travel mode choice, and reduction in vehicle miles traveled. A key section of the CAAA relating to conformity is Title I, Provisions for the Attainment and Maintenance of National Ambient Air Quality Standards (NAAQS). See EPA home page referenced above.

620.04 Intermodal Surface Transportation Efficiency Act (ISTEA).

The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 and subsequent legislation including the Transportation Efficiency Act for the 21st Century (TEA 21), adopted in 1998 (Public Law 105-178) offer tools to help transportation and air quality decision makers carry out the CAAA mandates. For statutes and implementing regulations, see the Federal Register home page <http://www.gpoaccess.gov/cfr/index.html> click on code of Federal Regulations, search by title and section or the FHWA home page <http://www.fhwa.dot.gov/>.

620.05 Federal Conformity Regulations.

Under the CAAA, the Federal Department of Transportation (USDOT) cannot fund, authorize, or approve actions to support programs or projects in non attainment or maintenance areas, unless first found to conform to the State Implementation Plan (SIP). With USDOT concurrence, the EPA has issued regulations pertaining to the criteria and procedures for transportation conformity 40 CFR 93. Exempt projects are listed in 40 CFR 93.126. FHWA regulations for statewide and District transportation improvement programs and plans are defined in 23 CFR 450, Planning Assistance and Standards.

NOTE:

-Federal and State air quality legislation and regulations related to transportation are online at EPA's home page: <http://www.epa.gov/air/oarregul.html>.

SECTION 630.00 – POLICY GUIDANCE

For Federally designated non-attainment areas, air quality is a priority issue. In addition, areas not currently designated as non-attainment but which have been identified by IDEQ as being air quality areas of concern warrant additional attention beyond that reserved for projects in other locations. Finally, projects having characteristics potentially leading to air quality impacts should be given additional attention regardless of their location.

Consistent with the National Environmental Policy Act (NEPA) and as further detailed in 23 CFR Part 771, projects using federal-aid funds and/or requiring FHWA approval actions must be evaluated for the potential impacts that such actions will have on the human environment. Included among the elements of the human environment is air quality.

In addition to the NEPA based imperative referenced above, the Federal Clean Air Act (CAA) has established specific procedures and limitations for evaluating transportation projects in designated air quality non-attainment and maintenance areas. These procedures, generally referred to as the “conformity regulations”, are outlined in 42 U.S.C. Part 7401 (et. seq.) and are further detailed in Federal regulations (40 CFR Part 93) and Idaho State Administrative Procedures (IDAPA 58.01.01).

Though separate from the NEPA process, the conformity regulations likewise require ITD to assess the potential air quality impacts of transportation projects on the human environment. Two notable differences exist between the project level air quality requirements under NEPA and those under the CAA. First, NEPA applies to Federal projects irrespective of location whereas the CAA applies to projects within specifically identified areas. Second, NEPA and its implementing regulations provide limited detail

on the direction and criteria for conducting project level air quality analyses whereas the CAA and its implementing regulations provide substantial detail.

The primary purpose of Idaho's Congestion Mitigation and Air Quality (CMAQ) Program is to fund projects, planning, and programs in air quality non-attainment and maintenance areas, as well as areas of concern for ozone (O₃), carbon monoxide (CO), and particulate matter (PM) which reduce transportation-related emissions. The policy and action strategies are covered in the DEQ Enforcement Manual Procedures available on the Idaho DEQ website (Air Quality). Click for online details, [FHWA Technical Advisory T6640.8A](#).

SECTION 640.00 – MOU'S AND MOA'S (RESERVED)

SECTION 650.00 – TECHNICAL GUIDANCE

650.01 Pollutants of Concern

In the evaluation of transportation projects, consideration for impacts to the environment should be given both for the Federal criteria pollutants and for mobile source air toxics (MSATs). Of the six Federal criteria pollutants identified in the CAA, the two of greatest importance to individual projects in Idaho are carbon monoxide and particulate matter.

Characteristics and health effects of carbon monoxide, particulate matter and mobile source air toxics are as follows:

Carbon Monoxide (CO): CO is an odorless, colorless gas produced from incomplete combustion of carbon fuels and is commonly found in the emissions of smoke stacks and automotive tailpipes.

Health effects of CO include reducing the flow of oxygen in the bloodstream, thus making it particularly dangerous to persons with heart disease. Exposure to CO impairs visual perception, manual dexterity, learning ability, and performance of complex tasks. Locations of greatest potential for elevated concentrations of CO are intersections, interchanges and other similar sites experiencing particularly high vehicle densities and slow velocities.

Particulate Matter (PM₁₀): Particulate matter is comprised of suspended particles less than 10 micrometers in diameter. Particulate matter originates from smoke stack and automotive tailpipe emissions as well as from migration and re-entrainment of dust due to wind, automobiles, and other sources of disturbance. PM₁₀ emissions attributed to transportation projects are principally the result of re-entrained road dust.

Exposure to particulates impacts individuals with chronic pulmonary or cardiovascular disease, people with influenza or asthma, children and elderly persons. Particulates aggravate breathing difficulties, damage lung tissue, alter the body's defense against foreign materials, and can lead to premature mortality.

Fine Particulate Matter (PM_{2.5}): Fine particulate matter is comprised of small particles less than 2.5 micrometers in diameter. It is both a primary and secondary pollutant, meaning it can be directly into the air or formed chemically as other pollutants and chemicals combine in the air. Primary sources of PM_{2.5}

include dust, soot, smoke and combustion. Secondary PM 2.5 forms from chemical reactions between nitrogen oxides, sulfur dioxide, ammonia and/or volatile organic compounds. The main sources of nitrogen oxides are vehicles and construction and farm equipment. Sources of ammonia emissions include waste from dairies and other animal operations. Owing to their smaller size, these fine particles can reach the deepest regions of the lungs.

Health effects include asthma, difficult or painful breathing, and chronic bronchitis, especially in children and the elderly. People exposed to toxic air pollutants at sufficient concentrations and durations may have an increased chance of getting cancer or experiencing other serious health effects including damage to the immune system, as well as neurological, reproductive (e.g., reduced fertility), developmental, respiratory and other health problems. In addition to exposure from breathing air toxics, some toxic air pollutants such as mercury can deposit onto soils or surface waters, where they are taken up by plants and ingested by animals and are eventually magnified up through the food chain.

Mobile Source Air Toxics (MSAT): MSAT emissions are produced from fuel combustion and evaporation. Truck tailpipe emissions are a major source of diesel exhaust and diesel particulate.

Human epidemiology and animal toxicology experiments indicate that many chemicals or mixtures termed “air toxics” have the potential to impact human health. The USEPA’s list of 21 mobile source toxics represents their prioritization of these chemicals or materials for further study and evaluation. Prominent on the EPA list of mobile source toxics are diesel particulate matter and diesel exhaust organic gases. Diesel exhaust (a combination of diesel particulate and diesel exhaust organic gases) is likely to be carcinogenic to humans by inhalation from environmental exposure. Diesel exhaust also represents chronic respiratory effects and extended exposures may impair pulmonary function and could produce symptoms such as cough, phlegm, and chronic bronchitis.

650.02 Areas of Concern

The current federally-designated air quality non-attainment/maintenance areas in Idaho are as follows:

(a) Carbon Monoxide	Designation
Northern Ada County	Limited Maintenance
<u>In addition</u> , the IDEQ has identified Canyon County as being an ‘area of concern’ for carbon monoxide:	
Canyon County	Area of Concern

(b) Particulate	Designation
Northern Ada County PM ₁₀	Maintenance
Portneuf Valley PM ₁₀ (Pocatello)	Maintenance
Fort Hall PM ₁₀ (Tribal Lands)	Non-attainment
Pinehurst PM ₁₀ and PM _{2.5} (pending)	Non-attainment
Sandpoint PM ₁₀	Non-attainment
Franklin County PM _{2.5} (pending)	Non-attainment

In addition, the IDEQ has identified Canyon County as being an ‘area of concern’ for Particulate.

(c) Mobile Source Air Toxics

No formally designated areas. However, when identified as an issue through public or agency in-put, an assessment of potential impacts due to MSAT will be undertaken and the outcome of this assessment will be documented in the NEPA document.

650.03 Project Screening, Analysis and Documentation for CO, PM or MSAT

Project screening procedures have been created to streamline the evaluation, analysis and documentation of projects with respect to their potential air quality impacts. The screening process and criteria presented in this section are to be applied to all Federally funded transportation projects for the evaluation and documentation of projects for the NEPA requirements of 23 CFR Part 771 and, where applicable, the project level conformity requirements detailed in 40 CFR Part 93, and Idaho State Administrative Procedures (IDAPA 58.01.01).

A summary of the screening criteria and the corresponding statements to be used to document the meaning of satisfying such screening criteria is presented in Table 1, below. For an overview of Idaho’s screening process and the methodology, assumptions and analysis used to develop these latest screening criteria, see Exhibit 680-3

The screening procedures and criteria are intended to identify and address highway projects which, based on their function and characteristics are unlikely to result in emission concentrations approaching the national standards (or thresholds of concern in the case of MSATs). Projects satisfying the screening criteria are judged to have no significant adverse air quality impacts and, where applicable, to conform to the State Implementation Plan (SIP). Screening criteria used include:

- Exempt Areas,
- Exempt Project Types,
- Level-of-Service, &
- Traffic Volume

650.03.01 Documentation of Projects which Satisfy Screening Criteria

The documentation of the air quality status and potential impacts of projects should be addressed in the NEPA document as noted below: (Note: see Section 650.05 re: mitigation documentation)

a) Exempt Areas

For projects NOT located within either a Federally designated air quality nonattainment/ maintenance area or an IDEQ air quality area of concern and which have not had MSAT identified as an issue through public/agency in-put, the following statement should be included in the NEPA document to summarize the air quality status of the project:

“The project is not within a Federally designated air quality non-attainment or maintenance area nor is it within an IDEQ air quality area of concern. Therefore the project has minimal likelihood of exceeding Federal air quality standards.”

b) Applicable Areas

For projects located within either a Federally designated air quality nonattainment/ maintenance area; or an IDEQ air quality area of concern; or for which MSAT has been identified as an issue through public or agency in-put, the project screening criteria in Table 1 should be applied. Where the screening criteria of Table 1 are met, the corresponding compliance statements should be included in the NEPA document. (Note: If the screening criteria are not met, Section 650.03.02 applies)

TABLE 1

PROJECT SCREENING BY POLLUTANT, AREA AND CRITERIA

POLLUTANT:	APPLICABLE AREAS:	SCREENING PARAMETER AND CRITERIA:	RECOMMENDED STATEMENT OF COMPLIANCE FOR NEPA DOCUMENTATION:						
<p>Carbon Monoxide (CO)</p>	<p>Northern Ada County, Canyon County</p>	<p>Exempt Project Types per 40 CFR 93.126 (See Exhibit 680-2)</p>	<p><i>“This project has been identified as being exempt from air quality analysis in accordance with 40 CFR 93.126. It is therefore concluded that the project will have no significant adverse impact on air quality due to CARBON MONOXIDE.”</i></p>						
		<p>Level of Service per 40 CFR 93.123</p> <p>LOS C</p>	<p><i>“This project is forecast to have a level of service of “C” or better at all intersections within or directly affected by the project. It is therefore concluded that the project will have no significant adverse impact on air quality due to CARBON MONOXIDE.”</i></p>						
		<p>Total Intersection Volume By Year (AADT):</p> <table border="0" style="margin-left: 40px;"> <tr> <td>2010</td> <td>2015</td> <td>2020</td> <td>2025+</td> </tr> <tr> <td>100k</td> <td>125k</td> <td>150k</td> <td>175k</td> </tr> </table>	2010	2015	2020	2025+	100k	125k	150k
2010	2015	2020	2025+						
100k	125k	150k	175k						
<p>Particulate (PM₁₀ and PM_{2.5})</p>	<p><u>PM-10</u> Northern Ada County, Portneuf Valley, Fort Hall (Tribal Lands), Pinehurst, Sandpoint Canyon County <u>PM-2.5</u> Franklin County (pending), Pinehurst Canyon County</p>	<p>Project Types (includes LOS & Volumes, as applicable)</p> <p>A. Exempt per 40 CFR 93.126, (See Exhibit 680-2)</p>	<p><i>“This project has been identified as being exempt from air quality analysis in accordance with 40 CFR 93.126. It is therefore concluded that the project will have no significant adverse impact on air quality due to PARTICULATE MATTER.”</i></p>						

TABLE 1

PROJECT SCREENING BY POLLUTANT, AREA AND CRITERIA

POLLUTANT:	APPLICABLE AREAS:	SCREENING PARAMETER AND CRITERIA:	RECOMMENDED STATEMENT OF COMPLIANCE FOR NEPA DOCUMENTATION:
<p>Particulate (PM₁₀ and PM_{2.5}) (continued)</p>	<p><u>PM-10</u> Northern Ada County, Portneuf Valley, Fort Hall (Tribal Lands), Pinehurst, Sandpoint Canyon County</p> <p><u>PM-2.5</u> Franklin County (pending) Pinehurst Canyon County</p>	<p>B. Not of Concern per 40 CFR 123(b)(1)*</p> <p>*Projects other than the following five types are not considered to have the potential to impact air quality standards and, therefore, are exempt from hot-spot analysis:</p> <ol style="list-style-type: none"> 1. New or expanded highway projects that have a significant number of or significant increase in diesel vehicles (> 10k trucks per day); 2. Projects affecting intersections that are at LOS D or worse with a significant number of diesel vehicles, or those that will change to LOS D or worse because of increases traffic volumes from a significant number of diesel vehicles related to the project; 3. New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single point; 4. Expanded bus and rail terminals, and expanded transfer points, which significantly increase the number of diesel vehicles congregating at a single location; and <p>Projects in or affecting locations, areas, or categories of sites which are identified in the PM-10 SIP as sites of violation or possible violation (of which Idaho has none).</p>	<p><i>“The proposed undertaking is not ‘a project of air quality concern’ as defined in 40 CFR 93.123(b)(1). Therefore the project-level conformity determination requirements of 40 CFR 93.116 have been satisfied and no qualitative Particulate Matter hot-spot analysis is necessary.</i></p>

TABLE 1

PROJECT SCREENING BY POLLUTANT, AREA AND CRITERIA

POLLUTANT:	APPLICABLE AREAS:	SCREENING PARAMETER AND CRITERIA:	RECOMMENDED STATEMENT OF COMPLIANCE FOR NEPA DOCUMENTATION:
<p>Mobile Source Air Toxics (MSAT)</p>	<p>Statewide <i>(when identified as an issue through public or agency in-put).</i></p>	<p>Project Types (includes LOS & Volumes, as applicable)</p> <p>A. Exempt Projects:</p> <ol style="list-style-type: none"> 1. Projects qualifying as “C-List” categorical exclusions (ref. 23 CFR 771.117(c)). 2. Projects exempt under EPA’s Conformity Regulations (ref. 40 CFR 93.126-Exhibit 680-2) 3. Other projects with no meaningful impacts on traffic volumes or vehicle mix. <p>B. Projects with Low Potential MSAT Effects: Projects that “serve to improve operations of highway, transit or freight without adding substantial new capacity or without creating a facility that is likely to meaningfully increase emissions”. Examples include highway widening, new interchanges, new connector highways, and new or expanded intermodal centers. The volume criteria for highway projects in this category is a maximum design forecast of 150,000 AADT. The general criteria for intermodal centers in this category is that the project not create or significantly alter a major intermodal freight facility.</p>	<p><i>“This project will not result in any meaningful changes in traffic volumes, vehicle mix, location of the existing facility, or any other factor that would cause an increase in emissions impacts. As such, FHWA has determined that this project will have a minimal impact with respect to mobile source air toxics (MSAT). Moreover, EPA regulations for vehicle engines and fuels will cause overall MSATs to decline significantly over the next 20 years, thus minimizing any new emissions as a result of this project and at the same time lowering current background levels from the transportation network as a whole.”</i></p> <p>(See Exhibit 680-3, 680-6A and 680-6B)</p>
<p>Mobile Source Air Toxics (MSAT) (continued)</p>	<p>Statewide <i>(when identified as an issue through public or agency in-put).</i></p>	<p>C. Projects with Higher MSAT Effects: This category is limited to projects which create or alter a major intermodal freight facility that has the potential to concentrate high levels of diesel particulate matter in a single location; or which create or add significant capacity to urban highways where the forecast traffic volume will be in excess of 150,000 AADT; and located in proximity to populated areas or, for rural areas, in proximity to concentrations of vulnerable populations (e.g., schools, nursing homes, etc.).</p>	<p>Projects falling into this category will require coordination with FHWA Headquarters for further guidance on conducting quantitative analysis and documentation.</p>

650.03.02 Analysis of Projects which DO NOT Satisfy the Screening Criteria

(a) Carbon Monoxide Analysis - CO

Projects located in CO nonattainment/maintenance areas or IDEQ air quality areas of concern for CO and which do not satisfy the screening criteria of Table 1 will require an air modeling analysis for CO using EPA models and modeling procedures (See Exhibits 680-3, 4, 5 and 9).

(b) Particulate Matter Analysis - PM10 and PM2.5

No project level, quantitative, PM10 emissions analysis procedures currently exist. Therefore, for projects that do not satisfy any of the screening criteria for particulate matter, a qualitative emissions analysis will be necessary using EPA guidance (See Exhibit 680-3).

(c) Mobile Source Air Toxics Analysis - MSAT

No project level, quantitative, MSAT emissions analysis procedures currently exist. Therefore, for projects that do not satisfy any of the screening criteria for mobile source air toxics, a qualitative emissions analysis will be necessary (See Exhibit 680-3).

650.03.03 Documentation for Projects which DO NOT Satisfy Screening Criteria

(a) Carbon Monoxide Documentation - CO

For all projects in which an air quality analysis has been conducted, documentation in the NEPA document should be provided as outlined below. In addition, a tabular summary of results should be provided in the main body of the NEPA document. This table should include concentration levels by analysis year and scenario (build scenario and no-build scenario where called for), background levels, and the 8-hour standard. Finally a schematic of the analyzed intersections including peak hour traffic volumes, receptor sites and roadway dimensions should also be provided in the NEPA document. At the request of FHWA, the complete analysis shall be provided either as a separate technical report or as an appendix to the NEPA document.

(a)(1) Projects which Satisfy the 1 hour and the 8-hour CO Criteria:

For projects in which the project level air quality analysis forecasts the CO concentrations to be less than the CO standards (35 ppm 1-hour; 9 ppm 8-hours), no consideration of mitigation measures is necessary.

Documentation for this situation should be as follows:

“A project level air quality analysis for carbon monoxide has been conducted for the project and no receptor sites are forecast to experience concentrations in excess of the current 1 hour and 8-hour standard. It is therefore concluded that the project will have no significant adverse impact on air quality due to carbon monoxide.”

(Provide summary of results in the project NEPA documentation).

(a)(2) Projects which Satisfy the Build/No-Build CO Criteria: For projects in which the project level air quality analysis forecasts the carbon monoxide concentrations to be greater than the carbon monoxide standards but less than the No-Build scenario, discussion of the analysis outcome along with consideration of mitigation measures should be provided.

“A project level air quality analysis of carbon monoxide has been conducted for the project and has forecast that the following receptor sites may experience concentrations in excess of the EPA 1 hour and/or 8-hour standard(s).”

(Provide a summary of the results in the project NEPA documentation).

(a)(3) Projects which Exceed CO Standards, however, the Build Impacts are Less than No-build Impacts:

“A project level air quality analysis of carbon monoxide has been conducted for the subject project and has forecast that the following receptor sites may experience concentrations in excess of the current 1-hour or 8-hour carbon monoxide standards. However, a comparison with the No-Build scenario forecasts the carbon monoxide concentrations for the proposed project to be less than for the No-Build scenario.”

(Provide a summary of the results in the project NEPA documentation).

(a)(4) Projects which Exceed CO Standards and the Build Impacts are more than No-build Impacts: For projects in which the project level analysis forecasts the carbon monoxide concentrations to be greater than both the carbon monoxide standards and the No-Build scenario, discussion of the analysis outcome along with commitments to specific mitigation measures should be provided. Appropriate documentation for this situation should read as follows:

“A project level air quality analysis of carbon monoxide has been conducted for the subject project and has forecast that the following receptor sites may experience concentrations in excess of the current 1-hour or 8-hour carbon monoxide standards. In addition, a comparison with the No-Build Scenario finds that the concentrations under the Build scenario will exceed those of the No-Build scenario. In consultation with FHWA and IDEQ, it has been determined that the project will conform provided that the following mitigation measures are implemented:”

(List CO mitigation measures)

(Provide a summary of the results in the project NEPA documentation).

(b) Particulate Matter Documentation - PM₁₀ and PM_{2.5}

No project level, quantitative, PM₁₀ or PM_{2.5} emissions analysis procedures currently exist. Therefore, for projects that do not satisfy any of the screening criteria for mobile particulate, a qualitative emissions analysis will be necessary.

(b)(1) PM_{10/2.5} Quantitative Documentation: (Reserved)

(b)(2) PM_{10/2.5} Qualitative Documentation: Procedures and documentation for a qualitative analysis of particulate matter are detailed in EPA’s “Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in PM_{2.5} and PM₁₀ Nonattainment and Maintenance Areas” (EPA420-B-06-902). Also see [Exhibit 680-3](#) of this document.

(c) Mobile Source Air Toxics (MSAT) Documentation

No project level, quantitative, MSAT emissions analysis procedures currently exist. Therefore, for projects that do not satisfy any of the screening criteria for mobile source air toxics, a qualitative emissions analysis will be necessary.

(c) (1) MSAT Quantitative Documentation: (Reserved)

(c)(2) MSAT Qualitative Documentation: Procedures and documentation for a qualitative analysis of Mobile Source Air Toxics are detailed in Exhibits 680-3, 680-6A and 680-6B).

650.04 Project Mitigation for CO, PM, MSAT & Construction Operations

650.04.01 Construction Operations Mitigation

Any project having a potential to generate air pollution during **construction operations** must implement control measures to minimize construction impacts and to identify those measures in the NEPA document. The following statement, followed by a list of appropriate BMP measures, is recommended.

“Emissions due to the construction operations for this project will be mitigated by implementation of the following BMP measures:”

[List project specific mitigation measures in the project NEPA document]

e.g.:

1. Watering requirements,
2. Re-vegetation requirements,
3. Burning restrictions,
4. Hauling restrictions and requirements,
5. Plant (asphalt, cement, crushing, etc.) operation restrictions,
6. Street sweeping, etc.
7. Diesel exhaust system controls.

650.04.02 Carbon Monoxide Mitigation

Project level air quality mitigation shall be considered for projects demonstrated to have a potential for adverse impacts on air quality regarding Carbon Monoxide. For projects in which the emissions concentrations are predicted to exceed the standards, specific mitigation measures must be identified for consideration and implemented if found feasible and reasonable.

“Mitigation measures considered for the purpose of reducing the forecast carbon monoxide concentrations include the following:”

[List project specific mitigation measures considered, any to be implemented, and their estimated benefits in the project NEPA documentation].

Project level mitigation measures for carbon monoxide include:

1. Design configuration changes (e.g., adding or deleting turn lanes or medians, realignment, etc.)

2. Roadway system changes (e.g., one way couplets versus two way streets, etc.).
3. Operational changes (e.g., signal coordination improvements. etc.)

650.04.03 Particulate Matter Mitigation

Project level air quality mitigation shall be considered for projects demonstrated to have a potential for adverse impacts on air quality regarding Particulates. For projects in which the emissions concentrations are predicted to exceed the standards, specific mitigation measures must be identified for consideration and implemented if found feasible and reasonable.

“Mitigation measures considered for the purpose of minimizing the potential for particulate concentrations include the following:”

[List project specific mitigation measures considered, any to be implemented, and their estimated benefits in the project NEPA documentation].

Project level mitigation measures for particulate matter include:

1. Design configuration changes (e.g., adding or deleting turn lanes or medians, realignment, etc.)
2. Roadway system changes (e.g., one way couplets versus two way streets, etc.).
3. Operational changes (e.g., signal coordination improvements. etc.)
4. Truck restrictions.

650.04.04 Mobile Source Air Toxics Mitigation

Project level air quality mitigation shall be considered for projects demonstrated to have a potential for adverse impacts on air quality re: Mobile Source Air Toxics. For projects in which the emissions concentrations are predicted to exceed MSAT threshold values, specific mitigation measures must be identified for consideration and implemented if found feasible and reasonable.

“Mitigation measures considered for the purpose of minimizing the potential for mobile source air toxic concentrations include the following:”

[List project specific mitigation measures considered, any to be implemented, and their estimated benefits in the project NEPA documentation].

Project level mitigation measures for MSATs include:

1. Design configuration changes (e.g., adding or deleting turn lanes or medians, realignment, etc.)
2. Roadway system changes (e.g., one way couplets versus two way streets, etc.).
3. Operational changes (e.g., signal coordination improvements. etc.)
4. Truck restrictions.

SECTION 660.00 – PERMITS AND APPROVALS (RESERVED)

SECTION 670.00 – NON-ROAD PROJECT REQUIREMENTS (RESERVED)

SECTION 680.00 - EXHIBITS

Exhibit 680-1	Idaho’s Air Quality Analysis Process Flowchart
Exhibit 680-2	Project Types Exempt from Air Quality Analysis
Exhibit 680-3	Assumptions, Methodology and Results of Developing Screening Volumes in the 2007 Update
Exhibit 680-4	Idaho’s Mobile 6.2 Inputs: Recommended Values
Exhibit 680-5	Idaho’s CAL3QHC Inputs: Recommended Values
Exhibit 680-6A	Information that is Incomplete or Unavailable for a Project Specific Assessment of MSAT Impacts
Exhibit 680-6B	Current Studies on the Health Impacts of MSATS
Exhibit 680-7	List of Contacts
Exhibit 680-8	Sample Scope of Work for Air Quality Studies
Exhibit 680-9	Carbon Monoxide [CO] Analysis Guidance

Exhibit 680-2

Project Types Exempt from Air Quality Analysis

Environmental Protection Agency 40 CFR 93.126

...prior to a positive conformity determination, and that project sponsors must comply with such commitments.

(d) If the MPO or project sponsor believes the mitigation or control measure is no longer necessary for conformity, the project sponsor or operator may be relieved of its obligation to implement the mitigation or control measure if it can demonstrate that the applicable hot-spot requirements of § 93.116, emission budget requirements of § 93.118, and emission reduction requirements of § 93.119 are satisfied without the mitigation or control measure, and so notifies the agencies involved in the interagency consultation process required under § 93.105. The MPO and DOT must find that the transportation plan and TIP still satisfy the applicable requirements of §§ 93.118 and/or 93.119 and that the project still satisfies the requirements of § 93.116, and therefore that the conformity determinations for the transportation plan, TIP, and project are still valid. This finding is subject to the applicable public consultation requirements in § 93.105(e) for conformity determinations for projects.

§ 93.126 Exempt projects.

Notwithstanding the other requirements of this subpart, highway and transit projects of the types listed in Table 2 of this section are exempt from the requirement to determine conformity. Such projects may proceed toward implementation even in the absence of a conforming transportation plan and TIP. A particular action of the type listed in Table 2 of this section is not exempt if the MPO in consultation with other agencies (see § 93.105(c)(1)(iii)), the EPA, and the FHWA (in the case of a highway project) or the FTA (in the case of a transit project) concur that it has potentially adverse emissions impacts for any reason. States and MPOs must ensure that exempt projects do not interfere with TCM implementation. Table 2 follows:

TABLE 2—EXEMPT PROJECTS

Safety

- Railroad/highway crossing.
- Hazard elimination program.
- Safer non-Federal-aid system roads.
- Shoulder improvements.
- Increasing sight distance.
- Safety improvement program.
- Traffic control devices and operating assistance other than signalization projects.
- Railroad/highway crossing warning devices.
- Guardrails, median barriers, crash cushions.
- Pavement resurfacing and/or rehabilitation.
- Pavement marking demonstration.
- Emergency relief (23 U.S.C. 125).
- Fencing.
- Skid treatments.
- Safety roadside rest areas.
- Adding medians.
- Truck climbing lanes outside the urbanized area.
- Lighting improvements.
- Widening narrow pavements or reconstructing bridges (no additional travel lanes).
- Emergency truck pullovers.

Mass Transit

Operating assistance to transit agencies.
Purchase of support vehicles.
Rehabilitation of transit vehicles 1 .
Purchase of office, shop, and operating equipment for existing facilities.
Purchase of operating equipment for vehicles (e.g., radios, fareboxes, lifts, etc.).
Construction or renovation of power, signal, and communications systems.
Construction of small passenger shelters and information kiosks.
Reconstruction or renovation of transit buildings and structures (e.g., rail or bus buildings, storage and maintenance facilities, stations, terminals, and ancillary structures).
Rehabilitation or reconstruction of track structures, track, and trackbed in existing rights-of-way.
Purchase of new buses and rail cars to re-place existing vehicles or for minor expansions of the fleet 1 .
Construction of new bus or rail storage/maintenance facilities categorically excluded in 23 CFR part 771.

Air Quality

Continuation of ride-sharing and van-pooling promotion activities at current levels.
Bicycle and pedestrian facilities.

Other

Specific activities which do not involve or lead directly to construction, such as:
Planning and technical studies.
Grants for training and research programs.
Planning activities conducted pursuant to titles 23 and 49 U.S.C.
Federal-aid systems revisions.
Engineering to assess social, economic, and environmental effects of the proposed action or alternatives to that action.
Noise attenuation.

§ 93.127

Emergency or hardship advance land acquisitions (23 CFR 712.204(d)).
Acquisition of scenic easements.
Plantings, landscaping, etc.
Sign removal.
Directional and informational signs.
Transportation enhancement activities (except rehabilitation and operation of historic transportation buildings, structures, or facilities).
Repair of damage caused by natural disasters, civil unrest, or terrorist acts, except projects involving substantial functional, location or capacity changes.

NOTE: 1 In PM10 non-attainment or maintenance areas, such projects are exempt only if they are in compliance with control measures in the applicable implementation plan.

§ 93.127 Projects exempt from regional emissions analyses.

Notwithstanding the other requirements of this subpart, highway and transit projects of the types listed in Table 3 of this section are exempt from regional emissions analysis requirements. The local effects of these projects with respect to CO or PM10 concentrations must be considered to determine if a hot-spot analysis is required prior to making a project-level conformity determination. These projects may then proceed to the project development process even in the absence of a conforming transportation plan and TIP. A particular action of the type listed in Table 3 of this section is not exempt from regional emissions analysis if the MPO in consultation with other agencies (see § 93.105(c)(1)(iii)), the EPA, and the FHWA (in the case of a highway

project) or the FTA (in the case of a transit project) concur that it has potential regional impacts for any reason. Table 3 follows:

TABLE 3—PROJECTS EXEMPT FROM REGIONAL EMISSIONS ANALYSES

Intersection channelization projects.
Intersection signalization projects at individual intersections.
Interchange reconfiguration projects.
Changes in vertical and horizontal alignment.
Truck size and weight inspection stations.
Bus terminals and transfer points.

§ 93.128 Traffic signal synchronization projects.

Traffic signal synchronization projects may be approved, funded, and implemented without satisfying the requirements of this subpart. However, all subsequent regional emissions analyses required by §§ 93.118 and 93.119 for transportation plans, TIPs, or projects not from a conforming plan and TIP must include such regionally significant traffic signal synchronization projects.

§ 93.129 Special exemptions from conformity requirements for pilot program areas.

EPA and DOT may exempt no more than six areas for no more than three years from certain requirements of this subpart if these areas are selected to participate in a conformity pilot program and have developed alternative requirements that have been approved by EPA as an implementation plan revision in accordance with § 51.390 of this chapter. For the duration of the pilot program, areas selected to participate in the pilot program must comply with the conformity requirements of the pilot area's implementation plan revision for § 51.390 of this chapter and all other requirements in 40 CFR parts 51 and 93 that are not covered by the pilot area's implementation plan revision for § 51.390 of this chapter. The alternative conformity requirements in conjunction with any applicable state and/or federal conformity requirements must be proposed to fulfill all of the requirements of and achieve results equivalent to or better than section 176(c) of the Clean Air Act. After the three-year duration of the pilot program has expired, areas will again be subject to all of the requirements of this subpart and 40 CFR part 51, subpart T, and/or to the requirements of any implementation plan revision that was previously approved by EPA in accordance with § 51.390 of this chapter.

[64 FR 13483, Mar. 18, 1999]

Subpart B—Determining Conformity of General Federal Actions to State or Federal Implementation Plans

SOURCE: 58 FR 63253, Nov. 30, 1993, unless otherwise noted.

**ASSUMPTIONS, METHODOLOGY AND RESULTS
OF
DEVELOPING SCREENING VOLUMES IN THE 2007
UPDATE**

Excerpt from:

***IDAHO'S PROJECT LEVEL AIR QUALITY SCREENING
AND ANALYSIS: 2007 UPDATE***

**By: R. Scott Frey, Transportation Engineer,
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**Date: July 11, 2007
(revised 11/2/07)**

INTRODUCTION:

The potential for air quality impacts in conjunction with individual transportation projects is an important consideration, both for conformity purposes in air quality and non-attainment and maintenance areas and for NEPA purposes throughout the State.

ITD's Project Level Air Quality (PLAQ) screening and analysis criteria and procedures were first established in 2001 to provide designers and environmental planners with a tool for evaluating and documenting project level (hotspot) air quality impacts of highway projects. Development of the PLAQ criteria and procedures was undertaken by a team of transportation planners and environmental specialists from the FHWA Idaho Division Office, the Idaho Transportation Department and the Idaho Department of Environmental Quality. The primary objectives for the PLAQ criteria and procedures were:

- 1. To provide a supportable methodology for screening out those projects that do not warrant a formal air quality analysis based on proposed design and forecast traffic.*
- 2. To provide a uniform approach for conducting an air quality analysis for those projects whose design and forecast traffic do warrant such analysis.*
- 3. To provide concise and appropriate wording for use in documenting project level air quality issues in environmental documents.*

2001 PLAQ:

The 2001 PLAQ established screening criteria for project types, level of service, and traffic volume to identify which projects warranted a formal air quality modeling analysis for carbon

monoxide. In addition, for those projects that did require detailed analysis, the 2001 PLAQ standardized the process to provide greater uniformity. The screening criteria and analysis procedures introduced in the 2001 PLAQ represented a significant first step towards streamlining and standardizing project level air quality analysis in Idaho.

2005 PLAQ UPDATE:

In 2003, EPA updated its Mobile Model (Mobile 5 to 6), thus rendering the 2001 PLAQ screening criteria and analysis guidance obsolete. In addition, FHWA had issued guidance for assessing and documenting consideration of mobile source air toxics in conjunction with individual projects. In light of the above changes, the original interagency team assembled to develop the 2001 PLAQ was reconvened to prepare a 2005 update.

Changes incorporated in the 2005 PLAQ update included:

- A new and wider range of screening volumes to address different intersection configurations.
- Updated input parameters for using the Mobile emissions model and the CAL3QHC dispersion model to conduct analyses of projects.
- Updated language to be used in NEPA documents to summarize the results of project evaluations.
- Reducing the area of consideration for project level carbon monoxide from statewide to the following three areas: *Northern Ada County, Canyon County, and the City of Lewiston.*
- The addition of a section on assessing and documenting mobile source air toxics for projects.

2007 PLAQ UPDATE:

Following the 2005 PLAQ update, experience with the new criteria and procedures pointed to the need for further refinements to the volume screening criteria. In particular, the following changes were recommended:

- 1. Multiple Year Screening Volumes:** The screening volumes presented in the 2005 PLAQ were intended to be applied to the current (2005) traffic volumes only. No screening volumes were offered for the 20 year design horizon because the modeling results indicated that automobile related carbon monoxide concentrations will decrease significantly over time (as a result of improved vehicle emissions controls) and that the current year (not the design year) would be the most critical for carbon monoxide purposes. While the concept of directing carbon monoxide screening and analysis to the year of construction rather than the design year of projects is sound, it may seem counterintuitive and, as a result, it has proven to be confusing for some users. To address this, it was recommended that screening volumes be established at five year increments from 2010 through 2025 (and beyond if warranted).
- 2. Intersection Volumes In Lieu Of Approach Volume:** The screening volumes currently used in the PLAQ are based on the assumption that all approaches to an intersection carry an equal volume of traffic. The screening volume is exceeded if any approach to an

intersection is greater than the screening volume. While this approach was intended to assure a conservative outcome, once in use it became apparent that the assumption of equal volume distribution was too conservative. Specifically, it resulted in intersections having one or two approaches carrying high volumes of traffic to fail the screening test even though the total traffic volume passing through the intersection would not result in emissions concentrations close to or exceeding the EPA standards. To address this, it was recommended that the screening volume criteria should be based on the total intersection volume rather than the highest volume of any one approach.

- 3. IDEQ Air Quality Areas of Concern:** The Idaho Department of Environmental Quality has concluded the City of Lewiston is no longer an area of concern for Carbon Monoxide emissions.

In addition to the above changes concerning carbon monoxide screening, new EPA regulations on project level evaluation of particulate matter (PM-10 and PM-2.5) and further FHWA guidance on project level evaluation of mobile source air toxics (MSAT) have been released since the 2005 PLAQ update, thus giving further impetus for an update to the PLAQ. The assumptions, methodology, results and recommendations for this 2007 PLAQ update are explained further in the remainder of this report.

2007 PLAQ UPDATE - PROCEDURES AND RECOMMENDATIONS:

The following is an overview of the 2007 PLAQ update including the assumptions and procedures on which the PLAQ screening process and criteria are based, changes from the 2005 PLAQ update, and recommendations for new screening criteria and documentation. Presentation of this information is organized by pollutant type (carbon monoxide, particulates, and mobile source air toxics).

CARBON MONOXIDE PROJECT SCREENING:

Projects meeting one or more of the following screening criteria are unlikely to result in concentrations for carbon monoxide exceeding the current standards and, therefore will not warrant a quantitative air quality analysis:

- 1. Project Area:** Based on previous modeling analysis work done in conjunction with the 2005 PLAQ Update it has been determined that for most areas of the State, no reasonably likely traffic volume would result in carbon monoxide concentrations that would exceed the standard. In addition, based on feedback from IDEQ on the improved outlook for air carbon monoxide levels in the City of Lewiston, consideration of project level carbon monoxide concentrations can be limited to the following areas of the State:

Northern Ada County, and
Canyon County

For all projects satisfying the project area criteria, a recommended statement to include in the NEPA document to address the consideration of project level air quality for carbon monoxide is as follows:

“This project is not located within an area in which forecast traffic volumes have the potential to exceed the current air quality standards for carbon monoxide. It is therefore concluded that the project will have no significant adverse impact on air quality due to carbon monoxide.”

- 2. Project Type:** Project types identified as being exempt from air quality analysis per EPA’s Conformity Regulations (40 CFR 93.126). For all projects satisfying the project type criteria, a recommended statement to include in the NEPA document to address the consideration of project level air quality consideration for carbon monoxide is as follows:

“This project has been identified as being exempt from air quality analysis in accordance with 40 CFR 93.126. It is therefore concluded that the project will have no significant adverse impact on air quality due to carbon monoxide.”

- 3. Level of Service:** Projects for which the design year traffic volume will result in an operational level of service (LOS) of “C” or better for any intersection in or directly affected by the project. For all projects identified as satisfying the LOS criteria, a recommended statement to include in the NEPA document to address the consideration of project level air quality consideration for carbon monoxide is as follows:

“This project is forecast to have a level of service of “C” or better at all intersections within or directly affected by the project. It is therefore concluded that the project will have no significant adverse impact on air quality due to carbon monoxide.”

- 4. Traffic Volume:** Projects for which the forecast traffic volume for the project (year of construction through design year) is less than would be necessary to exceed the carbon monoxide based on the anticipated project design. For projects identified as satisfying the LOS criteria a recommended statement to include in the NEPA document to address the consideration of project level air quality consideration for carbon monoxide is as follows:

“This project does not include or directly affect any roadways for which forecast traffic volume will exceed the screening volumes of ITD’s Project Level Air Quality Screening Procedures. It is therefore concluded that the project will have no significant adverse impact on air quality due to carbon monoxide.”

The first three criteria above; project area, project type and level of service; are relatively straightforward and, furthermore, are unchanged from the 2005 PLAQ. Therefore no further explanation of them will be provided here. The traffic volume criteria, however, is both complex in its nature and under consideration for change in this 2007 PLAQ update. Therefore additional explanation on the development of and recommended changes to the traffic volume screening criteria are discussed below:

Project Screening By Volume: Scope of Application

Relying on predetermined screening volumes instead of conducting extensive air quality analyses to assess transportation projects for air quality impacts is a proven concept for streamlining the environmental analysis process. The process involves using emissions modeling results from a limited number of representative highway configurations and traffic conditions to assess the potential air quality impacts due to comparable proposed highway projects.

Important to this process is defining the highway types and configurations for which consideration of carbon monoxide concentrations is even warranted.

Highway Types:

An important consideration in establishing air quality screening volumes is establishing what roadway types and configurations, operating under current or forecast traffic conditions likely in Idaho, could potentially result in carbon monoxide concentrations in excess of the standards at receptor locations (e.g., where pedestrians or intakes for buildings might reasonably be found) as follows:

Freeways:

Characteristics of freeways include:

1. No accommodation for pedestrian traffic (e.g. sidewalks) within the right of way.
2. No at-grade intersections or associated queuing due to stop controls (e.g. traffic signals).
3. Significant separation between the travel lanes and potential receptor locations.
4. Multiple lanes and high volumes of traffic (e.g. 4 to 10 lanes and 40k to 120k AADT).
5. Continuous traffic flow (no queues assumed).

In conducting project level dispersion modeling of a variety of freeway configurations assuming the above conditions, it was concluded that within Idaho no exceedances of the carbon monoxide standard would likely occur on mainline of the Interstate System.

Arterials - Freeflow links:

Characteristics of arterial freeflow links include:

1. Accommodation of pedestrians (e.g. sidewalks) adjacent to the travel lanes may occur.
2. At-grade intersections of connecting side roads with stop controls (stop signs) for the connecting side roads only but not the arterial.
3. A range of separation (0 to 50+ feet) between the travel lanes and potential receptor locations (e.g. sidewalks).
4. Multiple lanes and moderate to high volumes of traffic (e.g., 4 to 6 lanes and 20k to 60k AADT).
5. Continuous traffic flow on arterial and limited queues on stop-controlled intersecting side roads.

In conducting project level dispersion modeling of a variety of arterial configurations assuming the above conditions, it was concluded that within Idaho no exceedances of the carbon monoxide standards would likely occur on the non-stop-controlled mainline sections of arterial routes. Furthermore, with respect to stop-controlled side roads intersecting arterials, it was resolved that such roads (those not having signalized intersections) would typically be of sufficiently low volume that no reasonable potential for exceedance of the carbon monoxide standards existed.

Arterial Intersections:

Characteristics of arterial intersections include:

1. Accommodation of pedestrians (e.g. sidewalks) adjacent to the travel lanes may occur.
2. Signalized and unsignalized at-grade intersections of connecting arterials and other side roads resulting in queuing on all approaches to the intersection.
3. A range of separation (0 to 50+ feet) between the travel lanes and potential receptor locations (e.g. sidewalks).
4. Multiple lanes and moderate to high volumes of traffic (e.g., 4 to 6 lanes and 20k to 60k AADT).
5. Continuous traffic flow on arterial and limited queues on stop-controlled intersecting side roads.

In conducting project level dispersion modeling of a variety of arterial intersection configurations and assuming the above conditions, it was concluded that within Idaho there does exist the potential for exceedances of the carbon monoxide standards. It was further resolved that the potential for such exceedances was principally limited to signalized intersections.

Collector and Local Roads:

Characteristics of collector and local roadways (freeflow links and intersections):

1. Travel volume less than
2. Accommodation of pedestrians (e.g. sidewalks) adjacent to the travel lanes may occur.
3. At-grade intersections of connecting side roads with stop controls (stop signs) for the connecting side roads only but not the arterial.
4. A range of separation (0 to 50+ feet) between the travel lanes and potential receptor locations (e.g. sidewalks).
5. Two lanes and low to moderate volumes of traffic (e.g., 1k to 10k AADT).
6. Either continuous or stop-controlled traffic on mainline and stop-controlled intersecting side roads.

In conducting project level dispersion modeling of collector and local roadway configurations, it was concluded that within Idaho no exceedances of the carbon monoxide standards would likely occur on collector or local routes due to the low volume of traffic and low number of lanes common to roadway of this classification.

Intersection Configurations:

A second important consideration in the development of air quality screening volumes is the range of intersection configurations having the potential to result in exceedances of the carbon monoxide standard. For the 2007 PLAQ update, the following intersection configurations were evaluated:

3 x 3 Intersection:

An intersection of two 3-lane roadways with two travel lanes, a continuous center turn lane, and having a single left turn lane at each approach to the intersection.

5 x 3 Intersections:

An intersection of a 5-lane roadway with four travel lanes and a continuous center turn lane and having a single left turn lane at each approach and a 3-lane roadways with two travel lanes, a continuous center turn lane, and having a single left turn lane at each approach.

5 x 5 Intersection:

An intersection of two 5-lane roadways with four travel lanes, a continuous center turn lane, and having a single left turn lane at each approach to the intersection.

6 x 6 Intersection:

An intersection of two 5-lane roadways with four travel lanes, a continuous center turn lane, and having dual left turn lanes at each approach to the intersection.

7 x 7 Intersection:

An intersection of two 5-lane roadways with four travel lanes, a continuous center turn lane, and having dual left turn lanes and a single right turn lane at each approach to the intersection.

9 x 9 Intersection:

An intersection of two 7-lane roadways with six travel lanes, a continuous center turn lane, and having dual left turn lanes and a single right turn lane at each approach to the intersection.

Carbon Monoxide Screening Volume Development Methodology:

The steps taken to develop the new and expanded screening volumes were as follows:

1. Develop emissions factors for years 2010 through 2035 in five year increments:

The carbon monoxide emissions factors are generated using the Mobile 6.2 model. Model input parameters were the same as those used in the 2005 PLAQ update (See Exhibit 680-4 for a complete listing of the recommended model inputs). Because it has previously been determined in the 2005 PLAQ that no project level air quality analysis for carbon monoxide is necessary within Idaho except in Northern Ada County and Canyon County analysis was limited to those three areas. The results from Mobile model analysis showed that the carbon monoxide emissions factor of the vehicle fleet will decline for successive years and that change (in the factor) beyond 2025 was negligible.

2. Conduct dispersion model tests for years 2010 through 2025 in five year increments:

For each intersection configuration to be included in the PLAQ update, conduct dispersion analyses using the CAL3QHC model. Model input parameters were the same as those used in the 2005 PLAQ update (See Exhibit 680-4 for a complete listing of the recommended model inputs). These analyses will be conducted for years 2010 through 2025 in five year increments and will be designed to determine the highest volume for the total intersection. As a further refinement for this update, additional analysis runs were made reflecting a range of traffic distributions between the intersecting roadways (50/50, 70/30, and 90/10).

- 3. Establish screening volumes for highest approach and intersection total volumes:**
 Using the analysis results described in #2, above, approach screening volumes were developed for the various intersection configurations and years. These screening volumes represent the highest total intersection volume (for all approaches) above which a project specific analysis will be warranted.

Because the emission factors will not increase beyond 2025 (as explained in #1, above), no dispersion modeling will be necessary beyond 2025 and the resultant screening volume for the 2025 will apply to the years 2025 and beyond.

For this update, the dispersion modeling will be limited to Canyon County only. This decision was based on the dispersion modeling results in the 2005 PLAQ update which showed Canyon County to have the highest emissions factors, thus making it the most limiting of the two areas for which this CO screening process and criteria will apply.

Results and Recommendations for Carbon Monoxide Screening Volumes:

New screening volumes were established by modeling six different intersection configurations over a range of years (2010 to 2025 in 5 year increments) and traffic volumes (See Attachment D for a summary of the modeling results).

Based on this work, the following table presents the proposed new screening criteria:

PROPOSED CARBON MONOXIDE SCREENING VOLUMES: <i>Northern Ada County and Canyon County</i>				
<i>Projects in Ada County and Canyon County having forecast total daily intersection volumes (for all approaches) in excess of the values in this table will warrant a detailed project level air quality analysis for carbon monoxide.</i>				
Assessment Year	2010	2015	2020	2025+
Daily Intersection Traffic Volume For All Approaches (AADT)	100,000	125,000	150,000	175,000

PARTICULATE (PM-10) PROJECT SCREENING:

New Regulations:

Effective April 5, 2006, the EPA’s Conformity Regulations governing project level air quality analysis for particulate matter (PM-10) have been instituted. These regulations apply to all Federally funded transportation projects within Idaho’s PM-10 non-attainment and maintenance areas.

Based on the new regulations, the following project screening criteria have been developed to identify those projects unlikely to result in concentrations for particulate matter (PM-10) exceeding the current standard:

1. **Project Area:** Project level air quality analysis for particulate matter only applies to Idaho's current nonattainment and maintenance areas for particulate matter as follows:

Northern Ada County
Pocatello/Chubbuck
Sandpoint
Pinehurst
Fort Hall Tribal Lands (Shoshone-Bannock Reservation)
Franklin County (pending nonattainment designation)
Canyon County (IDEQ area of concern)

For all projects not located within one of the above areas, a recommended statement to include in the NEPA document to address the consideration of project level air quality for particulate matter is as follows:

“This project is in an air quality attainment area for particulate matter. Therefore no project level air quality analysis for particulate matter is required.”

2. **Project Type:** Project types identified as being exempt from air quality analysis per EPA's Conformity Regulations (40 CFR 93.126). For all projects satisfying the project type criteria, a recommended statement to include in the NEPA document to address the consideration of project level air quality consideration for particulate matter is as follows:

“This project has been identified as being exempt from air quality analysis in accordance with 40 CFR 93.126 (Table 2, Exempt Projects). It is therefore concluded that the project will have no significant adverse impact on air quality due to particulate matter.”

For those projects not exempted by project area or type, only those categorized as **“projects of concern”** based on the below criteria will normally require a project level analysis:

1. New or expanded highway projects that have a significant number of or significant increase in diesel vehicles (> 10k trucks per day);
2. Projects affecting intersections that are at LOS D or worse with a significant number of diesel vehicles, or those that will change to LOS D or worse because of increases traffic volumes from a significant number of diesel vehicles related to the project;
3. New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location;
4. Expanded bus and terminals, and expanded transfer points, which significantly increase the number of diesel vehicles congregating at a single location; and
5. Projects in or affecting locations, areas, or categories of sites which are identified in the PM-10 SIP as sites of violation or possible violation (of which Idaho has none).

For identified **“projects of concern”**, a qualitative analysis will be required. Details on the procedures to follow and subsequent NEPA documentation to use for such analyses are provided in EPA's March 2006 guidance document entitled, “Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in PM-2.5 and PM-10 Nonattainment and Maintenance Areas” (EPA420-B-06-902).

For all other projects (those which are neither exempt from the Conformity Regulations nor classified as “projects of concern”), the following statement in the NEPA document will suffice for addressing air quality with respect to Particulate:

“The proposed undertaking is not ‘a project of air quality concern’ as defined in 40 CFR 93.123(b)(1). Therefore the project-level conformity determination requirements of 40 CFR 93.116 have been satisfied and no qualitative PM-10 hot-spot analysis is necessary.

Emissions due to the construction operations for this project will be mitigated by implementation of the following best practices measures:”

[List project specific mitigation measures in the project NEPA document]

Interagency Consultation:

Interagency consultation is an integral part of the conformity process for transportation plans, TIPs and projects. As provided in EPA’s Conformity Regulations, Idaho has adopted its own Conformity Regulations which parallel and in some cases adopt the Federal requirements (ref. 40 CFR 93.105 and IDAPA 58.01.01).

Although Idaho’s regulations lack some details in explaining its project level conformity process, it is clear that the interagency consultation is intended to apply to plans, TIPs and projects. The lead agency specified by Idaho for coordinating and conducting its interagency consultation is the MPO (for projects within MPO areas) or the ITD (outside of the MPO areas). While Idaho’s regulations do not specify how projects are to be identified and brought to the attention of the lead agency for consultation purposes, the project sponsor in cooperation with the affected Federal agency (FHWA or FTA) might reasonably assume this role.

MOBILE SOURCE AIR TOXICS (MSAT):

New FHWA Guidance for Mobile Source Air Toxics Analysis:

On February 3, 2006, FHWA issued new interim guidance on the analysis and documentation of air toxics. This guidance is applicable to all FHWA funded projects and actions but it does not constitute a new requirement and does not have any direct relationship to EPA’s Conformity Regulations.

Currently, there is no regulatory authority requiring that air toxics be addressed in NEPA documents. However, it is an issue that is being raised more frequently by environmental interests and the general public and so it is appropriate that environmental documents provide some discussion, and where appropriate, analysis of this subject. To that end, the following recommendation is given concerning the when to assess and, and warranted analyze projects for MSAT:

It is not reasonable or necessary to address air toxics impacts in all FHWA funded projects. The decision on whether or not to assess and document air toxics in conjunction with a project will depend on whether it is identified as an issue during the scoping process or subsequently through public comment. If MSAT is not identified as a potential issue, it DOES NOT need to be evaluated or documented in the project’s NEPA document.

For projects in which air toxics has been identified as an issue either in the scoping process or subsequently through public or agency input, the extent of the analysis and the supporting documentation to be included in the NEPA document can be addressed as follows:

1. **Exempt Projects and Projects with No Meaningful Mobile Source Air Toxics (MSAT) Effects:** These projects, based on their general character, will present no meaningful potential for MSAT effects. Categories of projects considered to be exempt include:
 - a. Projects qualifying as “C-List” categorical exclusions (ref. 23 CFR 771.117(c)).
 - b. Projects exempt under EPA’s Conformity Regulations (ref. 40 CFR 93.126).
 - c. Other projects with no meaningful impacts on traffic volumes or vehicle mix.

For exempt projects, appropriate documentation to include in the NEPA document would be as follows:

“This project will not result in any meaningful changes in traffic volumes, vehicle mix, location of the existing facility, or any other factor that would cause an increase in emissions impacts. As such, FHWA has determined that this project will have a minimal impact with respect to mobile source air toxics (MSAT). Moreover, EPA regulations for vehicle engines and fuels will cause overall MSATs to decline significantly over the next 20 years, thus minimizing any new emissions as a result of this project and at the same time lowering current background levels from the transportation network as a whole.”

2. **Projects with Low Potential MSAT Effects:** These are projects that “serve to improve operations of highway, transit or freight without adding substantial new capacity or without creating a facility that is likely to meaningfully increase emissions”. Examples of projects fitting this description include:
 - a. Highway widening,
 - b. New interchanges,
 - c. New connector highways, and
 - d. New or expanded intermodal centers.

The volume criteria for highway projects in this category is a maximum design forecast of 150,000 AADT. The general criteria for intermodal centers in this category is that the project not create or significantly alter a major intermodal freight facility.

Projects in this category are to be addressed in the NEPA document using “qualitative assessment” statements. This qualitative assessment should:

- a. Compare, in narrative form, the expected effect of the project on traffic volumes, vehicle mix or routing of traffic and the associated changes in MSATs for the project alternatives based on VMT, vehicle mix, and speed, and

- b. Discuss national trend data projecting substantial overall reductions in emissions due to stricter engine and fuel regulations issued by EPA.

An illustrative example of a qualitative assessment statement for a project considered to have low potential for MSAT effects is as follows:

“For each alternative in this [EIS/EA], the amount of MSATs emitted would be proportional to the vehicle miles traveled (VMT), assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for each of the Build Alternatives is slightly higher than that for the No Build Alternative, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network [reference project traffic forecast data here]. This increase in VMT would lead to higher MSAT emissions for the action alternative along the highway corridor, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds since, according to EPA’s MOBILE6 emissions model, emissions of all of the priority MSATs except for diesel particulate matter decrease as speed increases. The extent to which these speed-related emissions decreases will offset VMT-related emissions increases cannot be reliably projected due to the inherent deficiencies of technical models.

Because the estimated VMT under each of the Alternatives are nearly the same, varying by less than _____ percent, it is expected there would be no appreciable difference in overall MSAT emissions among the various alternatives. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA’s national control programs which are projected to reduce MSAT emissions by 57 to 87 percent between 2000 and 2020. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

[This paragraph and the corresponding language in the next paragraph may apply if the road moves closer to receptors:] The additional travel lanes contemplated as part of the project alternatives will have the effect of moving some traffic closer to nearby homes, schools and businesses; therefore, under each alternative there may be localized areas where ambient concentrations of MSATs could be higher under certain Build Alternatives than the No Build Alternative. The localized increases in MSAT concentrations would likely be most pronounced along the expanded roadway sections that would be built at _____, under Alternatives _____, and along _____ under Alternatives _____. However, as discussed above, the magnitude and the duration of these potential increases compared to the No-build alternative cannot be accurately quantified due to the inherent deficiencies of current models. In sum, when a highway is widened and, as a result, moves closer to receptors, the localized level of MSAT emissions for the Build Alternative could be higher relative to the No Build Alternative, but this could be offset due to increases in speeds and reductions in congestion (which are associated with lower MSAT emissions). Also, MSATs will be lower in other locations when traffic shifts away from them. However, on a regional basis, EPA’s

vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today”.

In addition to the above qualitative assessment, a NEPA document for this category of projects must include a discussion of information that is incomplete or unavailable for a project specific assessment of MSAT impacts. This latter documentation is to address the need for compliance with CEQ regulations (40 CFR 1502.22(b)) regarding incomplete or unavailable information.

A recommended write up addressing this subject has been developed by FHWA (See Exhibit 680-6A).

Finally, the NEPA document should contain a summary of current studies regarding the health impacts of MSATs. A recommended write up addressing this subject has been developed by FHWA (See Exhibit 680-6B).

3. **Projects with Higher Potential MSAT Effects:** This category is limited to projects which create or alter a major intermodal freight facility that has the potential to concentrate high levels of diesel particulate matter in a single location; or which create or add significant capacity to urban highways where the forecast traffic volume will be in excess of 150,000 AADT; **and** located in proximity to populated areas or, in for rural areas, in proximity to concentrations of vulnerable populations (e.g., schools, nursing homes, etc.). Projects falling into this category would require coordination with FHWA Headquarters for further guidance on conducting quantitative analysis and documentation.

IDAHO'S MOBILE 6.2 INPUTS: RECOMMENDED VALUES

ADA COUNTY		
Parameter	Value	Comments
Calendar Year	Estimated project completion date	Design year analysis not necessary
Pollutants	CO	Carbon Monoxide
Starts	No start emissions	Pg 44, EPA MOBILE6 Technical Guidance (EPA420-R-04-013)
Fleet Mix	Contact COMPASS MPO Staff	
Evaluation Month	1	January
Min/Max Temps	Contact COMPASS MPO Staff	
Fuel RVP	Contact COMPASS MPO Staff	
Fuel Program	Contact COMPASS MPO Staff	
Average Speed	Freeflow Speed Site Specific (default value 30 mph) Queued vehicle speed 2.5 mph	30 mph represents typical free flow arterial travel speed per HCM2000 Exhibits 10.3 and 10.5; 2.5 mph approximates queued vehicles condition per EPA's Mobile 6 Guidance
Anti-Tamper Program	Contact COMPASS MPO Staff	
I/M Program	Contact COMPASS MPO Staff	
I/M Model Years	Contact COMPASS MPO Staff	
I/M Vehicles	Contact COMPASS MPO Staff	
I/M Stringency	Contact COMPASS MPO Staff	
I/M Compliance	Contact COMPASS MPO Staff	
I/M Waiver Rates	Contact COMPASS MPO Staff	

CANYON COUNTY

Parameter	Value	Comments
Calendar Year	Estimated project completion date	Design year analysis not necessary
Pollutants	CO	Carbon Monoxide
Starts	No start emissions	Pg 44, EPA MOBILE6 Technical Guidance (EPA420-R-04-013)
Fleet Mix	Contact COMPASS MPO Staff	
Evaluation Month	1	January
Min/Max Temperature	Contact COMPASS MPO Staff	
Fuel RVP	Contact COMPASS MPO Staff	
Fuel Program	Contact COMPASS MPO Staff	
Average Speed	Freeflow Speed Site Specific (default value 30 mph) Queued vehicle speed 2.5 mph	30 mph represents typical free flow arterial travel speed per HCM2000 Exhibits 10.3 and 10.5; 2.5 mph approximates queued vehicles condition per EPA's Mobile 6 Guidance

Exhibit 680-5

IDAHO'S CAL3QHC INPUTS		
PARAMETER	VALUE	COMMENTS
Meteorological Data:		
Averaging Time	60 minutes	Corresponding to 1 hour forecast period.
Surface Roughness	Site specific Default value: 175 cm	See EPA's CAL3QHC User Guide, Table 1 (EPA-454/R-92-006) Default values used for establishing Idaho's screening volumes.
Settling Velocity	0 cm/sec Default: same	See EPA's CAL3QHC User Guide, Table 1 (EPA-454/R-92-006)
Deposition Velocity	0 cm/sec Default: same	See EPA's CAL3QHC User Guide, Table 1 (EPA-454/R-92-006)
Wind Speed	1 m/sec Default: same	See EPA's Guidelines for Modeling Carbon Monoxide, pg 4-8 (EPA-454/R-92-005)
Stability Class	D or E Default : E	See EPA's Guidelines for Modeling Carbon Monoxide, pg 4-8 (EPA-454/R-92-005)
Mixing Height	1000 M Default: same	See EPA's Guidelines for Modeling Carbon Monoxide pg 4-8 (EPA-454/R-92-005)
Wind Direction	Location specific Default: 360 degrees in 10 degree increments.	See EPA's Guidelines for Modeling Carbon Monoxide, pg 4-8 (EPA-454/R-92-005)

IDAHO'S CAL3QHC INPUTS

PARAMETER	VALUE	COMMENTS												
Emissions Data:														
Freeflow Emissions Factors (g/mi)	Location specific	Determined from Mobile 6.2												
Queued Emissions Factor (g/hr)	Location specific	Determined from Mobile 6.2												
1-hour Background Emissions (ppm) and Persistence Factors (PF)	Location Specific Default Values: <table style="margin-left: 20px; border-collapse: collapse;"> <tr> <td style="text-align: right;"><u>Area</u></td> <td style="text-align: right;"><u>Background</u></td> <td style="text-align: right;"><u>PF</u></td> </tr> <tr> <td>Boise:</td> <td style="text-align: right;">10.7 ppm,</td> <td style="text-align: right;">55 %</td> </tr> <tr> <td>Nampa:</td> <td style="text-align: right;">16.7 ppm,</td> <td style="text-align: right;">38 %</td> </tr> <tr> <td>Lewiston:</td> <td style="text-align: right;">9.6 ppm,</td> <td style="text-align: right;">54 %</td> </tr> </table>	<u>Area</u>	<u>Background</u>	<u>PF</u>	Boise:	10.7 ppm,	55 %	Nampa:	16.7 ppm,	38 %	Lewiston:	9.6 ppm,	54 %	Recommended values from Idaho Department of Environmental Quality
<u>Area</u>	<u>Background</u>	<u>PF</u>												
Boise:	10.7 ppm,	55 %												
Nampa:	16.7 ppm,	38 %												
Lewiston:	9.6 ppm,	54 %												
Site Data:														
Roadway Coordinates	Site specific	See EPA's CAL3QHC User Guide, pgs 9-10 (EPA-454/R-92-006)												
Roadway Width	Site specific Default values: 12 ft lanes, no shoulders	See EPA's CAL3QHC User Guide, pgs 9-10 (EPA-454/R-92-006)												
Receptor Coordinates	Site Specific Default values: 10 foot offset from travel way at intersection and 100 feet from intersection for each approach.	See EPA's Guidelines for Modeling Carbon Monoxide, pg 2-2 (EPA-454/R-92-005)												
Source Height	0 m Default: same	See EPA's CAL3QHC User Guide, pg 34 (EPA-454/R-92-006)												
Receptor Height	1.8 m Default: same	See EPA's Guidelines for Modeling Carbon Monoxide, pg 2-2 (EPA-454/R-92-005)												

IDAHO'S CAL3QHC INPUTS

PARAMETER	VALUE	COMMENTS
Traffic Data:		
Traffic Volume	Site Specific Default: none	
Avg Cycle Length	Site Specific Default: 100 sec.	HCM2000, Exhibit 10-16
Avg Red Time	Site Specific Default: 60 sec. thru and right turns, 90 sec. left turns	Assume equal phases for all four approaches
Clearance Lost Time	Site Specific Default: 2 sec. (per phase)	HCM2000, Exhibit 10-17 and EPA's CAL3QHC User Guide, pg 34 (EPA-454/R-92-006)
Saturation Flow Rate	Site Specific Default: 1800	HCM2000, Exhibit 10-19
Signal Type	Site Specific Default: 1 (pre-timed)	EPA's CAL3QHC User Guide, pg 43 (EPA-454/R-92-006)
Arrival Rate	Site Specific Default: 3 (average progression)	EPA's CAL3QHC User Guide, pg 43 (EPA-454/R-92-006)
% Turns	Site Specific Default: assign 10% of intersection approach volume to each turn movement.	HCM2000 pg 10-19

**INFORMATION THAT IS INCOMPLETE OR
UNAVAILABLE FOR
A PROJECT SPECIFIC ASSESSMENT
OF
MSAT IMPACTS**

(Ref. 40 CFR 1502.22(b))

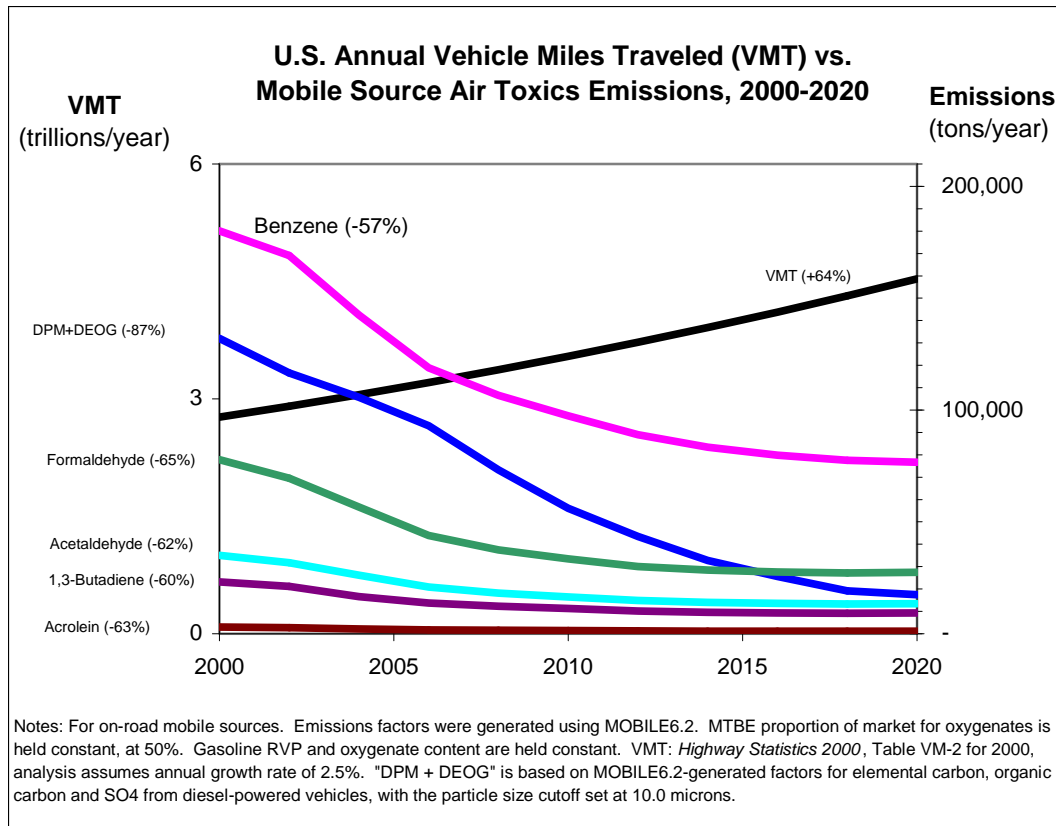
MOBILE SOURCE AIR TOXICS

In addition to the criteria air pollutants for which there are National Ambient Air Quality Standards (NAAQS), EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners) and stationary sources (e.g., factories or refineries).

Mobile Source Air Toxics (MSATs) are a subset of the 188 air toxics defined by the Clean Air Act. The MSATs are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline.

The EPA is the lead Federal Agency for administering the Clean Air Act and has certain responsibilities regarding the health effects of MSATs. The EPA issued a Final Rule on Controlling Emissions of Hazardous Air Pollutants from Mobile Sources. 66 FR 17229 (March 29, 2001). This rule was issued under the authority in Section 202 of the Clean Air Act. In its rule, EPA examined the impacts of existing and newly promulgated mobile source control programs, including its reformulated gasoline (RFG) program, its national low emission vehicle (NLEV) standards, its Tier 2 motor vehicle emissions standards and gasoline sulfur control requirements, and its proposed heavy duty engine and vehicle standards and on-highway diesel fuel sulfur control requirements. Between 2000 and 2020, FHWA projects that even with a 64 percent increase in VMT, these programs will reduce on-highway emissions of benzene, formaldehyde, 1,3-butadiene, and acetaldehyde by 57 percent to 65 percent, and will reduce on-highway diesel PM emissions by 87 percent, as shown in the following graph re: VMT.

As a result, EPA concluded that no further motor vehicle emissions standards or fuel standards were necessary to further control MSATs. The agency is preparing another rule under authority of CAA Section 202(l) that will address these issues and could make adjustments to the full 21 and the primary six MSATs.



Unavailable Information for Project Specific MSAT Impact Analysis

This [EA or EIS] includes a basic analysis of the likely MSAT emission impacts of this project. However, available technical tools do not enable us to predict the project-specific health impacts of the emission changes associated with the alternatives in this [EA or EIS]. Due to these limitations, the following discussion is included in accordance with CEQ regulations (40 CFR 1502.22(b)) regarding incomplete or unavailable information:

Information that is Unavailable or Incomplete. Evaluating the environmental and health impacts from MSATs on a proposed highway project would involve several key elements, including emissions modeling, dispersion modeling in order to estimate ambient concentrations resulting from the estimated emissions, exposure modeling in order to estimate human exposure to the estimated concentrations, and then final determination of health impacts based on the estimated exposure. Each of these steps is encumbered by technical shortcomings or uncertain science that prevents a more complete determination of the MSAT health impacts of this project.

1. **Emissions:** The EPA tools to estimate MSAT emissions from motor vehicles are not sensitive to key variables determining emissions of MSATs in the context of highway projects. While MOBILE 6.2 is used to predict emissions at a regional level, it has limited applicability at the project level. MOBILE 6.2 is a trip-based model--emission factors are projected based on a typical trip of 7.5 miles, and on average speeds for this typical trip. This means that MOBILE 6.2 does not have the ability to predict emission factors for a specific vehicle operating condition at a specific location at a specific time. Because of this limitation, MOBILE 6.2 can only approximate the operating speeds and

levels of congestion likely to be present on the largest-scale projects, and cannot adequately capture emissions effects of smaller projects. For particulate matter, the model results are not sensitive to average trip speed, although the other MSAT emission rates do change with changes in trip speed. Also, the emissions rates used in MOBILE 6.2 for both particulate matter and MSATs are based on a limited number of tests of mostly older-technology vehicles. Lastly, in its discussions of PM under the conformity rule, EPA has identified problems with MOBILE6.2 as an obstacle to quantitative analysis.

These deficiencies compromise the capability of MOBILE 6.2 to estimate MSAT emissions. MOBILE6.2 is an adequate tool for projecting emissions trends, and performing relative analyses between alternatives for very large projects, but it is not sensitive enough to capture the effects of travel changes tied to smaller projects or to predict emissions near specific roadside locations.

2. Dispersion. The tools to predict how MSATs disperse are also limited. The EPA's current regulatory models, CALINE3 and CAL3QHC, were developed and validated more than a decade ago for the purpose of predicting episodic concentrations of carbon monoxide to determine compliance with the NAAQS. The performance of dispersion models is more accurate for predicting maximum concentrations that can occur at some time at some location within a geographic area. This limitation makes it difficult to predict accurate exposure patterns at specific times at specific highway project locations across an urban area to assess potential health risk. The NCHRP is conducting research on best practices in applying models and other technical methods in the analysis of MSATs. This work also will focus on identifying appropriate methods of documenting and communicating MSAT impacts in the NEPA process and to the general public. Along with these general limitations of dispersion models, FHWA is also faced with a lack of monitoring data in most areas for use in establishing project-specific MSAT background concentrations.
3. Exposure Levels and Health Effects. Finally, even if emission levels and concentrations of MSATs could be accurately predicted, shortcomings in current techniques for exposure assessment and risk analysis preclude us from reaching meaningful conclusions about project-specific health impacts. Exposure assessments are difficult because it is difficult to accurately calculate annual concentrations of MSATs near roadways, and to determine the portion of a year that people are actually exposed to those concentrations at a specific location. These difficulties are magnified for 70-year cancer assessments, particularly because unsupported assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over a 70-year period. There are also considerable uncertainties associated with the existing estimates of toxicity of the various MSATs, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population. Because of these shortcomings, any calculated difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with calculating the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against other project impacts that are better suited for quantitative analysis.

Summary of Existing Credible Scientific Evidence Relevant to Evaluating the Impacts of MSATs. Research into the health impacts of MSATs is ongoing. For different emission types, there are a variety of studies that show that some either are statistically associated with adverse

health outcomes through epidemiological studies (frequently based on emissions levels found in occupational settings) or that animals demonstrate adverse health outcomes when exposed to large doses.

Exposure to toxics has been a focus of a number of EPA efforts. Most notably, the agency conducted the National Air Toxics Assessment (NATA) in 1996 to evaluate modeled estimates of human exposure applicable to the county level. While not intended for use as a measure of or benchmark for local exposure, the modeled estimates in the NATA database best illustrate the levels of various toxics when aggregated to a national or State level.

The EPA is in the process of assessing the risks of various kinds of exposures to these pollutants. The EPA Integrated Risk Information System (IRIS) is a database of human health effects that may result from exposure to various substances found in the environment. The IRIS database is located at <http://www.epa.gov/iris>. The following toxicity information for the six prioritized MSATs was taken from the IRIS database *Weight of Evidence Characterization* summaries. This information is taken verbatim from EPA's IRIS database and represents the Agency's most current evaluations of the potential hazards and toxicology of these chemicals or mixtures.

- **Benzene** is characterized as a known human carcinogen.
- The potential carcinogenicity of **acrolein** cannot be determined because the existing data are inadequate for an assessment of human carcinogenic potential for either the oral or inhalation route of exposure.
- **Formaldehyde** is a probable human carcinogen, based on limited evidence in humans, and sufficient evidence in animals.
- **1,3-butadiene** is characterized as carcinogenic to humans by inhalation.
- **Acetaldehyde** is a probable human carcinogen based on increased incidence of nasal tumors in male and female rats and laryngeal tumors in male and female hamsters after inhalation exposure.
- **Diesel exhaust** (DE) is likely to be carcinogenic to humans by inhalation from environmental exposures. Diesel exhaust as reviewed in this document is the combination of diesel particulate matter and diesel exhaust organic gases.
- **Diesel exhaust** also represents chronic respiratory effects, possibly the primary noncancer hazard from MSATs. Prolonged exposures may impair pulmonary function and could produce symptoms, such as cough, phlegm, and chronic bronchitis. Exposure relationships have not been developed from these studies.

There have been other studies that address MSAT health impacts in proximity to roadways. The Health Effects Institute, a non-profit organization funded by EPA, FHWA, and industry, has undertaken a major series of studies to research near-roadway MSAT hot spots, the health implications of the entire mix of mobile source pollutants, and other topics. The final summary of the series is not expected for several years.

Some recent studies have reported that proximity to roadways is related to adverse health outcomes -- particularly respiratory problems¹. Much of this research is not

¹ South Coast Air Quality Management District, Multiple Air Toxic Exposure Study-II (2000); Highway Health Hazards, The Sierra Club (2004) summarizing 24 Studies on the relationship between health and air quality); NEPA's Uncertainty in the Federal Legal Scheme Controlling Air Pollution from Motor Vehicles, Environmental Law Institute, 35 ELR 10273 (2005) with health studies cited therein.

specific to MSATs, instead surveying the full spectrum of both criteria and other pollutants. The FHWA cannot evaluate the validity of these studies, but more importantly, they do not provide information that would be useful to alleviate the uncertainties listed above and enable us to perform a more comprehensive evaluation of the health impacts specific to this project.

Relevance of Unavailable or Incomplete Information to Evaluating Reasonably Foreseeable Significant Adverse Impacts on the Environment, and Evaluation of impacts based upon theoretical approaches or research methods generally accepted in the scientific community. Because of the uncertainties outlined above, a quantitative assessment of the effects of air toxic emissions impacts on human health cannot be made at the project level. While available tools do allow us to reasonably predict relative emissions changes between alternatives for larger projects, the amount of MSAT emissions from each of the project alternatives and MSAT concentrations or exposures created by each of the project alternatives cannot be predicted with enough accuracy to be useful in estimating health impacts. (As noted above, the current emissions model is not capable of serving as a meaningful emissions analysis tool for smaller projects.) Therefore, the relevance of the unavailable or incomplete information is that it is not possible to make a determination of whether any of the alternatives would have "significant adverse impacts on the human environment."

In this document, FHWA has provided a quantitative analysis of MSAT emissions relative to the various alternatives, (or a qualitative assessment, as applicable) and has acknowledged that (some, all, or identify by alternative) the project alternatives may result in increased exposure to MSAT emissions in certain locations, although the concentrations and duration of exposures are uncertain, and because of this uncertainty, the health effects from these emissions cannot be estimated.

[The Office of Environment, Planning and Realty can provide additional supporting documents for review and inclusion in the administrative record.]

Exhibit 680-6B

**CURRENT STUDIES
ON
THE HEALTH IMPACT OF MSATS**

FHWA Scientific Research on Air Toxics

Human epidemiology and animal toxicology experiments indicate that many chemicals or mixtures termed air toxics have the potential to impact human health. As toxicology, epidemiology and air contaminant measurement techniques have improved over the decades, scientists and regulators have increased their focus on the levels of each chemical or material in the air in an effort to link potential exposures with potential health effects. The USEPA's list of 21 mobile source toxics represents their prioritization of these chemicals or materials for further study and evaluation. The EPA's strategy for evaluating air toxic compounds effect is focused on both national trends and local impacts. The FHWA has embarked on an air toxics research program with the intent of understanding the mobile source contribution and its impact on local and national air quality. Several of the studies most relevant to the highway community either initiated or supported by FHWA are described below.

Air toxics emissions from mobile source have the potential to impact human health and often represent a regulatory agency concern. The FHWA has responded to this concern by developing an integrated research program to answer the most important transportation community questions related to air toxics, human health, and the NEPA process. To this end, FHWA has performed or is currently managing several research projects. Many of these projects are based on an Air Toxics Research Workplan that provides a roadmap for agency research efforts. These efforts include:

- **Air Toxics Supersite Study (Traffic and Ambient Concentration Study).** This study is designed to determine whether the contribution of vehicle-emitted air toxic compound concentrations to ambient air concentrations can be measured. The study is being conducted in conjunction with a particulate matter study to determine whether air toxic compounds (and PM) are local air quality impacts or regional concerns.
- **Air Toxics Monitoring and Modeling Study.** This study is designed to determine the reliability of emission models in predicting ambient measured air toxic concentrations. This is an important component of air toxics research since models are typically used for developing emission inventories and the resulting mitigation programs designed to limit emissions. Accurate forecasting of future emissions is essential to programs implemented to reduce toxic emissions.
- **Kansas City Study.** This study is designed to determine the distribution of PM emissions in a randomly selected fleet as well as identify the percent of high emitters in the fleet. The Kansas City Study was initiated by EPA to conduct exhaust emissions testing on 480 light-duty, gasoline vehicles in the Kansas City Metropolitan Area

(KCMA). This project will also characterize gaseous and PM toxics exhaust emissions from a portion of these light-duty vehicles. Data obtained from this program will be used to evaluate and update emission models, evaluate existing emission inventories, and assess the representativeness of previous emissions studies.

- **Multiple Air Toxics Exposure Study Science and Uncertainty Review (MATES-II).** This study is designed to evaluate the scientific techniques of this influential Southern California study to determine whether these techniques would be appropriate for use today, and the scientific uncertainties associated with the 1998 study. There are two phases to the study. The first examines the transportation side (activity, emissions and concentrations), while the second looks at the toxicity and exposure assessments conducted as part of MATES-II. The FHWA wants to better understand how the results were obtained and how relevant they are to transportation planning.
- **Knowledge Gaps and Research Needs in Linking Mobile Source Air Toxics To Potential Public Health Risks.** This study, to be conducted by the independent Health Effects Institute (HEI), is designed to better understand the fundamental science and relationships between transportation vehicle emissions, potential and actual human health impacts, determine the technical strength of published studies, and identify data quality gaps and data gaps. The final study report will summarize concentration and dose-response relationships, toxic effects, and their relation to actual human health impacts that could result from real-world exposures to the extent possible. Researchers will be asked to evaluate the quality of study findings for use in risk assessments and the quality of such data on risk assessment numerical findings. Research cooperators can then synthesize their technical findings to identify knowledge gaps and research needed to determine the strength of linkages between mobile source air toxics, potential public health risks as expressed in epidemiology or risk assessment studies, and frank health effects with clearly definable cause and effect relationships. Research cooperators will be asked to chemical and physical composition of MSAT, identify variability in MSAT, and identify the strength of relationships between MSAT related pollutants and their potential health effects.

Exhibit 680-7

LIST OF CONTACTS

ITD, FHWA, IDEQ and COMPASS Air Quality Statewide Contacts:

Transportation Engineer
Idaho Division Office
Federal Highway Admin.
3050 No.Lakeharbor Lane
Boise, ID 83703
208.334.9180
208.334.1691-Facsimile

Air Quality Conformity Specialist
ITD Headquarters
3311 W. State Street (P.O.7129)
Boise, ID 83703
208.334.8477
208.332.4192-Facsimile

Principal Planner, Modeling
COMPASS
800 S. Industrial Way, Suite 100
Meridian, ID 83642
208.855.2558
208.855.2559-Facsimile

Transportation Conformity and Air Quality Specialist
IDEQ-State Office
1445 North Orchard
Boise, ID 83706-2239
208.373.0465-Voice

IDEQ Regional Office Contacts:

Transportation Conformity and Air Quality Specialist
IDEQ-Lewiston Regional Office
1118 F Street
Lewiston, ID 83501
208.799.4370-Voice
208.799.3451-Facsimile

Sample Consultant Scope of Work for Air Quality Studies

(An air quality study is required only in the event the project does not satisfy the 2007 Project Level Air Quality Screening process)

The air quality impact analysis will follow the Idaho Environmental Process Manual (EPM) guidelines, except when directed otherwise by this contract. This analysis will be performed only for the **“project’s estimated completion date”**.

All build alternatives will be evaluated if they do not satisfy the screening process but only if the alternatives do not meet the screening criteria

If analysis is needed, the existing air quality and pollution sources will be described. Air quality impacts from construction activities and vehicles operating on the roadway will be evaluated qualitatively. Temporary air quality impacts during construction will be examined and mitigation measures to control fugitive dust will be discussed in relation to evaluation and implementation of best management practices.

The long-term impacts from changes in vehicular traffic operating on the roadway will be discussed. Monitoring and modeling of air pollutants other than carbon monoxide (CO) is not proposed.

Studies and Coordination

The air quality analysis will meet the requirements of and follow EPA guidelines. The microscale analysis will be performed to determine carbon monoxide (CO) concentrations using the USEPA CAL3QHC or other EPA approved computer models. Vehicular emissions will be computed by using the EPA’s latest emission factor algorithm. The intersections selected for modeling and the corresponding receptor siting will be based on traffic volume as supplied by ITD Traffic Section.

As a general rule, receptors should be located where the maximum total project concentration is likely to occur and where the general public is likely to have access. Examples of reasonable receptor sites include:

1. Sidewalks;
2. Vacant lots adjacent to intersections;
3. Parking lots; and
4. Sensitive buildings and properties, such as residences, hospitals, nursing homes, schools, and playgrounds.

The longitudinal location of the receptors should be as follows:

1. At the intersection corner,
2. 25 meters from the intersection corner,

3. 50 meters from the intersection corner, and
4. At mid-block.

Laterally, the receptors should be located as found on the ground but no closer than the edge of the mixing zone (3.01 meters outside the traveled way).

The CONSULTANT will include traffic data (as collected/approved by the ITD Traffic Section) to determine LOS, congested areas or intersections at peak hour traffic volumes. The analysis will include:

- Description of intersections selected,
- Description of figure showing receptor locations,
- Identification of models used,
- 1-hour and 8-hour maximum pollutant concentrations at each intersection for each modeling scenario.

Documentation of the analysis will be as provided in the Documentation section of PROJECT LEVEL AIR QUALITY SCREENING, ANALYSIS, AND DOCUMENTATION FOR ROADWAY PROJECTS IN IDAHO EFFECTIVE: SEPTEMBER 4, 2001 OR AS REVISED.

Exhibit 680-9

CARBON MONOXIDE (CO) ANALYSIS GUIDANCE

Projects failing to satisfy screening criteria will warrant a project level analyses utilizing the current approved EPA emissions and dispersion models (see note following).

In an effort to simplify the analysis process as well as to improve the accuracy and consistency of the results, this ATTACHMENT provides an outline of procedures, assumptions and input values to be used in Idaho for project level air quality analyses.

CO Emissions Analysis:

Emission Factors Modeling

The emissions model is used to establish emission factors representative of the roadway, traffic and environmental conditions anticipated for the project under consideration. An outline of the input values and file structures recommended for Idaho is provided in Exhibit 680-4. The outputs from the emissions model to be used in the dispersion modeling process are the Composite CO Emission Factor (gm/mi) and the Idle Emission Factor (gm/hr).

Dispersion Modeling

The Dispersion model is used to project the concentration of pollutants at specified locations potentially impacted by existing and proposed transportation facilities. Owing to the high concentration of vehicles at intersections and the associated higher emissions factors at low speeds, it has been found that intersections are the critical locations for emissions concentrations and impacts. Furthermore, since CO concentrations typically increase with the traffic volume and congestion, the focus of the analysis should be based on what is judged to be the most congested intersection in or directly affected by the project.

The sequence for assessing project level CO is as follows:

1. Identify the most congested intersection within or directly affected by the project. Determine whether CO concentrations for this intersection are forecast to stay within the 8-hour standard. If this test is satisfied no further analysis is necessary.
2. If CO concentrations in the initial analysis are forecast to exceed the 8-hour standard additional sites of high traffic congestion (and exceeding the previously discussed screening criteria) should also be assessed to establish the extent of the project's air quality impacts to the immediate area.
3. For those locations in which the analysis forecasts CO concentrations in excess of the NAAQS, an analysis of the No-Build alternative should be conducted for the same analysis year.

The specific sites analyzed for emissions are referred to as receptors. As a general rule, receptors should be located where the maximum total project concentration is likely to occur and where the general public is likely to have access. Examples of reasonable receptor sites include:

1. Sidewalks;
2. Vacant lots adjacent to intersections;
3. Parking lots; and
4. Sensitive buildings and properties, such as residences, hospitals, nursing homes, schools, and playgrounds.

In addition to locating a receptor adjacent to the actual intersection, receptors should also be located at intervals of 25 meters to mid-block (or the end of the predicted intersection queue as appropriate). Furthermore, owing to limitations of the modeling process, the receptors should be located no closer than the edge of the mixing zone (3.01 meters outside the traveled way).

Exhibit 680-5 provides recommended Idaho-specific input values for the dispersion model.