OREGON DEPARTMENT OF TRANSPORTATION
AIR QUALITY MANUAL

Prepared by:

The Oregon Department of Transportation

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This Technical Manual is dedicated to the memory of Melissa Fox, P.E. (1968-2005). Melissa Fox wrote the first ODOT Air Quality Technical Manual and is remembered by her ODOT colleagues for her competence and dedication.

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1.0 INTRODUCTION

Air quality can be affected by Oregon Department of Transportation (ODOT) activities. These activities are normally related primarily to construction or modification of roads and highways, but they can also include a wide variety of construction or demolition activities. This technical manual summarizes the relevant regulations and procedures used to analyze air quality impacts for transportation projects implemented with participation by ODOT. The manual is focused on project-level analysis for highway projects.

1.1 BACKGROUND

The advent of the automobile gave rise to many current air pollution problems. The combustion process produces chemical waste which can become concentrated in the air to the point of being a detriment to human health, welfare, and natural resources. The chemical waste created by the automobile, if in high enough concentrations, is recognized as a threat to human health and natural resources.

The Federal Government recognized the threat of air pollution, and passed the Air Pollution Control Act (APCA) of 1955. The APCA was the first legislation to recognize that degraded air quality was a problem in many areas of the United States. This legislation required research to be done as to the nature of the air pollution problems. There were no mandatory controls as a part of APCA.

In 1963, Congress passed the Clean Air Act (CAA). This act gave grants to states and local agencies to improve their air pollution program and authorized the Department of Health Education and Welfare to establish non-mandatory air quality standards. The CAA has been amended three times.

By 1965, the Federal Government began to recognize that automobile exhaust was responsible for much of the nation's air pollution problems and passed the Motor Vehicles Control Act. The Motor Vehicles Control Act forced automobile manufactures to install air pollution control measures on new vehicles.

In 1967, the Air Quality Control Act was passed. The Air Quality Control Act directed the Department of Health Education and Welfare to establish air quality criteria.

In 1969 the National Environmental Policy Act (NEPA) was passed. NEPA is a broad-based environmental legislation requiring that an Environmental Impact Statement (EIS) or Environmental Assessment (EA) be prepared in order to examine the social, economic, and environmental effects of major Federal actions that significantly affect the quality of the human environment.

In 1970, the CAA was amended. This amendment transferred the air pollution control functions to the Environmental Protection Agency (EPA) and designated 247 Air Quality Control Regions. States were now required to submit a State Implementations Plan (SIP) to demonstrate how any area which exceeded any air pollutant standards intended to attain and maintain the National Ambient Air Quality Standards (NAAQS) established by the amendment. More stringent emission standards for new vehicles were also established.

The CAA was amended again in 1977. This amendment empowered EPA to impose highway sanctions if areas did not make reasonable effort to submit SIPs. It also established the requirement that there must be conformity between transportation plans, programs and projects, and the SIP. This amendment also directed agencies to give priority to programming and implementing Transportation Control Measures (TCM). The idea of nonattainment area designations was first introduced under this amendment.

The CAA was also amended in 1990. This amendment established air quality analysis requirements for transportation plans, as well as programs and projects to demonstrate conformity with the purpose of the SIP, in order to attain air quality standards. It also required Transportation Improvement Programs (TIPs) to be fiscally constrained.

In 1991, the Intermodal Surface Transportation Efficiency Act (ISTEA) was passed. ISTEA presumes that the infrastructure is in place, and that now the nation's transportation objective is to utilize the existing infrastructure. ISTEA presented an overall intermodal approach to highway and transit funding with collaborative planning requirements, giving significant additional powers to Metropolitan Planning Organizations (MPOs). ISTEA expired in 1997. It was preceded by the Surface Transportation and Uniform Relocation Assistance Act of 1987 and followed by the Transportation Equity Act for the 21st Century.

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) was passed in 2005. SAFETEA-LU governs surface transportation spending during federal fiscal years 2005 through 2009. Additional information on SAFETEA-LU is provided in Section 2.3 of this document.

1.2 PURPOSE

The purpose of this report is to discuss the Federal and State Regulations - particularly NEPA, the CAA, SAFETEA-LU, and the Conformity Rule - as they apply to transportation air quality, as well as to establish air quality analysis procedures and documentation for the Oregon Department of Transportation (ODOT). In addition, the Indirect Source Construction Permitting regulations are discussed.

2.0 REGULATIONS

There have been a number of federal and state regulations that apply to the air quality analysis of transportation projects and programs. These include NEPA, the CAA, SAFETEA-LU, and the Conformity Rule. Each set of regulations are discussed below.

2.1 NATIONAL ENVIRONMENTAL POLICY ACT of 1969 (NEPA)

NEPA requires federal agencies to consider environmental impacts before taking actions that could significantly affect the human environment. As interpreted by the Council on Environmental Quality, NEPA requires that "reasonably foreseeable" direct, indirect, and cumulative effects of a proposed action be considered in the decision-making process. The term *effect includes* "aesthetic, historic, cultural, economic, social, or health" effects.

NEPA drives some air quality analysis requirements for environmental documents that are not specifically required by regulation, such as including burden analyses for regionally significant projects in nonattainment and maintenance areas and an analysis of Mobile Source Air Toxics (MSATs). The evaluation of greenhouse gas emissions is also being driven by NEPA. MSATs and greenhouse gas emissions are discussed in the following sections. Additional discussion of project burden analysis is discussed in Section 5 of this document.

2.1.1 Toxic Air Pollutants

Toxic air pollutants (also known as hazardous air pollutants) are those that are known to cause or suspected of causing cancer or other serious health effects. The Clean Air Act Amendments of 1990 listed 188 hazardous air pollutants and addressed the need to control toxic emissions from transportation. In 2002, the EPA developed a list of 21 MSATs. Based on the EPA rulemaking, the Federal Highway Administration (FHWA) then refined the list further, compiling a subset of six MSATs that were identified as having the greatest influence on health.

This subset includes:

- benzene,
- 1,3-butadiene,
- formaldehyde,
- acrolein,
- acetaldehyde,
- and diesel exhaust.

Unlike the criteria pollutants, toxics <u>do not</u> have NAAQS associated with them. Since MSATs do not have NAAQS standards, MSATs can only be discussed and evaluated in comparative terms. For example, a comparison of MSAT emissions between different project design alternatives can be conducted. The results are usually expressed in terms of pounds per day or tons per year for each alternative and each MSAT. MSAT impacts from alternatives can also be evaluated qualitatively. FHWA has developed Interim Guidance on Air Toxic Analysis in NEPA Documents. The FHWA guidance is discussed further in the Air Quality Analysis section of this document (Section 5.0).

2.1.1.1 MSATS Pollutant Descriptions

The EPA is in the process of assessing the risks of various kinds of exposures to MSATs. 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.

1. Benzene is characterized as a known human carcinogen.
2. 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.
3. Formaldehyde is a probable human carcinogen, based on limited evidence in humans, and sufficient evidence in animals.
4. 1,3-butadiene is characterized as carcinogenic to humans by inhalation.
5. 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.
6. 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.

2.1.2 Greenhouse Gas Emissions

ODOT to insert information on policies and procedures as developed.

2.2 CLEAN AIR ACT (CAA) AND AMENDMENTS

The CAA, as amended, forms the basis for a broad range of regulations that control allowable emissions and concentrations of air pollutants in the environment. The CAA and its amendments, have established:

- More stringent emission standards for new vehicles
- Air quality standards
- Air quality nonattainment areas
- State Implementation Plans (SIP)
- Air quality analysis requirements for transportation plans, programs and projects

The CAA also required that once the NAAQS have been met in nonattainment areas, they must be maintained and not allowed to deteriorate over time. Both the CAA and NEPA require that air quality be considered in the preparation of environmental documents for any proposed project. Conformity under the CAA requires specific analyses on a regional and local basis. NEPA requires project effects to be disclosed using the best information and methods available.

2.2.1 Control of Emissions from New and In-Use Highway Vehicles and Engines (40 CFR 86)

Because of the recognized severity of the contribution of mobile sources to air quality problems, the CAA specifically required a reduction in mobile source pollution. A major portion of the mobile source reduction was to come from controls applied directly to vehicles and engines at the point of manufacture. Examples of these are:

- Exhaust emission controls such as the catalytic converter, fuel-injected engines, three-way catalyst, and reintroducing portions of exhaust gas into the combustion zone
- Evaporative emission controls, such as recycling vaporized fuel
- Cold start emission controls, such as electrically heated check mechanisms and electrically fuel-injected engines
- Crankcase emission controls, such as providing for returning the blow-by gases to the air intake system of the engine

Starting in the early 1970s, EPA promulgated numerous regulations to control air pollutant emissions from motor vehicles. The most recent regulations were promulgated from 2000 through 2007 and included controls on heavy duty diesel vehicles, sulfur in fuels, and air toxic emissions from mobile sources. Although these standards will not apply directly to projects, they do apply to all vehicles on the highway system. They are the regulatory controls responsible for substantial reductions in vehicle emissions since the 1970s, as well as additional vehicle emissions reductions projected over the next 25 to 30 years. Additional information on mobile source emission control programs can be found at the following link:

http://www.epa.gov/otaq/invntory/overview/solutions/milestones.htm

2.2.2 Air Quality Standards

In an effort to develop air quality criteria to protect against potential adverse effects, the amended CAA of 1970 established the NAAQS. These standards are divided into two subsets of standards: primary and secondary (40 CFR 50). Primary standards are designed to protect human health. Secondary standards are established to protect human welfare from such effects as visibility reduction, soiling, material damage, and nuisance. The Oregon Department of Environmental Quality (DEQ) has also established State Ambient Air Quality Standards (SAAQS) that are at least as stringent as the EPA standards (OAR 340-202-0050 through -0130). EPA and DEQ have established air quality standards for sulfur dioxide (SO_2), suspended particulate matter (PM_{10}, $PM_{2.5}$), carbon monoxide (CO), ozone, nitrogen dioxide, and lead. SO_2 is the only pollutant with a secondary standard that varies from the primary standard. The NAAQS and SAAQS standards are used in evaluating the effects of transportation projects and the NAAQS and SAAQS primary standards are summarized in Table A-1 of Appendix A. Exceedance of the NAAQS are judged to be harmful to human health and welfare.

Areas where any of the air quality standards are exceeded are designated as nonattainment areas for the specific pollutant. For such areas, control strategies must be developed, which will result in the reduction of the identified pollutant so that attainment will be achieved and maintained. These control strategies are documented in the SIP. Areas that were once in nonattainment but have since been returned to attainment status are referred to as maintenance areas. An area is considered to be a maintenance area for 20 years after an area has been re-designated by EPA from a nonattainment area to an attainment (maintenance) area. The current nonattainment and maintenance areas in Oregon are discussed in Section 4.0 of this manual.

The following sections describe the health effects of the NAAQS pollutants of concern for transportation projects in Oregon. This information is summarized from information in DEQ's Annual Report (http://www.deq.state.or.us/aq/forms/2007ar.pdf). This section can be used directly in technical reports. The transportation pollutants of concern are CO, ozone, and fine particulate matter.

2.2.2.1 Carbon Monoxide (CO)

Carbon monoxide (CO) is a colorless, odorless gas. In the body, CO binds tightly to hemoglobin (the red pigment in blood that transports oxygen from the lungs to the rest of the body). Once hemoglobin is bound to CO, it can no longer carry oxygen. Carbon monoxide reduces the oxygen-carrying capacity of the blood and can result in adverse health effects. High concentrations of CO strongly impair the functions of oxygen-dependent tissues, including brain, heart, and muscle. Prolonged exposure to low levels of CO aggravates existing conditions in people with heart disease or circulatory disorders. There is a correlation between CO exposure and increased hospitalization and death among such patients. Even in otherwise healthy adults, CO exposure has been linked to increased heart disease, decreased athletic performance, and diminished mental capacity. High CO levels also affect newborn and unborn children. High CO levels have been associated with low birth weights and increased infant mortality.

2.2.2.2 Ozone

Ozone (a component of smog) is a pungent, toxic, highly reactive form of oxygen. A new eight-hour standard protects the public against lower level exposures over a longer time period, which has been found to be more detrimental than shorter peak levels. The long-term exposure effects cause breathing problems, such as loss of lung capacity and increased severity of both childhood and adult asthma. Ozone causes irritation of the nose, throat, and lungs. Exposure to ozone can cause increased airway resistance and decreased efficiency of the respiratory system.

In individuals involved in strenuous physical activity and in people with pre-existing respiratory disease, ozone can cause sore throats, chest pains, coughing, and headaches.

2.2.2.3 Fine Particulate Matter (PM_{10} and $PM_{2.5}$)

Fine particulate matter (PM_{10} and $PM_{2.5}$) consists of solid particles or liquid droplets that are less than 10 microns in diameter or less than 2.5 microns in diameter. Particles in these size ranges are of great concern because they can be inhaled deeply into the lungs where they can remain for years. The health effects of particulate matter vary with the size, concentration, and chemical composition of the particles. Relationships have been shown between exposure to high concentrations of PM and increased hospital admissions for respiratory infections, heart disease, bronchitis, asthma, emphysema, and similar diseases.

2.2.3 State Implementation Plans (SIP)

The SIP is defined as a document specifying measures to be used in attainment and maintenance of the NAAQS. SIPs were mandated in the 1970 CAAA for areas which did not meet the NAAQS. The 1977 CAAA required that transportation plans and programs be consistent with the SIP. The 1990 CAAA established air quality analysis requirements for transportation plans, programs, and projects to demonstrate that they were "in conformance" with the purpose of the SIP.

The SIP's major transportation components are:

- Mobile Source Emission Budget
- Control Measures (CMs) and TCMs
- Conformity

2.2.3.1 Mobile Source Emission Budget

A SIP emission budget limits emissions as needed to meet and maintain attainment status in nonattainment and maintenance areas. There are separate emission budgets for different categories of sources, including stationary, area, and both on-road and off-road mobile sources. The on-road mobile source emission budget is meant to be a ceiling for emissions from motor vehicles on the road system. The 1990 CAAA required that emissions budgets be based on the most current land use planning assumptions, transportation and air quality models. Additional details on the use of the mobile source emission budget in SIP compliance determinations is included in Section 3.0 of this document.

2.2.3.2 Control Measures (CMs) and Transportation Control Measures (TCMs)

Control Measures are programs and projects which result in emission reductions. These can be identified in the SIPs. Examples of CMs are: woodstove burning restrictions, limits on road sanding in PM_{10} nonattainment areas, and inspection and maintenance programs in CO or ozone areas.

There are CMs that are specific to transportation, referred to as TCMs. TCMs reduce the use or reliance of the public on highway facilities. Any program which reduces vehicle miles traveled (VMT) could be considered a TCM. Examples of programs that reduce VMT are rideshare, mass transit, bicycle, and pedestrian facilities.

2.2.3.3 State and Federal Conformity Rule

The object of the Transportation Conformity Rule is to ensure that transportation plans and projects and their associated emissions are consistent with air quality nonattainment and maintenance plan SIPs. The federal regulations are implemented by state regulation in Oregon and because the Oregon regulations are part of the SIP, the state rules govern except when the state rule does not address an issue specifically addressed by the federal regulations. The future implementation of $PM_{2.5}$ requirements would be governed by the federal conformity regulations if Oregon does not pass regulations prior to designation of areas of the state as nonattainment. EPA will designate new $PM_{2.5}$ nonattainment areas based on the revised 24-hour standard in 2009. Section 3.5 of this document provides additional discussion of the requirements of the conformity rules.

2.2.3.3.1 Federal Transportation Conformity Regulations (40 CFR 93)

These regulations establishes criteria and procedures for determining conformity with SIPs of transportation plans, programs, and projects that are developed, funded, or approved by the United States Department of Transportation (DOT) under Title 23 U.S.C. or the Federal Transit Laws. The regulations can be found at the following link:

http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&rgn=div6&view=text&node=40:20.0.1.1.7.1&idno=40

The federal transportation conformity regulations were recently updated to incorporate the provisions of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users. Additional revisions allowed for the FHWA, in consultation with EPA to make categorical hot spot findings for projects in CO nonattainment and maintenance areas. This could streamline hot spot analyses for certain projects.

2.2.3.3.2 Transportation Conformity (OAR Chapter 340, Division 252)

This regulation establishes criteria and procedures for determining conformity with SIPs of transportation plans, programs, and projects in Oregon that are developed, funded, or approved by the DOT and by metropolitan planning organizations (MPOs) or other recipients of funds under Title 23 U.S.C. or the Federal Transit Laws. The regulation can be found at the following links:

http://arcweb.sos.state.or.us/rules/OARs_300/OAR_340/340_252.html
http://www.deq.state.or.us/aq/rules/div252/table.htm

2.3 SAFE, ACCOUNTABLE, FLEXIBLE, EFFICIENT TRANSPORTATION EQUITY ACT: A LEGACY FOR USERS (SAFETEA-LU)

This act was signed into law on August 10, 2005, and governs surface transportation spending during federal fiscal years 2005-2009. In addition, provisions of SAFETEA-LU amended portions of the federal Clean Air Act Section 176(c) regarding transportation conformity. Because the federal conformity regulations are implemented through DEQ regulations, the conformity provisions will not apply until the state regulations are revised to incorporate them. Some of the new provisions are not addressed by the state regulations and the interagency consultation process will be used for decision making and clarification of the regulations until they are updated.

Some of the specific revisions that SAFETEA-LU created in the federal transportation conformity provisions include:

- Changed the required frequency of conformity determinations for transportation plans and transportation improvement programs (RTP and TIP) from at least every three years to at least every four years.
- Gave areas two years (increased from 18 months) to make a conformity determination in response to a new motor vehicle emissions budget in a SIP.
- Provided a one-year grace period before the consequences of a conformity lapse apply when an area misses certain conformity deadlines. During the lapse grace period, an area can make conformity determinations for certain projects.
- Gave areas the flexibility to shorten the timeframe covered by a conformity determination, if the local transportation planning agency elects to do so.
- Streamlined the requirements for state conformity procedures (conformity SIPs).
- Allowed areas to substitute or add TCMs without a SIP revision.

2.4 INDIRECT SOURCE CONSTRUCTION PERMIT (ISCP)

An ISCP is required prior to starting construction of an indirect source within the boundaries of a CO nonattainment or maintenance area within a city containing a population of 50,000 or more. Therefore, the requirements currently apply in Portland, Salem, Medford, and Eugene. Eugene is subject to the Lane Regional Air Protection Agency (LRAPA) ISCP requirements.

Construction of new facilities or the modification of existing facilities can require an ISCP which is issued by DEQ, or the LRAPA. An indirect source is defined as a facility, building, structure, or installation, or any combination of these, which indirectly causes vehicular activities that results in emissions of air pollutants. Examples of indirect sources are:

- Highway and Roads
- Parking Facilities
- Retail, Commercial, and Industrial Facilities
- Recreation, Amusement, Sports, and Entertainment Facilities
- Airports
- Office and Government Buildings
- Apartments and Mobile Home Parks
- Educational Facilities
- Hospital Facilities
- Religious Facilities

2.4.1 DEQ Rules for Indirect Sources (OAR 340 Division 254)

The DEQ regulations (OAR 340-254, Rules for Indirect Sources) basically apply to parking facilities in the Portland, Salem, or Medford CO maintenance areas. If a project involves a parking facility of 1,000 spaces or more in Salem, Medford, or areas of Portland outside the central city, an ISCP is required. Within the Portland central city, an ISCP is required for facilities with 800 or more spaces. When determining whether an indirect source requires permitting, all increments of construction begun after January 1, 1975, must be included in the total (a permit is required for the cumulative effect, even if previous individual projects did not trigger the requirement). The DEQ Indirect Source Regulations can be found at the following link:

http://arcweb.sos.state.or.us/rules/OARs_300/OAR_340/340_254.html

2.4.2 Lane Regional Air Protection Agency Indirect Source Regulations (Title 20)

LRAPA has separate and more stringent requirements for ISCPs within Lane County. When determining whether an indirect source requires permitting, all increments of construction begun after January 1, 1975, must be included in the total. The following sources in or within five miles of the municipal boundaries of the City of Eugene or City of Springfield require an ISCP:

- Any parking facility or other indirect source with associated parking being constructed or modified to create new or additional parking (or associated parking) capacity of 250 or more parking spaces.
- Any highway section being proposed for construction with an anticipated annual average daily traffic (AADT) volume of 20,000 or more motor vehicles per day within ten years after completion, or being modified so that the AADT on that highway section will be increased to 20,000 or more motor vehicles per day or will be increased by 10,000 or more motor vehicles per day within ten years after completion.

The following sources within Lane County require an ISCP:

- Any parking facility or other indirect source with associated parking being constructed or modified to create new or additional parking (or associated parking) capacity of 500 or more parking spaces.
- Any highway section being proposed for construction with an anticipated AADT volume of 20,000 or more motor vehicles per day within ten years after completion, or being modified so that the AADT on that highway section will be 20,000 or more motor vehicles per day or will be increased by 10,000 or more motor vehicles per day within ten years after completion.

The LRAPA Indirect Source Regulations can be found at the following link:

http://www.lrapa.org/rules/title20-Indirect_Sources.php

3.0 Transportation Planning and Its Connection to Clean Air Act Conformity

3.1 3-C TRANSPORTATION PLANNING PROCESS

The urban transportation planning process stems from the requirement in the 1962 Federal Aid Highway Act that all programs for federal aid projects in areas with a population of 50,000 or more must be based on a continuing, comprehensive transportation planning process, carried on cooperatively by the states and local communities. This is referred to as the 3-C Planning Process. The 3-C Process has four common technical phases:

1. Data collection surveys to find out about existing travel and socioeconomic conditions
2. Analysis used to develop an understanding of factors influencing travel demand
3. Forecasting used to estimate future travel demands, and
4. Development of alternatives to meet the forecast demands

The result of the 3-C Planning Process is an official intermodal metropolitan transportation plan, most commonly called a Regional Transportation Plan (RTP) for the metropolitan planning area, including staging for implementation and identification of resources to implement it.

The 1977 Clean Air Act Amendment provided for coordination of air quality with region 3-C transportation planning and preparation of revised SIPs. Planning for reducing mobile source air pollution in a nonattainment area, including TCMs, must be coordinated with the 3-C transportation planning process for that area.

3.2 REGIONAL TRANSPORTATION PLAN (RTP)

A Regional (or Metropolitan) Transportation Plan (RTP) is an intermodal metropolitan transportation plan. It is a long term (typically 20 or 25 year) plan. The Transportation Planning Regulations were revised to incorporate the requirements of SAFETEA-LU. The February 2007 revisions to the federal regulations can be found at: http://edocket.access.gpo.gov/2007/pdf/07-493.pdf . MPOs must typically consider the following issues when preparing an RTP:

1. Support the economic vitality of the metropolitan area
2. Increase the safety of the system for users of all modes of transportation
3. Improve accessibility and mobility for people and freight
4. Enhance the integration and connectivity of the transportation system, between modes, for people and freight
5. Environmental considerations
6. Promote consistency between transportation projects, and State and local planned growth and economic development patterns
7. Promote efficient operation and management of the system
8. Emphasize the preservation of the existing transportation system

A conformity demonstration is required to show that the RTP complies with the SIP. This is discussed in Section 3.5 of this document.

3.3 TRANSPORTATION IMPROVEMENT PROGRAM (TIP)

The Transportation Improvement Program (TIP) is a staged, multiyear intermodal program of transportation projects covering a metropolitan planning area and is consistent with the RTP. The TIP is more project specific and covers a shorter time frame than the RTP. The TIP should include:

- Project type
- Project details
- Financial plan
- Project prioritization

The TIP covers a time period of four years and must have a financial plan to verify that it is fiscally constrained. This is a requirement under the 1990 CAAA. It must go through a public involvement process and be approved by the MPO and the Governor. Although the TIP does not have to be approved directly by the FHWA and the Federal Transit Authority (FTA), it does have to be adopted into the Statewide Transportation Improvement Program (STIP) without modification.

A conformity demonstration is required to show that the TIP complies with the SIP. This is discussed in Section 3.5 of this document.

3.4 STATEWIDE TRANSPORTATION IMPROVEMENT PROGRAM (STIP)

A STIP is the staged, multiyear, statewide, intermodal program of transportation projects. It is essentially a "roll-up" of all metropolitan area TIPs plus the projects in areas without sufficient population to require a TIP. The STIP must be approved by FHWA and FTA, covers a four year period (eg, 2008-2011) and must have a financial plan to verify that it is fiscally constrained. The STIP is updated every two years.

3.5 STATE AND FEDERAL CONFORMITY RULES

In 1970, the CAAA conformity requirements were introduced to require plans and programs to be in conformity with the SIP. In 1990, the CAAA definition of conformity was revised so that transportation projects, plans and programs must now conform to the *purpose* of a SIP for the attainment of air quality standards. This requires a complex analytical process to prove that long-range transportation plans, transportation improvement programs, and individual projects, in fact, contribute to the attainment of NAAQS and meet emission reduction targets. Criteria and procedures for transportation conformity are regulated under section 176(c) of the CAA. Implementing regulations are under 40 CFR 93 at the federal level and OAR 340-252 at the state level.

The purpose of transportation conformity is to integrate air quality planning and transportation planning in nonattainment and maintenance areas for one or more transportation related pollutants. It ensures that transportation projects and their associated emissions are consistent with air quality nonattainment and maintenance plans (SIPs). The conformity rule applies to:

- RTPs
- TIPs
- Transportation projects that receive funding or require approval from FHWA or FTA
- Regionally significant nonfederal projects that are sponsored by recipients of FHWA or FTA funds, regardless of whether federal funds were actually used for the project in question

Transportation goals may only be met (projects can only be constructed) to the extent that the plans, programs, and projects to be funded obtain a conformity determination. The CAA defines a conforming transportation plan, program or project as one that does not:

- Cause or contribute to a new violation of any air quality standards in any area
- Increase the severity or frequency of an existing violation of any standard in any area
- Delay timely attainment of any standard, required interim emission reductions, or milestones in any area

The down side of not considering air quality is a loss of federal funding and the potential for future violations of the NAAQS which would place further emission control requirements on the nonattainment area or cause a maintenance area to revert to nonattainment status.

The CAA requires that upon approval by EPA of a Control Strategy SIP containing an emission budget the conformity of an RTP and TIP are determined by comparing the emissions expected from full implementation of the RTP and TIP to the emission budgets established in the SIP. The key elements required in making a conformity determination for a RTP and TIP are:

- Identification and implementation of regional transportation needs
- Regional emissions analysis including all regionally significant projects, showing emissions within the SIP emissions budget
- Inclusion of and commitment to timely implementation of TCMs
- Demonstration that plan and program funding is reasonably available ("fiscally constrained")

Plans and Programs are found to be in conformity if:

- The build emissions are lower than the emissions budget
- There is timely implementation of TCMs

For projects in areas where a SIP emissions budget has not been established, other requirements apply. As an example, this can include areas in the interim period for $PM_{2.5}$, where a no-build to build comparison or a baseline test can be performed. Refer to the conformity rule and discuss with ODOT staff if this case applies.

3.5.1 Project Level Conformity Requirements

In nonattainment and maintenance areas, systems level plans, as well as highway or TCM projects, must be reviewed to ascertain that they conform to the SIP. The need for a particular highway project to be built is generally determined from the analysis completed as part of the overall urban transportation planning process as well as from the state project prioritization process for highways. Conformity is met on a project level if:

- The project does not interfere with the implementation of TCMs
- The 'hot-spot' analysis demonstrates that the project does not cause or contribute to an exceedance of the NAAQS
- The project comes from a conforming transportation plan and program

It is not necessary to perform a regional analysis for each individual project if the project comes from a conforming transportation plan and program. The project can simply reference the regional analysis work done for the plan and program.

Although non-Federal projects do not require conformity determinations, recipients of Federal aid may not approve or adopt regionally significant non-Federal projects in the absence of a conforming RTP and TIP. Only projects that are exempt by the conformity rule, projects which have completed all RTP, TIP and project-level conformity determinations and non-Federal projects which are not regionally significant or which do not involve recipients of Federal funds, may proceed.

3.5.2 Interagency Consultation

The Conformity Rule requires that there be interagency consultation by MPOs, ODOT, affected local jurisdictions, DEQ, EPA Region 10, and the FHWA and FTA before making conformity determinations. Some key items subject to interagency consultation are:

- Developing RTPs and TIPs
- Identifying "regionally significant" projects
- Developing data collecting and modeling practices
- Determining significant changes in design concept and scope
- Determining whether any exempt projects should be treated as non-exempt
- Determining whether TCMs are being implemented in a timely manner
- Forecasting of vehicle miles traveled
- Determining whether project-level mitigation measures are needed
- Assuring that regionally significant, local projects have been disclosed to the MPO
- Establishing a mobile source emissions budget

Different agencies are assigned responsibility by regulation for particular items and areas (see OAR 340-252-0010).

4.0 NONATTAINMENT and MAINTENANCE AREAS by ODOT REGION

A nonattainment area is a region where pollutant concentrations exceed the NAAQS. A maintenance area is a redesignated nonattainment region that has an approved SIP that demonstrates the NAAQS have been attained and shows how the attainment will continue for two 10-year periods. The current Oregon nonattainment and maintenance areas are shown in Table 4-1 organized by ODOT Region. A link is provided to a web page or document showing the nonattainment or maintenance area boundary. If a project is located within the nonattainment or maintenance

area boundary, it is subject to conformity analysis requirements. Conformity compliance does not always involve quantitative, or even qualitative, analysis but always requires documentation of compliance.

Table 4-1

Oregon Maintenance and Non-attainment Areas

Cities Organized by ODOT Region	Boundary/Website	Pollutant	Area Status Maintenance (M) or Non-attainment (N)
Region 1			
Portland	METRO http://www.deq.state.or.us/aq/planning/docs/pdxCOmap.pdf	CO	M
Region 2			
Salem-Keizer	SKATS http://www.deq.state.or.us/aq/planning/docs/skats.pdf	CO	N
Eugene-Springfield	CATS for regional conformity, AQMA for hot spots http://www.lcog.org/aqc/AQCD_main_nobigmaps.pdf Pages 6 and 7 (pages 18 and 19 of pdf document)	CO	M
Eugene - Springfield	UGB http://www.lcog.org/aqc/AQCD_main_nobigmaps.pdf Page 6 (page 18 of pdf document)	PM_{10}	N
Oakridge	UGB	PM_{10}	N
Region 3			
Medford	UGB http://www.deq.state.or.us/aq/planning/docs/medfordmp.pdf	CO	M
Medford-Ashland	AQMA http://www.deq.state.or.us/aq/planning/docs/medfordaqma.pdf	PM_{10}	M
Grants Pass	CBD http://www.deq.state.or.us/aq/planning/docs/grantspass.pdf	CO	M
Grants Pass	UGB http://www.deq.state.or.us/aq/planning/docs/grantspass.pdf	PM_{10}	M
Region 4			
Klamath Falls	UGB http://www.deq.state.or.us/aq/planning/docs/kfallsugb.pdf	CO	M
Klamath Falls	UGB http://www.deq.state.or.us/aq/planning/docs/kfallsugb.pdf	PM_{10}	M
Lakeview	UGB http://www.deq.state.or.us/aq/planning/lakeview/LakeviewMP02-14-05.pdf Page 17 of pdf document	PM_{10}	M
Region 5			
La Grande	UGB http://www.deq.state.or.us/aq/planning/lagrande/LaGrandeMP2-14-05.pdf Page 17 of pdf document	PM_{10}	M

Data from: http://www.deq.state.or.us/aq/planning/index.htm

Notes: METRO: Metropolitan Portland; AQMA: Air Quality Maintenance Area; SKATS: Salem-Keizer Area Transportation Study; CATS: Central Area Transportation Study; UGB: Urban Growth Boundary; CBD: Central Business District

4.1 REGION 1 NONATTAINMENT AND MAINTENANCE AREAS AND SIP INFORMATION

4.1.1 Portland

Portland is a CO maintenance area. Metro is responsible for regional transportation conformity in the Portland area. Key information for the Portland CO maintenance area is shown in Table 4-2.

Table 4-2

Key Information for Portland CO Maintenance Area

CO Maintenance Area Boundary with weblink	Metropolitan Portland http://www.deq.state.or.us/aq/planning/docs/pdxCOmap.pdf
Link to CO Maintenance Plan/ SIP	Portland Area Carbon Monoxide Maintenance Plan (Second Plan) December 10, 2004 http://www.deq.state.or.us/aq/planning/maintenance.htm
Link to Regional Conformity Analysis	http://www.metro-region.org/index.cfm/go/by.web/id=6502
CO Motor Vehicle Emission Budgets from Maintenance Plan	2005 – 1,238,575 pounds per winter day 2010 – 1,033,578 pounds per winter day 2017 – 1,181,341 pounds per winter day
Transportation Control Measures from Maintenance Plan	• Transit service increase • Bicycle paths • Pedestrian paths
Intersections with Highest Potential for CO Issues from Maintenance Plan	SE McLoughlin (OR 99E) at SE Bybee Cascade Hwy. (OR 213) at Washington St. SE McLoughlin (OR 99E) at SE 17th Ave. SE McLoughlin (OR 99E) at SE Holgate Mt. Hood Hwy. (US 26) at SE Palmquist Pacific Hwy (OR 99W) at SW Hall Blvd.

The Portland–Vancouver area became "in attainment" for ozone with the revocation of the federal 1-hour ozone standard in June 2005. The area is still subject to the no backsliding provisions of the revised standard but does not require a conformity analysis for ozone.

4.2 REGION 2 NONATTAINMENT AND MAINTENANCE AREAS AND SIP INFORMATION

4.2.1 Salem-Keizer

The Salem-Keizer area is a CO nonattainment area. A Limited CO maintenance plan has been filed for the Salem-Keizer area (June 2007) and is waiting approval from the EPA. Once the plan is approved, a regional emissions analysis for conformity will no longer be required for this area. However, CO hot spot analysis will still be required for projects that meet the criteria. The Mid-Willamette Valley Council of Governments (MWVCOG) is responsible for regional transportation conformity in the Salem-Keizer area. Key information for the Salem-Keizer CO area is shown in Table 4-3.

Table 4-3

Key Information for the Salem-Keizer CO Area

CO Maintenance Area Boundary with weblink	Salem-Keizer Area Transportation Study http://www.deq.state.or.us/aq/planning/docs/skats.pdf
Link to CO Maintenance Plan/ SIP	Proposed Salem-Keizer Area Carbon Monoxide Limited Maintenance Plan June 4, 2007 (not yet approved by EPA) http://www.deq.state.or.us/aq/planning/maintenance.htm
Link to Regional Conformity Analysis	http://www.mwvcog.org/transportation/skats/downloads/AQCD2007/AQCD_2031_RTSP_and_FY08-11TIP_May22_2007.pdf
CO Motor Vehicle Emission Budgets	1990 Baseline – 147.4 tons per day Note that this will no longer be pertinent on approval of the proposed maintenance plan.
Transportation Control Measures	None
SIP Intersections with Highest Potential for CO Issues	None Identified

The Salem–Keizer area became "in attainment" for ozone with the revocation of the federal 1-hour ozone standard in June 2005. This area is still subject to the no backsliding provisions of the revised standard but does not require a conformity analysis for ozone.

4.2.2 Eugene-Springfield

Eugene-Springfield is a maintenance area for CO and a nonattainment area for PM_{10}.

CO: The Eugene Central Area Transportation Study (CATS) area boundary was the historic CO nonattainment area. This area was redesignated as attainment for CO in 1994. To insure that transportation projects do not lead to any carbon monoxide violations in the Air Quality Maintenance Area (AQMA), the LRAPA and the EPA agreed that project level hot-spot analysis would be done in the Eugene-Springfield AQMA. However, no regional emissions test would need to be performed for purposes of conformity of the area's plan (RTP) and program (TIP) outside of the CATS area. The Lane County Council of Governments (LCOG) is responsible for regional transportation conformity in the Eugene-Springfield area.

PM_{10}: On road mobile sources were estimated to contribute only approximately 4 percent in the base year PM_{10} emission inventory for the Eugene-Springfield area. As a result, EPA and LRAPA reached an agreement that on-road mobile sources are not substantial contributors to the PM_{10} nonattainment status of the area and agreed that a regional emissions analysis is not required for purposes of conformity in the area. A PM_{10} hot spot analysis is still required for projects in the Eugene-Springfield PM_{10} nonattainment area. Key information for the Eugene-Springfield CO and PM_{10} areas is shown in Table 4-4.

Table 4-4

Key Information for the Eugene-Springfield CO and PM_{10} Areas

CO Maintenance Area Boundary with weblink	Central Area Transportation Study for regional conformity, Air Quality Maintenance Area for hot spots http://www.lcog.org/aqc/AQCD_main_nobigmaps.pdf Pages 6 and 7 (pages 18 and 19 of pdf document)
Link to CO Maintenance Plan/ SIP	Attainment Demonstration and Maintenance Plan for the Eugene-Springfield Air Quality Maintenance Area for Carbon Monoxide July 28, 1989 http://www.lcog.org/aqc/CO_SIP_EugSpr.pdf
Link to Regional Conformity Analysis	http://www.lcog.org/aqc
CO Motor Vehicle Emission Budgets	1990 Baseline – 6,021 tons per year
CO Transportation Control Measures	None
SIP Intersections with Highest Potential for CO Issues	None Identified

PM_{10} Maintenance Area Boundary with weblink	Urban Growth Boundary http://www.lcog.org/aqc/AQCD_main_nobigmaps.pdf Page 6 (page 18 of pdf document)
Link to PM_{10} Attainment Plan	Eugene-Springfield PM Attainment Plan January 1991 http://yosemite.epa.gov/r10/airpage.nsf/283d45bd5bb068e68825650f0064cdc2/0a6ce620cbca263088256aff005f99e0?OpenDocument
PM_{10} Control Measures from Attainment Plan	Mandatory wood burning curtailment

4.2.3 Oakridge

The Oakridge Urban Growth Boundary (UGB) is designated as a PM_{10} nonattainment area. In addition, Oakridge has measured $PM_{2.5}$ levels that exceed the new 35 microgram per cubic meter ($\mu g/m^3$) standard, and this area is likely to be designated as non-attainment for $PM_{2.5}$ in 2010 as implementation of the new standard progresses. Oakridge is a rural nonattainment area with a population less than 50,000 and does not have an MPO. Therefore, ODOT is responsible for regional transportation conformity in the Oakridge area Key information for the Oakridge PM_{10} maintenance area is shown in Table 4-5.

Table 4-5

Key Information for the Oakridge PM_{10} Nonattainment Area

PM_{10} Maintenance Area Boundary with weblink	Urban Growth Boundary
Link to PM_{10} Attainment Plan/ SIP	Oakridge PM Attainment Plan August 1996 http://yosemite.epa.gov/r10/airpage.nsf/283d45bd5bb068e68825650f0064cdc2/0a6ce620cbca263088256aff005f99e0?OpenDocument
Link to Regional Conformity Analysis	Contact ODOT Air Quality Specialist
PM_{10} Motor Vehicle Emission Budgets from Attainment Plan	pounds/winter day 2000 2003 175 178.8
PM_{10} Emission Factors for Paved/Unpaved Roads from Attainment Plan	1.72 / 240.6 gram/mile (calculated using AP-42 in 1996, need to verify that AP-42 updates since that time have not affected emissions factors prior to use on projects)
PM_{10} Control Measures from Attainment Plan	• Accelerated wood stove replacement program • Voluntary wood stove curtailment • Reduction in winter road sanding • Road paving program

4.3 REGION 3 NONATTAINMENT AND MAINTENANCE AREAS AND SIP INFORMATION

4.3.1 Medford-Ashland

The Medford UGB is designated as a maintenance area for CO. The Medford-Ashland AQMA is a maintenance area for PM_{10}. The Rogue Valley Council of Governments (RVCOG) is responsible for regional transportation conformity in the Medford-Ashland area. Key information for the Medford CO maintenance area and the Medford-Ashland PM_{10} maintenance area are shown in Table 4-6.

Table 4-6

Key Information for the Medford CO Maintenance Area and Medford-Ashland PM_{10} Maintenance Area

CO Maintenance Area Boundary with weblink	Urban Growth Boundary http://www.deq.state.or.us/aq/planning/docs/medfordmp.pdf
Link to Maintenance Plan/ SIP (CO and PM_{10})	State Implementation Plan Revision for Carbon Monoxide in the Medford Urban Growth Boundary March 9, 2001 State Implementation Plan for Particulate Matter (PM_{10}) in the Medford-Ashland Air Quality Maintenance Area December 10, 2004 http://www.deq.state.or.us/aq/planning/maintenance.htm
Link to Regional Conformity Analysis (CO and PM_{10})	http://www.rvmpo.org/page.asp?navid=52
CO Motor Vehicle Emission Budgets from SIP	2000 – 63,860 pounds per winter day 2015 – 26,693 pounds per winter day 2020 – 32,640 pounds per winter day
CO Transportation Control Measures	None
SIP Intersections with Highest Potential for CO Issues	Crater Lake Hwy. at Hwy. 99 Biddle Road at McAndrews Riverside at McAndrews
PM_{10} Maintenance Area Boundary with weblink	Air Quality Maintenance Area http://www.deq.state.or.us/aq/planning/docs/medfordaqma.pdf
PM_{10} Motor Vehicle Emission Budgets from SIP	2015 – 3,754 tons per year
PM_{10} Emission Factors for Paved/Unpaved Roads	See Table from 2008-2011 Air Quality Conformity Determination in Appendix B. Factors vary by area.
SIP PM_{10} Control Measures	• Industrial control including fugitive dust and dust track out • Residential wood smoke controls • Residential open burning controls • Road dust controls, specifically o Paving unpaved roads o Curb and gutters on paved roads o High efficiency street sweeping • Forestry and agricultural smoke management program • Agricultural track out controls

4.3.2 Grants Pass

The Grants Pass UGB is designated as a maintenance area for PM_{10}. The Grants Pass Central Business District (CBD) is a maintenance area for CO. The RVCOG is responsible for regional transportation conformity in the Grants Pass area. Key information for the Grants Pass CO and PM_{10} maintenance areas are shown in Table 4-7.

Table 4-7

Key Information for the Grants Pass CO and PM_{10} Maintenance Areas

CO Maintenance Area Boundary with weblink	Central Business District http://www.deq.state.or.us/aq/planning/docs/grantspass.pdf
Link to Maintenance Plan/ SIP (CO and PM_{10})	State Implementation Plan Revision for Carbon Monoxide in the Grants Pass Urban Growth Boundary September 13, 1999 Grants Pass PM_{10} Maintenance Plan October 2002 http://www.deq.state.or.us/aq/planning/maintenance.htm
Link to Regional Conformity Analysis (CO and PM_{10})	Contact Rogue Valley Council of Governments
CO Motor Vehicle Emission Budgets from SIP Revision	2005 – 4,245 pounds per winter day 2010 – 4,087 pounds per winter day 2015 – 3,929 pounds per winter day
CO Transportation Control Measures	None
SIP Intersections with Highest Potential for CO Issues	6th at M 6th at G 6th at F 6th at A
PM_{10} Maintenance Area Boundary with weblink	Urban Growth Boundary http://www.deq.state.or.us/aq/planning/docs/grantspass.pdf
PM_{10} Motor Vehicle Emission Budgets from Maintenance Plan	Pounds per winter day 2005 2010 2015 6048 6431 6813
PM_{10} Emission Factors for Paved/Unpaved Roads from Conformity Work	3.54 / 337.94 grams/mile Note that conformity work was halted prior to interagency coordination and the use of these factors in a project analysis would require interagency approval prior to use.
PM_{10} Control Measures from Maintenance Plan	• Industrial source controls • New wood stove certification program • Wood stove and open burning ordinance • Forestry smoke management plan

4.4 REGION 4 NONATTAINMENT AND MAINTENANCE AREAS AND SIP INFORMATION

4.4.1 Klamath Falls

The Klamath Falls UGB is designated as a maintenance area for CO and PM_{10}. In addition, the Klamath Falls area has measured $PM_{2.5}$ levels that exceed the new 35 µg/m3 standard, and this area is likely to be designated as non-attainment in 2010 as implementation of the new standard progresses. Klamath Falls is a rural maintenance area with a population less than 50,000 and does not have an MPO. Therefore, ODOT is responsible for regional transportation conformity in the Klamath Falls area. Key information for the Klamath Falls CO and PM_{10} maintenance areas are shown in Table 4-8.

Table 4-8

Key Information for the Klamath Falls CO and PM_{10} Maintenance Areas

CO Maintenance Area Boundary with weblink	Urban Growth Boundary http://www.deq.state.or.us/aq/planning/docs/kfallsugb.pdf
Link to CO Maintenance Plan	Klamath Falls Carbon Monoxide Maintenance Plan November 2000 http://yosemite.epa.gov/r10/airpage.nsf/283d45bd5bb068e68825650f0064cdc2/0a6ce620cbca263088256aff005f99e0?OpenDocument
Link to Regional Conformity Analysis (CO and PM_{10})	Contact ODOT Air Quality Specialist
CO Motor Vehicle Emission Budgets from the Maintenance Plan	2005 – 26,116 pounds per winter day 2010 – 25,498 pounds per winter day 2015 – 24,880 pounds per winter day
CO Transportation Control Measures	None
Intersections with Highest Potential for CO Issues	None identified in plan
PM_{10} Maintenance Area Boundary with weblink	Urban Growth Boundary http://www.deq.state.or.us/aq/planning/docs/kfallsugb.pdf
Link to PM_{10} SIP Revision/ Maintenance Plan	State Implementation Plan Revision for Particulate Matter (PM_{10}) in the Klamath Falls Urban Growth Boundary October 4, 2002 http://www.deq.state.or.us/aq/planning/maintenance.htm
PM_{10} Motor Vehicle Emission Budgets from SIP Revision	Pounds per winter day 2005 2010 2015 3,208 3,466 3,725
PM_{10} Emission Factors for Paved/Unpaved Roads	The current SIP uses Part 5, an outdated emissions model. There is a current conformity determination being performed and the EFs will be updated when the conformity analysis is completed.
PM_{10} Control Measures in SIP Revision	• Mandatory wood stove and open burning curtailment program • Wood stove certification program • Wood stove removal and low income heat replacement program • Wood stove certification • Reduced winter road sanding • Wood stove opacity limit • Agricultural open burning ban • Forestry smoke management program

4.4.2 Lakeview

The Lakeview UGB is designated as a PM_{10} maintenance area. Lakeview is a rural maintenance area with a population less than 50,000 and does not have an MPO. Therefore, ODOT is responsible for regional transportation conformity in the Lakeview area. Key information for the Lakeview PM_{10} maintenance area is shown in Table 4-9.

Table 4-9

Key Information for the Lakeview PM_{10} Maintenance Area

PM_{10} Maintenance Area Boundary with weblink	Urban Growth Boundary http://www.deq.state.or.us/aq/planning/lakeview/LakeviewMP02-14-05.pdf Page 17 of pdf document
Link to PM_{10} Maintenance Plan/ SIP	State Implementation Plan Revision for Particulate Matter (PM_{10}) in the Lakeview City Limits and Its Urban Growth Boundary, Draft March 2005 http://www.deq.state.or.us/aq/planning/maintenance.htm
Link to Regional Conformity Analysis	Contact ODOT Air Quality Specialist
PM_{10} Motor Vehicle Emission Budgets from SIP Revision	2017 -- 311 pounds per winter day VMT – 78,209 per day
PM_{10} Emission Factors for Paved/Unpaved Roads from SIP Revision	1.55 / 313.2 grams per mile (Mobile 6.2)
PM_{10} Control Measures from SIP Revision	• Wood stove certification program • Wood stove removal and low income heat replacement program • Wood stove and open burning curtailment on poor air days • Winter road sanding control • Public education • Industrial restrictions • Forestry smoke management program • Industrial source controls

4.5 REGION 5 NONATTAINMENT AND MAINTENANCE AREAS AND SIP INFORMATION

4.5.1 La Grande

The La Grande UGB is designated as a PM_{10} maintenance area. La Grande is a rural maintenance area with a population less than 50,000 and does not have an MPO. Therefore, ODOT is responsible for regional transportation conformity in the La Grande area. Key information for the La Grande PM_{10} maintenance area is shown in Table 4-10.

Table 4-10

Key Information for the La Grande PM_{10} Maintenance Area

PM_{10} Maintenance Area Boundary with weblink	Urban Growth Boundary http://www.deq.state.or.us/aq/planning/lagrande/LaGrandeMP2-14-05.pdf Page 17 of pdf document
Link to PM_{10} Maintenance Plan/ SIP	State Implementation Plan Revision for Particulate Matter (PM_{10}) in the La Grande City Limits and Its Urban Growth Boundary, Draft March 2005 http://www.deq.state.or.us/aq/planning/maintenance.htm
Link to Regional Conformity Analysis	Contact ODOT Air Quality Specialist
PM_{10} Motor Vehicle Emission Budgets from SIP Revision	2017 – 2,750 pounds per winter day
PM_{10} Emission Factors for Paved/Unpaved Roads from SIP Revision	2.5 / 41.7 grams per mile (Mobile 6.2)
PM_{10} Control Measures from SIP Revision	• Wood stove certification program • Wood stove removal and low income heat replacement program • Wood stove and open burning curtailment on poor air days • Winter road sanding control • Industrial restrictions • Forestry and agricultural burning growth management

5.0 AIR QUALITY ANALYSIS

The NEPA process—an EIS, an EA, or a Categorical Exclusion (CE)—is the mechanism for documenting air quality effects for all projects. There are three underlying air quality programs that must be addressed in a NEPA document:

- MSATs – this is driven by NEPA disclosure requirements
- Conformity – this is driven by federal and state transportation conformity regulations
- ISCP – this is driven by state and local air quality regulations

All projects require documentation for each of the programs. In addition, if the NEPA document is an EA or EIS and the project is a regionally significant project in a nonattainment or maintenance area, ODOT policy requires documentation of the burden analysis. However, a quantitative or qualitative analysis is not required for all projects and all programs. The location, size, and complexity of a project will determine the extent of the analysis. Prior to starting an analysis, the regulatory basis of the analysis should be established, and potential exemptions from analysis fully reviewed in light of the specific design and traffic results for the project. In addition, if a project is covered by the assumptions of the Statewide Air Quality Report (SAQR), that document can be referenced and used in place of project specific analysis.

A project air quality analysis is always based on the project traffic analysis. Data used in the air quality analysis must be consistent with the traffic data analysis for the project. A traffic data request checklist is provided in Appendix C. Additional requirements for consistency between planning and traffic assumptions are discussed in Section 3.5 of this manual.

ODOT has developed standard Statements of Work (SOW) and a SOW matrix of analysis requirements for EIS and EA documents to facilitate the hiring of consultants. These documents also provide useful information on analysis and documentation requirements. The matrix is included in Appendix D. The standard SOWs for EA/EIS documents and CE documents can be found at the following web link:

http://www.oregon.gov/ODOT/HWY/GEOENVIRONMENTAL/Scopes_of_Work.shtml#Air

5.1 MSAT EFFECTS

The Clean Air Act Amendments of 1990 identified 188 air toxics, also known as hazardous air pollutants. EPA defines air toxics as pollutants that cause or may cause cancer or other serious health effects. EPA assessed this expansive list of toxics and identified a group of 21 as MSATs, which are set forth in an EPA final rule, Control of Emissions of Hazardous Air Pollutants from Mobile Sources (66 FR 17235). From the EPA list of 21 MSATs and the discussion contained in the rulemaking, the FHWA identified six toxics as the priority MSATs: benzene, formaldehyde, acetaldehyde, diesel exhaust (particulate matter/diesel exhaust organic gases), acrolein, and 1,3-butadiene. Although these MSATs are considered the priority transportation toxics, EPA and FHWA stress that the lists are subject to change and may be adjusted in future rules and guidance.

The EPA is responsible for the establishment of NAAQS, national guidance, and guidelines for the uniform and scientifically reliable study of air pollutants. To date, there are no NAAQS for MSATs, and there are no established criteria for determining when MSAT emissions should be considered a significant issue. In its February 2006 interim guidance for MSATs in NEPA documents, the FHWA has identified three levels of analysis:

1) No analysis for projects with no potential for meaningful MSAT effects. These would be typified by

    - Projects qualifying as a categorical exclusion under 23 CFR 771.117(c),
    - Projects exempt under the Clean Air Act conformity rule under 40 CFR 93.126 (except for auxiliary lanes longer than one mile, or extending beyond two interchanges), or
    - Other projects with no meaningful impacts on traffic volumes or vehicle mix.

2) Qualitative analysis for projects with low potential MSAT effects. These projects would be all projects not included in the previous or following cases.

3) Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects. These projects would typically

- Create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of diesel particulate matter in a single location; or
- Create new or add significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the AADT is projected to be in the range of 140,000 to 150,000, or greater, by the design year; and
- Also be located in proximity to populated areas, or in rural areas in proximity to concentrations of vulnerable populations (e.g., schools, nursing homes, hospitals).

The *FHWA Interim Guidance on Air Toxic Analysis in NEPA Documents* with detailed information and suggested language for documentation of MSAT effects is available at the following Web link:

http://www.fhwa.dot.gov/ENVIRONMENT/airtoxic/020306guidmem.htm

For projects with no potential for meaningful MSAT effects, only a brief statement is required and no analysis is necessary. For projects with low potential MSAT effects or projects with higher potential MSAT effects, a lengthy discussion of the availability of credible information must be included in the documentation with the analysis.

5.1.2 Portland Air Toxics Assessment (PATA)

Projects in the Portland metropolitan area sometimes use the Portland Air Toxics Assessment (PATA) as a resource to describe existing conditions and to provide a general understanding of the human health risk associated with MSATs in the Portland area. The PATA study methods are limited in their usefulness for individual project analysis. The following discussion provides an overview of the PATA. DEQ lead the PATA effort and the study can be found at the following link: http://www.deq.state.or.us/aq/toxics/pata.htm.

The PATA is a computer modeling project designed to estimate and assess the risk from 12 air toxics in the Portland area including the six MSATs. It is the first local-scale air toxics modeling project conducted in Oregon as part of the developing state air toxics program. It is based on the 1999 air emissions inventory for the Portland area. The purpose of the assessment is to provide more refined estimates of the most significant air toxics in the Portland area. Such estimates will enable DEQ to better characterize the risks from air toxics, to better understand local patterns of air toxics exposure, and to identify locations with elevated risk. Finally, DEQ can measure changes in emissions and develop emission reduction strategies from the information provided by PATA.

The PATA results identify diesel exhaust, motor vehicles, and burning as important sources of air toxics in Portland. In general, the assessment shows widespread risks from three MSATs—benzene, formaldehyde, and diesel exhaust—throughout the Portland-Vancouver region. Higher risks for some pollutants (benzene and formaldehyde) appeared to align to some degree with major highway corridors.

PATA results used state-of-the-art dispersion techniques and provide a useful planning tool for DEQ and the public to identify general levels of health risk and the sources of associated pollutants. However, the methods used in the study are not accurate enough to evaluate the potential health risks associated with individual transportation projects. Issues that affect the accuracy of the health risks reported in PATA as they relate to individual projects include:

- Acrolein and diesel particulates were not measured for the study; therefore, could not be compared to modeled concentrations. Acrolein was found to be the primary pollutant contributing to non-cancer health risks based on modeling. Diesel particulate was found to be the primary pollutant contributing to cancer risk based on modeling.
- Benzene and acetaldehyde measured concentrations varied by a factor of 2 or 3 from modeled levels.
- More than 80 percent of the samples for 1,3-butadiene were below the minimum quantification levels.
- The general uncertainty estimated in the PATA for unit risk concentrations and reference concentrations used to calculate health risks “spans perhaps an order of magnitude” (page 72 of PATA study).

These general issues regarding accuracy do not negate the usefulness of the PATA as a planning tool, but should be considered when reviewing the data in the context of emissions from individual projects.

5.2 BURDEN ANALYSIS

As a policy decision, ODOT requires a project area burden analysis (emission estimate) for regionally significant projects in nonattainment and maintenance areas for EIS and EA level projects. The purpose of this analysis is to provide information useful to the public and decision-makers in evaluating the effects of project alternatives. The burden analysis is typically performed for existing conditions and design year conditions for all project alternatives including the no-build.

A regionally significant project is defined as a transportation project that serves regional 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 an MPO's transportation network, including all principal arterial highways and all fixed guideway transit facilities that offer an alternative to regional highway travel.

The burden analysis should include the major transportation criteria pollutants of concern: CO, volatile organic compounds (VOCs), nitrogen oxides (NO_X), PM_{10}, and $PM_{2.5}$. Because the burden analysis is for comparison purposes and is not required by conformity regulations, some flexibility can be used in the modeling approach. Cost, availability of data, and the complexity and size of the project can all be considered in determining the methods to be used for the burden analysis. Where MOBILE6.2 input parameters are available from conformity modeling for pollutants, consistent inputs should be used for the burden analysis. Examples of simplifications that could reasonably be made for some projects would be:

- Comparing pollutant emissions for a single season (summer day) basis as opposed to modeling different pollutants with different seasonal parameters, and
- Using regional average traffic volumes and speeds if these data are available as model outputs

The general methodology for an areawide analysis consists of multiplying the Vehicle Miles Traveled (VMT) for each road link by the link length and the MOBILE6.2 generated emission factor for all links in the area affected by the project.

5.3 PROJECT LEVEL CONFORMITY ANALYSIS

The conformity regulations are applicable to projects within nonattainment or maintenance areas. Section 4.0 of this manual lists the current nonattainment and maintenance areas in Oregon and provides Web links to maps of the area boundaries. There are no ozone nonattainment areas in Oregon. The Portland–Vancouver and the Salem–Keizer areas became "in attainment" areas with the revocation of the federal 1-hour ozone standard in June 2005. These areas are still subject to the no backsliding provisions of the revised standard but do not require a conformity analysis for ozone.

The requirements to demonstrate conformity for a project are twofold. First, the project must be included in a conforming RTP and TIP to address long-term regional impacts. The regional analyses performed for RTPs and TIPs evaluates the total emissions associated with all planned projects to determine whether the projects will cumulatively exceed the emissions budget for on-road mobile sources contained within the air quality SIP. If the emissions are within the budget, then no regional adverse air quality impacts will occur as a result of the planned projects, and the RTP and the TIP are found to conform.

In areas with MPOs, the regional evaluation is performed by the MPO. In the rural nonattainment and maintenance areas (Oakridge – PM_{10}, Grants Pass – PM_{10} and CO, Klamath Falls – PM_{10} and CO, Lakeview – PM_{10}, La Grande – PM_{10}), the regional conformity analysis is based on projects for the area included in the STIP and is generally performed by ODOT. However, the RVCOG has agreed to perform the conformity analyses for the Grants Pass CO and PM_{10} maintenance areas. For projects in rural nonattainment or maintenance areas regional analyses are performed for regionally significant projects that are not exempt from conformity (see Sections 5.3.3.1 and 5.3.4.1 of this document for additional information). Section 4.0 of this manual contains a subsection for each nonattainment or maintenance area containing links to the conformity determinations or contact to obtain the information.

For a project level regional analysis in MPO areas, all that is required is verification that 1) a project is included in the RTP and TIP, 2) that the project considered in the NEPA document is the same in design and scope as the project included in the RTP and TIP, and 3) that the project will not interfere with implementation of TCMs (Portland is the only area with TCMs and they are not generally of a nature that individual projects will cause interference). If the total project scope and design are not included in a conforming regional analysis, the project cannot be found to conform and a final environmental document cannot be approved (cannot obtain a record of decision (ROD), finding of no significant impact (FONSI) or approval of a Part 3 CE).

The second conformity demonstration requirement is that a project cannot create a new violation or exacerbate an existing violation. A project-level hot spot analysis evaluates localized air pollutant concentrations for projects located in CO, PM_{10}, or $PM_{2.5}$ nonattainment or maintenance areas. An air quality analysis is always based on the traffic analysis for a project and must use the latest planning assumptions. Hot spots analysis assumptions used in modeling must be consistent with those in the regional conformity emissions analysis for inputs that are required by both analyses. Conformity analyses in Oregon can be evaluated in four categories.

5.3.1 Projects in Attainment Areas

Projects in attainment areas are not subject to conformity requirements. For projects in attainment areas, project documentation for conformity consists of a statement of the project location, that the project is not within the boundaries of a nonattainment or maintenance area and that the project is not subject to conformity.

5.3.2 Exempt Projects

Some projects in nonattainment and maintenance areas are exempt from conformity analysis requirements. A list of projects exempt from conformity requirements is included in Appendix E. Some types of projects are exempt from both the regional (RTP/TIP_ and local analysis (project-level) requirements under OAR 340-252-0270, Table 2 Exempt Projects, and some projects are exempt only from regional analysis under OAR 340-252-0280, Table 3 Exempt Projects (refer to Appendix E).

5.3.3 Projects in CO Nonattainment and Maintenance Areas

5.3.3.1 Regional Analysis

Project-level regional conformity analysis requirements are discussed in Section 5.3.The tables for each individual nonattainment or maintenance area in Section 4 of this document list Web links to regional conformity analyses completed by local MPOs in Oregon, or identify rural areas where ODOT generally performs the regional conformity analysis for regionally significant projects.

For projects in MPO areas, document that a project is included in a conforming RTP and TIP, include the specific description and the RTP and/or TIP title and compare it to the NEPA project alternatives.

For projects in a rural nonattainment or maintenance area, if a regional analysis has not been performed, it will be required before a final environmental document can be approved. The regional analysis will require interagency consultation for agreement on model input parameters and on the projects to be included in the analysis. The ODOT Transportation Planning Analysis Unit (TPAU) will typically complete the regional traffic analysis and emissions estimate. The ODOT Air Quality Specialist should be contacted immediately if a regional analysis is required for a project in a rural nonattainment/maintenance area, or if the design and scope of a project is not consistent with the design and scope described in the RTP and TIP.

5.3.3.2 CO Hot Spot Analysis

The purpose of the project level local or “hot spot” analysis is to estimate the concentration of CO that a human would be exposed to if they were situated in a location expected to have the highest CO concentrations as a result of the project alternatives. High CO concentrations typically occur near congested intersections. The general process used in the hot spot analysis is:

- Eliminate intersections that are 1) not affected by the project, 2) operated at LOS A, B, or C, and 3) are not signalized (these intersections are unlikely to cause air quality issues due to the project).

- Rank intersections affected by the project by level of service (LOS) and total entering traffic volumes.
- Select the intersection(s) to be analyzed based on the worst LOS and total entering traffic volume.
- Perform a quantitative analysis for the least number of intersections needed to draw a conclusion regarding the project impacts, this can frequently be a single intersection. Perform a qualitative analysis for other affected intersections, for example, if the worst intersection on an LOS and entering volume basis shows no impacts and there are not substantive geometric differences, other intersections are unlikely to show impacts.
- Use the most current EPA approved emissions model to obtain emissions factors for idle conditions and for the speeds on free flow links to be used in dispersion modeling.
- Use the most current EPA approved dispersion model to estimate the 1-hour CO concentrations adjacent to the affected intersections for traffic operations (include ambient background concentrations in the 1-hour results).
- Use persistence factors to calculate 8-hour concentrations from the 1-hour results (refer to Table 5-4).

If required, local CO hot spot analyses must be completed using the currently approved versions of emissions and dispersion models. The currently approved emissions model is MOBILE6.2. Note that a transition to the MOVES model is anticipated to occur sometime in 2009. Information on where to obtain MOBILE6.2 model inputs from regional conformity analyses for CO areas in Oregon is included in Table 5-1. The analyst is responsible for verifying that inputs are current by checking with the appropriate planning and regulatory agencies, typically either the MPO or the DEQ or LRAPA staff. MOBILE input assumptions change periodically. The MOBILE6.2 guidance document is available at:
http://www.epa.gov/OMS/models/mobile6/420r03010.pdf

Table 5-1
Sources of Input Data for MOBILE 6.2

City	Data Source	Data From	Link
Portland	Metro	2008-2011 TIP Conformity	Contact Metro for files Note: Winter Reid Vapor Pressure updated to 13.6 from 2008-2011 conformity files
Salem-Keizer	MWVCOG	2008-2011 TIP Conformity	Contact MWVCOG for files
Eugene-Springfield	LCOG	Nov 2007 Conformity Determination	http://www.lcog.org/aqc/
Medford	RVCOG	2008-2011 Conformity Determination	See information in Appendix B (from Appendix B of the RVCOG Conformity Determination)
Grants Pass	ODEQ	Current Data Not Available Mobile 5b files are linked but require update before use on projects	ftp://ftp.odot.state.or.us/techserv/Geo-Environmental/Environmental/Procedural%20Manuals/Air%20and%20Noise/AirQualityModeling_GrantsPassMobile5b.pdf
Klamath Falls	ODEQ	Current Data Not Available Mobile 5b files are linked but require update before use on projects	ftp://ftp.odot.state.or.us/techserv/Geo-Environmental/Environmental/Procedural%20Manuals/Air%20and%20Noise/AirQualityModeling_KFallsMobile5b.pdf

The currently approved dispersion model is CAL3QHC. Information on typical CAL3QHC model inputs for CO areas in Oregon is included in Table 5-2. The analyst is responsible for verifying that inputs are current by checking with the appropriate regulatory agencies, typically either DEQ or LRAPA staff. The CAL3QHC guidance document is available at (select "other models" and "CAL3QHC/CAL3QHCR"):
http://www.epa.gov/scram001/dispersion_prefrec.htm

Table 5-2
CAL3QHC Model Inputs

Meteorological Variables	
Averaging Time	60 minutes
Surface Roughness	Select appropriate factor from Table 5-3
Wind Speed	1 meter per second
Wind Angle	0 to 360 degrees in 10-degree increments
Stability Class	4 (D) – Note that all CO maintenance and nonattainment areas in Oregon are "Urban" as defined in the modeling guidelines (population greater than 5,000)
Mixing Height	1,000 meters
Ambient Background Concentration	
Eugene-Springfield	1.5 ppm
All other areas of the state	2 ppm
Site Variables	
Receptor Coordinates	At least 3 meters from each traveled roadway on both sides of the street at distances of 3 meters, 25 meters, and 50 meters from the cross street. Receptors to be placed outside of roadway in all cases. Height 1.8 meters.

Table 5-3
Surface Roughness Factors

Type of Surface	z_0 (cm)
Smooth desert	0.03
Grass (5-6 cm)	0.75
Grass (4 cm)	0.14
Alfalfa (15.2 cm)	2.72
Grass (60-70 cm)	11.4
Wheat (60-70 cm)	22.00
Corn (220 cm)	74.00
Citrus Orchard	198.00
Fir Forest	283.00
City land-use:	
Single-family Residential	108.00
Apartment Residential	370.00
Office	175.00
Central Business District	321.00
Park	127.00

A somewhat outdated resource that is still useful for information on ranking and modeling of intersections is the EPA *Guideline for Modeling Carbon Monoxide from Roadway Intersections*:

http://www.epa.gov/scram001/guidance/guide/coguide.pdf

A brief description of the models, model inputs, parameters and processes is included in the following report sections.

5.3.3.2.1 Emissions Estimates

Free flow emission factors will be a function of speed. Idle emission factors, on the other hand, are not a function of vehicle speed but are affected by other transportation variables such as operating mode and vehicle class mix. To estimate idle emission factors the 2.5 mile per hour (mph) MOBILE6.2 emissions rate for the analysis year should be multiplied by 2.5. Idle emissions account for a substantial portion of total emissions at an intersection. The idling emission factor is used for queue links only.

5.3.3.2.2 Dispersion Modeling

The calculation of concentrations from the movement and delay of vehicular traffic through dispersion modeling requires inputs describing vehicle emissions, ambient background concentrations, meteorology, site characteristics, and traffic data. The carbon monoxide analysis is typically performed for "worst-case" conditions: low temperatures, low wind speeds and peak hour traffic volumes. Ambient background concentrations and meteorological parameters to be used in Oregon are shown in Table 5-2. Methods for estimating vehicle emissions are discussed in previous sections of this manual. Site Characteristics and traffic data are discussed further in the following sections.

Site Characteristics

Site characteristics include roadway coordinates, roadway width, and receptor coordinates.

Roadway Coordinates and Width

The dispersion models require the roadway of interest to be divided up into segments referred to as links. These links are input into the dispersion model as coordinates. A new link must be coded when there is a change in width, height, traffic volume, travel speed, or vehicle emission factors. In the CAL3QHC dispersion model there are two types of roadway links: free-flow and queue.

A free flow link is defined as a straight segment of roadway having a constant width, height, traffic volume, and vehicle emission factor where vehicles are moving without experiencing the delays typically associated with intersections. The length of the free-flow link should be the center to center distance from the intersection of interest to the next intersection. A maximum of 1,000 feet for this distance is sufficient. The free flow link width is defined as the width of the traveled roadway (lanes of moving traffic only) plus 10 feet (3 meters) on either side.

A queue link is defined as a straight segment of roadway having a constant width, height, traffic volume, and vehicle emission factor where vehicles are idling for a specific period of time. The CAL3QHC dispersion model assumes that vehicles will be in an idling mode of operation only during the red phase of the signal cycle.

The length of the queue link is estimated by the dispersion model based on the volumes and capacity of the approach using a simplified version of the procedures described in the 1985 Highway Capacity Manual for under-saturated conditions and the Deterministic Queuing Theory procedure for the additional queuing length associated with over-saturated conditions. The coordinate input for the queue links originate at the stop line of the approach.

The queue link width is defined as the width of the traveled roadway (lanes of moving traffic) only. Ten feet (3 meters) is NOT added to the travel lanes, as in the case of the free flow link.

Receptor Coordinates

A receptor is defined as the location at which concentrations are estimated. The dispersion model requires coordinates to be input for receptor locations.

Receptors should be located:

- Ten feet (3 meters) from the near edge of the travel lane
- Five feet (1.8 meters) above ground level
- On sidewalks if width allows
- On both sides of the road
- At places of expected 1-hour and 8-hour maximum concentrations
- At places where the general public has access (at reasonable sites)
- At 75 feet (25 meters) and 150 feet (50 meters) from intersection and midblock

Receptor reasonableness is defined in terms of proximity to the intersection, but not on the roadway itself. Sidewalks, vacant lots, parking lots, and property lines are all reasonable sites as long as the public has access to them.

Traffic Data

Traffic variables include traffic volumes and speeds, signal data. Saturated flow rate, signal type, and arrival rate are optional inputs into the dispersion model. It is recommended that traffic variables be obtained from a traffic engineer. A copy of the traffic request form used can be found in Appendix C. To predict peak 1-hour CO concentrations peak hour traffic data is needed.

Signal Data

Signal data is used by the CAL3QHC dispersion model to estimate queue lengths. Signal data includes average signal cycle length, average red time and clearance lost time.

- The average signal cycle length should be specified for each intersection being modeled.
- The average red time should be specified for each approach at the intersection being modeled.
- The clearance lost time should be specified for each approach at the intersection being modeled.

Optional Inputs

- The saturation flow rate or the hourly capacity per lane should be 1,800 vehicles per hour unless otherwise specified.
- There are three types of signals: 1) Pretimed, 2) Actuated, and 3) Semiactuated. Unless otherwise specified, the CAL3QHC dispersion model will assume the signal to be a pretimed signal.
- There are five options for arrival type:
  1. **Worst Progression**: dense platoon at beginning of red
  2. **Below Average Progression**: dense platoon during middle of red
  3. **Average Progression**: random arrivals
  4. **Above Average Progression:** dense platoon during middle of green
  5. **Best Progression:** dense platoon at beginning of green

Unless otherwise specified, the CAL3QHC dispersion model will default to average progression (3).

5.3.3.2.3 Calculation Method and Persistence Factors

To calculate 1-hour and 8-hour CO concentrations, include the background concentration from Table 5-2 in CAL3QHC when calculating the maximum 1-hour CO concentration. Apply the persistence factor in Table 5-4 to the total 1-hour CAL3QHC output concentration to calculate the 8-hour concentration. For intersections near the listed intersections, use the persistence factor for the area. For example, for intersections in the Portland downtown core area, use a persistence factor of 0.68. For intersections remote from any listed intersection use the city average factor shown.

Table 5-4
Persistence Factors

CO Area	Period	CO Monitoring Site	Persistence Factor
Portland	2002-2004	SE 82nd Avenue and Division	0.82
	2002-2004	SE 57th Avenue and SE Lafayette	0.78
	2002-2004	SW 3rd Avenue (Postal Building)	0.68
		Portland Average	0.76
Salem	2002-2004	Lancaster & Market	0.78
Eugene-Springfield	2002-2004	Eugene – Lane Community College	0.76
Medford	2002-2004	Rogue Valley Mall	0.73
	2002-2004	Brophy Building	0.78
		Medford Average	0.76
Grants Pass	2002-2004	Wing Building	0.65
Klamath Falls	2002-2004	6th and Hope Street	0.73

5.3.4 Projects in PM_{10} Nonattainment and Maintenance Areas

5.3.4.1 Regional Analysis

Project level regional conformity analysis requirements are discussed in Section 5.3.The tables for each individual nonattainment or maintenance area in Section 4 of this document list Web links to regional conformity analyses completed by local MPOs in Oregon, or identify rural areas where ODOT generally performs the regional conformity analysis for regionally significant projects.

For projects in MPO areas, document that a project is included in a conforming RTP and TIP, include the specific description and the RTP and/or TIP title and compare it to the NEPA project alternatives.

For projects in a rural nonattainment or maintenance area, if a regional analysis has not been performed, it will be required before a final environmental document can be approved. The regional analysis will require interagency consultation for agreement on model input parameters and on the projects to be included in the analysis. The ODOT Transportation Planning Analysis Unit (TPAU) will typically complete the regional traffic analysis and emissions estimate. The ODOT Air Quality Specialist should be contacted immediately if a regional analysis is required for a project in a rural nonattainment/maintenance area, or if the design and scope of a project is not consistent with the design and scope described in the RTP and TIP.

5.3.4.2 PM-10/PM-2.5 Hot Spot Analysis

Currently, there is no EPA-recommended quantitative model for analysis of PM_{10} hot spots. The EPA guidance document for qualitative hot-spot analyses in $PM_{2.5}$ and PM_{10} nonattainment and maintenance areas can be found at the following Web Link:

http://www.epa.gov/otaq/stateresources/transconf/policy/420b06902.pdf

The SAQR provides information needed to prepare a qualitative PM_{10} hot spot analysis for the nonattainment and maintenance areas in Oregon. The SAQR is discussed in the next section.

5.4 PROGRAMMATIC APPROACH (STATEWIDE AIR QUALITY REPORT (SAQR))

The SAQR addresses a wide range of highway projects. The SAQR is primarily intended to support the NEPA process for projects that do not have substantial air quality concerns. The SAQR is valid for projects in both urban and rural locations under the following conditions:

- Areas that have been designated as "in attainment" of the NAAQS for carbon monoxide (CO) and particulate matter (PM_{10});
- Areas that have been designated CO and PM_{10} non-attainment and maintenance areas if projects do not affect traffic volumes, speeds, traffic patterns, or signalized intersections (e.g., are exempt from conformity);
- Projects that are exempt from conformity requirements under OAR 340 Division 252-0270; and
- Highway projects in Oregon PM_{10} maintenance and non-attainment areas provided a project primarily affects traffic on roadways and highways without special concerns such as a high concentration of diesel-emitting vehicles. Projects in these areas are subject to transportation conformity, and a conformity determination is required for each project. PM_{10} non-attainment and maintenance areas are: Eugene-Springfield, Oakridge, Grants Pass, Medford, Klamath Falls, La Grande, and Lakeview.

The SAQR is intended for use as a screening tool for transportation projects that require a CO or PM_{10} project level conformity determination and on projects when air quality is not an environmental issue of substantial concern. For CO, the SAQR establishes traffic volume thresholds below which compliance with the NAAQS can be presumed for attainment areas. For PM_{10} the SAQR discusses the primary transportation sources of PM and their control in Oregon and supplies information to support preparation of qualitative, project specific PM_{10} hot spot analyses for the maintenance and non-attainment areas in Oregon.

Predicted existing and future CO levels for highway projects falling within the assumptions of the SAQR are expected to be less than 9 ppm, the 8-hour NAAQS for this pollutant. Predicted existing and future PM_{10} levels for highway projects within the assumptions of the SAQR are not expected to cause or contribute to exceedances of the PM_{10} standard. Specific wording that is likely to be useful to regional environmental coordinators and others preparing CE documents is included in Appendix E of the SAQR.

The SAQR can be found at the following Web link:
ftp://ftp.odot.state.or.us/techserv/Geo-Environmental/Environmental/Procedural%20Manuals/Air%20and%20Noise/ODOT%20Statewide%20Air%20Quality%20Report.pdf

5.5 INDIRECT SOURCE CONSTRUCTION PERMIT (ISCP)

Indirect sources are defined and the regulations governing them are discussed in Section 2.4 of this document. In the past, many of the ODOT projects required an ISCP, so ISCPs were discussed in some environmental documents. Due to a change several years ago, DEQ dropped the ISCP requirement that would affect most ODOT projects (unless a project involves a parking lot). However, LRAPA decided to keep the ISCP as a requirement affecting highway projects. Thus the requirement for an ISCP in Oregon for highway projects is only applicable in Lane County. However, not all projects in Lane County require an ISCP. An ISCP is generally required in Lane County when average daily traffic volumes on existing highways are predicted to increase by 10,000 or more vehicles per day or 20,000 or more on a new highway within 10 years after project completion. LRAPA rules for Indirect Sources are cited in Section 2.4 of this report and a link is provided to the rules.

The requirement to obtain an ISCP should be identified at the project planning or environmental documentation phase of a project. If an ISCP is required for a project, it is obtained during the design process and must be in hand before construction can commence. Practically, this means the ISCP must be in-hand prior to the final Plan, Specifications, and Estimate (PS&E) date. The project cannot proceed until the ISCP is acquired.

The process to obtain the ISCP, including the application preparation, should be started no later than 8 to 9 months before the PS&E date. This start date is necessary because the ISCP application is required to include dispersion modeling to estimate carbon monoxide (CO) impacts and estimates of gross emissions of CO, volatile organic compounds (VOCs), and oxides of nitrogen (NO_X). If there will be any incremental phasing in the construction of the roadway, the ISCP will authorize successive phases of construction, if required. The ISCP application itself must be submitted to LRAPA at least 90 days in advance of the anticipated start of construction. Within 60 days of receipt of the complete application, LRAPA will disapprove or approve the application with possible conditions. Within the 60 day period, and within 20 days after receipt of a complete application, a 20-day public notice will be issued by LRAPA to allow the opportunity for public comment on the proposed project and permit. A permit being disapproved is only likely if the analysis shows that violations of the ambient air quality standards are predicted. An approved permit may be conditioned to expire if construction is not commenced within 18 months after issuance of the permit. This 18-month limit applies to all construction phase dates described in the application. Permits may be extended if the permittee can demonstrate an extension is justified.

LRAPA should be contacted for the most current permit application and application fee information. The application/processing fee can range from $600 to $2,600 depending on the project. The Region 2 Permits Coordinator is responsible for obtaining the ISCP. The Region normally contracts with a consultant to prepare the application to LRAPA, but Region 2 submits the application with the necessary fees.

A sample report prepared under the LRAPA ISCP regulations can be viewed at the following link (*I-5/Beltline Interchange Project*):
ftp://ftp.odot.state.or.us/techserv/Geo-Environmental/Environmental/Regulatory%20Documentation%20Forms%20and%20Examples/Air%20and%20Noise/AirQualityReport_ISCP_Application.pdf

6.0 CONSTRUCTION ACTIVITIES

During construction carbon monoxide (CO) and PM_{10} are expected to increase. These increased emissions are due to heavy construction vehicles, lowered traffic speeds, earth excavation, and occasionally open burning. These create temporary impacts on the ambient air quality. Appendix F contains typical wording to be used in describing construction effects and mitigation for NEPA documents. If construction duration will be five years or longer, construction impacts must be considered in the conformity analysis.

7.0 DOCUMENTATION

Documentation should be as brief and concise as possible. Typical report outlines are shown in the following sections of this manual. Note that for large, complex projects, there may be additional deliverables prior to the air quality technical report such as an environmental baseline report, or a methodology report.

Sample reports can be viewed at the following links:

Sample report or memorandum for a CE-level analysis in a PM nonattainment or maintenance area (*Air Quality Report: Oregon Highway 140: Freight Extension (White City)*):
ftp://ftp.odot.state.or.us/techserv/Geo-Environmental/Environmental/Regulatory%20Documentation%20Forms%20and%20Examples/Air%20and%20Noise/AirQualityReport_CE_PM_Area.pdf

Sample report or memorandum for a CE-level analysis in a CO maintenance area (*Beltline Highway - Coburg Road Interchange Project Air Quality Technical Report*):
ftp://ftp.odot.state.or.us/techserv/Geo-Environmental/Environmental/Regulatory%20Documentation%20Forms%20and%20Examples/Air%20and%20Noise/AirQualityReport_CE_CO_Area.pdf

Sample report for an EA/EIS-level analysis in a CO maintenance area (*Sunrise Project I-205 to Rock Creek Junction Air Quality Report*):
ftp://ftp.odot.state.or.us/techserv/Geo-Environmental/Environmental/Regulatory%20Documentation%20Forms%20and%20Examples/Air%20and%20Noise/AirQualityReport_EIS_EA_CO_Area.pdf

Sample report for an EA/EIS-level analysis in an attainment area (*Air Quality Technical Report, Weaver Road Extension Project*):
ftp://ftp.odot.state.or.us/techserv/Geo-Environmental/Environmental/Regulatory%20Documentation%20Forms%20and%20Examples/Air%20and%20Noise/AirQualityReport_EIS_EA_AttainArea.pdf

Sample report for a regional emissions analysis in a PM_{10} rural nonattainment or maintenance area (*La Grande Air Quality Conformity Determination*):
ftp://ftp.odot.state.or.us/techserv/Geo-Environmental/Environmental/Regulatory%20Documentation%20Forms%20and%20Examples/Air%20and%20Noise/AirQualityReport_RegionalAnalysis_RuralArea.PDF

7.1 AIR QUALITY TECHNICAL REPORT OUTLINE FOR AN EIS OR EA - SUMMARY

SUMMARY
For an EIS/EA level document, the summary should be written as a technical "pull out" piece for inclusion in the EIS or EA. It should generally include:

- A brief description of the project and alternatives
- A brief summary of the methods used – generally that EPA-approved models and normally accepted methods were used
- A brief statement of the characteristics of the affected environment
- A comparison and discussion of the impacts of all alternatives, including the no build
- A brief statement of any special issues such as ISCP, unusual construction conditions, or special emissions issues

The summary must include a statement of findings for Mobile Source Air Toxics, regional, and hot spot conformity. The conformity statement must include a specific reference to the conforming Regional Transportation Plan/Transportation Improvement Program (RTP/TIP) and a statement that the project described in the conforming RTP/TIP is the same in design and scope as the project described in the proposed alternatives analysis.

INTRODUCTION
ALTERNATIVES
METHODS
AFFECTED ENVIRONMENT
ENVIRONMENTAL CONSEQUENCES
MITIGATION
AGENCY COORDINATION
REFERENCES
LIST OF PREPARERS

7.2 AIR QUALITY TECHNICAL REPORT OUTLINE FOR AN EIS OR EA - EXPANDED

SUMMARY

For an EIS/EA level document, the summary should be written as a technical "pull out" piece for inclusion in the EIS or EA. It should generally include:

- A brief description of the project and alternatives
- A brief summary of the methods used – generally that EPA-approved models and normally accepted methods were used
- A brief statement of the characteristics of the affected environment
- A comparison and discussion of the impacts of all alternatives, including the no build
- A brief statement of any special issues such as ISCP, unusual construction conditions, or special emissions issues

The summary must include a statement of findings for Mobile Source Air Toxics, regional, and hot spot conformity. The conformity statement must include a specific reference to the conforming Regional Transportation Plan/Transportation Improvement Program (RTP/TIP) and a statement that the project described in the conforming RTP/TIP is the same in design and scope as the project described in the proposed alternatives analysis.

INTRODUCTION

- Project Location
- Project Purpose and Need
- Proposed Action

ALTERNATIVES

METHODS

- Area of Potential Effect
- Regulations and Standards
- Methods
    - Emission Factors – include methods of calculation and final emission factors
    - Project Area Impacts (Burden) Analysis – include methods of calculation, emission factors, area included in analysis
    - Local Impacts (Hot Spot) Analysis – cite guidance followed, method for selecting intersections
    - Mobile Source Air Toxic Impact Analysis – follow FHWA guidance and include language required by 40 CFR 1502.22(b) regarding incomplete information, and analysis methodology.

AFFECTED ENVIRONMENT

- NAAQS Status of Area
- Existing Air Quality
- Monitoring Data
- Air Quality Trends
- Current Health Effects Information

Appendix A contains a brief summary statement for criteria pollutant health effects. Additional current information on air quality monitoring, trends, current health effects of criteria pollutants and climate can be found at the following links:
http://www.deq.state.or.us/aq/forms/annrpt.htm
http://www.ncdc.noaa.gov/oa/ncdc.html

Current health effects information for MSATs should be taken directly from the FHWA guidance cited in the body of this manual.

Expanded Outline continues on the next page.

ENVIRONMENTAL CONSEQUENCES

- Long-Term Effects Results – use tables and summarize findings
    - Burden Analysis
    - Local "Hot Spot" Analysis
    - MSAT Effects
    - Air Quality Conformity Finding
- Short-Term (Construction) Effects
  ODOT has construction specifications that include standard requirements for control of air pollutant emissions during construction (Section 00290). These specifications should be cited and summarized. http://www.oregon.gov/ODOT/HWY/SPECS/docs/02book/02_00200.pdf
- Indirect Effects
    - Typical language for indirect effects: The forecast traffic volumes used to analyze the air quality impacts of the Project alternatives are based on the future expected land use and employment information for the project area. These analysis methodologies include expected traffic from development in the region and project area and traffic related air quality impacts shown in this report include expected development.
- Cumulative Effects
    - Typical language for cumulative effects: The forecast traffic volumes used to analyze the air quality impacts of the Project alternatives include traffic from all sources. Background concentrations representing the cumulative emissions of other sources in the area are added into the predicted local concentrations for CO at intersections. Because of these inclusive analysis methodologies, the impacts shown throughout this report represent cumulative air quality impacts.
- Summary of Permits Required – Address requirement and schedule for obtaining an ISCP if needed, otherwise typical language is:
    - Stationary sources such as asphalt and concrete mix plants would generally be required to obtain air contaminant discharge permits from the DEQ (or LRAPA, as appropriate). [Note: add the following sentence for large projects only] A project of this magnitude would likely result in the operation of one or more such stationary sources which would likely require air quality contaminant discharge permits (ACDP), if they are not existing permitted facilities. The permits would be the responsibility of the operator or contractor. ODOT is not required to obtain any permits related to air quality.

MITIGATION

- Short-Term (Construction) Impacts – Typical language for short-term impacts mitigation is included on the last page of this appendix.
- Long-Term Impacts – because air quality impacts are not allowed to occur, it is unusual to have long-term impacts or for mitigation of long-term impacts to be required. This would only occur if the project team made a decision to include intersection modifications needed to mitigate impacts here as opposed to modifying the design of the project (the more typical approach).

AGENCY COORDINATION

REFERENCES

LIST OF PREPARERS

7.3 AIR QUALITY TECHNICAL REPORT OUTLINE FOR A CE - SUMMARY

INTRODUCTION

- Project Description (include figure identifying project location)

Traffic Analysis

- Comparative discussion of peak hour traffic volumes, speeds, and LOS for each alternative;
- Identification of signalized intersections warranting CO hot-spot analysis with discussion of how intersections were selected.
- Provide a table summarizing intersection LOS data for the appropriate study years for the No Build and all Build Alternatives.

Existing Air Quality

- Identify status of area with respect to NAAQS (e.g. nonattainment/maintenance for CO and identify its boundary: UGB, AQMA, etc.)

Local Air Pollutant Emissions Analysis: CO Hot-spots

- Methodology Discussion (MOBILE6.2, CAL3QHC, worst-case intersections)
- Provide MOBILE 6.2 and CAL3QHC input assumptions
- Provide Table identifying MOBILE 6.2 emission factors used for each speed and analysis year.
- Comparative discussion of CO concentrations, by intersection and alternative; (Report CO concentrations to the tenth part per million ex: 4.5 ppm)
- Provide a Table summarizing the results of the hot spot analysis for each intersection analyzed as follows:
- Table Columns: Intersection name, alternative, analysis year, LOS, 1-hour CO concentration and 8-hour CO concentration (to the tenths of a ppm)
- Include Figures illustrating intersections analyzed in hot spot analysis. Figures should include existing and proposed lane configurations (or described clearly in narrative). Identify the prediction site location where the highest CO concentration is expected (in figure or in the narrative).
- Specifically identify all exceedances of the CO standard and non-conforming intersections.

Local Air Pollutant Emissions Analysis: PM-10 Qualitative Analysis (required only if project located in PM-10 area and is required for the project)

Air Pollutant Emissions: Air Toxics (per FHWA interim guidance) & Construction

Project Conformity with the State Implementation Plan

- State whether project is regionally significant or if it is a Table 3 project of the conformity Rule.
- Conformity Determination statement
- Is the project in a conforming STIP/RTP/TIP (include dates of planning period)
- Does the project create a new hot spot violation of the NAAQS?
- Does the project increase the severity and frequency of an existing NAAQS violation?
- Does the project delay timely attainment of Transportation Control Measures?

Indirect Source Construction Permit Requirements (only if project is located in Lane County)

- State whether an ISCP is required for the project and provide supporting data.

8.0 REFERENCES

Central Lane Metropolitan Planning Organization (MPO). Air Quality Conformity Determination for the Central Lane MPO 2007-2031 Regional Transportation Plan and FY08-11 Metropolitan Transportation Improvement Program. November 2007.

Environmental Protection Agency. U.S. Code of Federal Regulations. 40 CFR Parts 51 and 93. Transportation Conformity Rule Amendments to Implement Provisions Contained in the 2005 Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU):Final Rule. Federal Register, Volume 73, Number 16, Page 4420. January 24, 2008.

Environmental Protection Agency. U.S. Code of Federal Regulations. 40 CFR Parts 80 and 86. Control of Emissions of Hazardous Air Pollutants from Mobile Sources; Final Rule. Federal Register, Volume 66, Number 61, Page 17229. March 29, 2001.

Environmental Protection Agency. Interim Guidance for Implementing the Transportation Conformity Provisions in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). EPA 420-B-06-901. February 2006.

Environmental Protection Agency. U.S. Code of Federal Regulations. 40 CFR Part 93, Subpart A. Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Title 23 U.S.C. or the Federal Transit Laws.

Environmental Protection Agency. Transportation Conformity Guidance for Qualitative Hot-spot Analysis in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas. EPA 420-B-06-902. March 2006.

Environmental Protection Agency. Memorandum – Policy Guidance on the Use of MOBILE6.2 and the December 2003 AP-42 Method for Re-Entrained Road Dust for SIP Development and Transportation Conformity. February 24, 2004.

Environmental Protection Agency. U.S. Code of Federal Regulations, 40 CFR 50. National Primary and Secondary Air Quality Standards.

Environmental Protection Agency, Guideline for Modeling Carbon Monoxide from Roadway Intersections, EPA-454/R-82-005, November 1992.

Environmental Protection Agency. User's Guide to MOBILE6.1 and 6.2. EPA 420-R-03-D10. 2003.

Environmental Protection Agency. User's Guide to CAL3QHC Version 2.0. EPA 454-R-92-006R. 1995.

Environmental Protection Agency Region 10. Letter concurring that regional PM-10 emissions analysis is not required for the Eugene-Springfield Area for conformity determination, project level analysis is required. October 3, 1994.

Environmental Protection Agency. U.S. Code of Federal Regulations. 40 CFR Part 52, Approval and Promulgation of Implementation Plans and Designation of Areas for Air Quality Planning Purposes: Oregon (Klamath Falls Carbon Monoxide). Federal Register, Volume 66, Number 183, Page 48349. September 20, 2001.

Environmental Protection Agency. U.S. Code of Federal Regulations. 40 CFR Part 52. Approval and Promulgation of State Implementation Plans: Oregon (Eugene-Springfield PM-10 Nonattainment Area). Federal Register, Volume 59, Number 163, Page 43483. August 24, 1994.

Environmental Protection Agency. U.S. Code of Federal Regulations. 40 CFR Part 52. Approval and Promulgation of State Implementation Plans: Oregon (Oakridge PM-10 Nonattainment Area). Federal Register, Volume 64, Number 49, Page 12751. March 15, 1999.

Environmental Protection Agency. U.S. Code of Federal Regulations. 40 CFR Parts 52 and 81. Approval and Promulgation of Air Quality Implementation Plans; Medford-Ashland PM10 Attainment Plan, Maintenance Plan and Redesignation Request. Federal Register, Volume 71, Number 117, Page 35163. June 19, 2006.

Environmental Protection Agency. U.S. Code of Federal Regulations. 40 CFR Parts 52 and 81. Approval and Promulgation of Air Quality Implementation Plans: State of Oregon: Grants Pass PM-10 Nonattainment Area Redesignation to Attainment and Designation of Areas for Air Quality Planning Purposes. Federal Register, Volume 68, Number 207, Page 61111. October 27, 2003.

Federal Highway Administration. SAFETEA-LU Environmental Review Process Final Guidance. November 15, 2006.

Federal Highway Administration. Urban Transportation Planning In the United States: An Historical Overview: Fifth Edition, Chapter 4. Urban Transportation Planning Comes of Age. http://tmip.fhwa.dot.gov/clearinghouse/docs/utp/ch4.stmp

Federal Highway Administration. U.S. Code of Federal Regulations. 23 CFR 450 and 500. Statewide Transportation Planning: Metropolitan Transportation Planning; Final Rule. Federal Register, Volume 72, Number 30, Page 7224. February 14, 2007.

Federal Highway Administration. Interim Guidance on Air Toxic Analysis in NEPA Documents. Memorandum from Cynthia J. Burbank, Associate Administrator for Planning, Environment and Realty. February 3, 2006.

Metro. Public Review Draft Air Quality Conformity Determination for the 2035 Regional Transportation Plan and 2008-11 Metropolitan Transportation Improvement Program. January 18, 2008.

Mid-Willamette Valley Council of Governments. Air Quality Conformity Determination for the SKATS 2031 Regional Transportation Systems Plan and the SKATS FY 2008-FY 2011 Transportation Improvement Plan. May 22, 2007.

Oregon Department of Environmental Quality, Oregon Department of Environmental Quality 2007 Oregon Air Quality Data Summaries.

Oregon Department of Environmental Quality. Oregon Administrative Rules, Division 252. Transportation Conformity.

Oregon Department of Environmental Quality. Oregon Administrative Rules, Chapter 340, Division 202. Ambient Air Quality Standards and PSD Increments.

Oregon Department of Environmental Quality. Portland Area Carbon Monoxide Maintenance Plan, State Implementation Plan, Volume 2, Section 4.58. December 10, 2004.

Oregon Department of Environmental Quality. Salem-Keizer Area Carbon Monoxide Limited Maintenance Plan, State Implementation Plan, Volume 2, Section 4.57. June 4, 2007.

Oregon Department of Environmental Quality. Amendment of Oregon's SIP Eugene Springfield CO Attainment Redesignation and Adoption of Maintenance Plan. July 28, 1989.

Oregon Department of Environmental Quality. State Implementation Plan Revision for Carbon Monoxide in the Medford Urban Growth Boundary, Plan for Maintaining the National Ambient Air Quality Standards for Carbon Monoxide. March 9, 2001.

Oregon Department of Environmental Quality. State Implementation Plan Revision for Carbon Monoxide in the Grants Pass Urban Growth Boundary, Plan for Maintaining the National Ambient Air Quality Standards for Carbon Monoxide. September 13, 1999.

Oregon Department of Transportation. La Grande Air Quality Conformity Determination. January 2005.

Oregon Department of Environmental Quality. A Plan for Maintaining The National Ambient Air Quality Standards for Particulate Matter (PM_{10}) in Klamath Falls Urban Growth Boundary, Section 4.56 of the State Implementation Plan. Draft. March 2002.

Oregon Department of Environmental Quality. A Plan for Maintaining the National Ambient Air Quality Standards for Particulate Matter (PM_{10}) in the Lakeview Urban Growth Boundary, Section 4.60 of the State Implementation Plan. Draft. March 2005.

Oregon Department of Environmental Quality. A Plan for Maintaining the National Ambient Air Quality Standards for Particulate Matter (PM_{10}) in the La Grande Urban Growth Boundary, Section 4.59 of the State Implementation Plan. Draft. March 2005.

Oregon Department of Environmental Quality. Portland Air Toxics Assessment Study. 2006.

Rogue Valley Metropolitan Planning Organization. Air Quality Conformity Determination (AQCD) for the 2008-2011 Transportation Improvement Program (TIP).

Appendix A

NAAQS and Air Pollutant Descriptions

Table A-1
Federal And State Primary Ambient Air Quality Standards

Pollutant	Averaging Time	Violation Determination	Federal (NAAQS)	Oregon (SAAQS)
Carbon Monoxide	8-hour	Not to be exceeded more than once/year	9 ppm	9 ppm
	1-hour	Not to be exceeded more than once/year	35 ppm	35 ppm
Lead	Calendar Quarter	Quarterly arithmetic mean	1.5 $\mu g/m^3$	1.5 $\mu g/m^3$
Ozone	8-hour	3-year average of the annual 4th highest daily maximum 8-hr average concentration	0.075 ppm	0.08 ppm
Nitrogen Dioxide	Annual Arithmetic Mean	Annual arithmetic mean	0.053 ppm	0.053 ppm
Sulfur Dioxide	Annual Arithmetic Mean	Not to be exceeded more than once/year	0.03 ppm	0.02 ppm
	24-hour	Not to be exceeded more than once/year	0.14 ppm	0.10 ppm
	3-hour	Not to be exceeded more than once/year	--	0.50 ppm
PM_{10}	Annual average	3-year average of the annual arithmetic mean	--	50 $\mu g/m^3$
	24-hour Average	The expected number of days per calendar year with a 24-hr average concentration above 150 ug/m3 is equal to or less than 1 over a 3-year period	150 $\mu g/m^3$	150 $\mu g/m^3$
$PM_{2.5}$	Annual average	3-year Average of Annual Arithmetic Mean	15 $\mu g/m^3$	--
	24 hour	3-year Average of 98th Percentile of 24-hour concentrations	35 $\mu g/m^3$	--

Sources: Environmental Protection Agency (EPA) Office of Air Quality Planning and Standards (OAQPS) http://www.epa.gov/air/criteria.html ; Oregon Administrative Rule (OAR) 340-202-0050 through -0130 http://arcweb.sos.state.or.us/rules/OARs_300/OAR_340/340_202.html.

Note: ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter; PM_{10} = particulates with an aerodynamic diameter of less than or equal to 10 micrometers; $PM_{2.5}$ = particulate with an aerodynamic diameter of less than or equal to 2.5 micrometers.

Air Pollution Descriptions and Effects

POLLUTANT	WHAT IS IT?	WHERE IT COMES FROM	WHAT DAMAGE IT CAUSES
Suspended Particulate (TSP & PM_{10})	Solid and liquid particles of soot, dust, aerosols and fumes ranging from 0.1 to 100 microns in size (1 micron = 1/2540”).	Combustion sources, cars industrial emissions, residential wood burning, fugitive dust, field and slash burning; and natural sources, such as ocean spray, wind-raised dust, and volcanic eruptions.	Aggravates chronic lung diseases, heart and lung disease symptoms. Causes material damage, soiling and visibility reduction.
Sulfur Dioxide	A colorless, pungent, irritating gas.	Oil and Coal combustion and industrial emissions.	Aggravates asthma, heart and lung disease in the elderly; irritated lungs; is corrosive to metals and marble; and causes plant damages.
Carbon Monoxide	A colorless, odorless gas that replaces oxygen in the blood stream.	Incomplete combustion sources, mostly cars and woodstoves.	Interferes with the bloods ability to carry oxygen, causing heart difficulties in those with chronic diseases; reduces lung capacity; and impairs mental abilities.
Ozone	A toxic gas, associated with photochemical smog.	Photochemical reactions in the atmosphere between oxides of nitrogen and hydrocarbons in the presence of direct sunlight and warm temperatures.	Causes eye irritation; damage to lung tissue and lung function; and material and plant damage.
Nitrogen Dioxide	A reddish brown gas, toxic in high concentrations.	Formed by conversion of nitric oxide (from autos and combustion sources), and from industrial sources	Increases chronic bronchitis and irritates lungs.
Non-Methane Hydrocarbons	A large family of compounds consisting of hydrogen and carbon.	Autos, fuel evaporation, industry and combustion processes.	Causes plant damage and contributes to formation of ozone.
Lead	A gray metal derived from ore bearing minerals.	Cars burning leaded fuel and some industrial sources.	Interferes with the operation of the blood forming (hematopoietic), nervous & renal (kidney) systems. Sensitive populations include infants and expectant mothers.

Appendix B

Medford AQCD Table of PM10 Factors for Paved and Unpaved Roads

Air Quality Conformity Determination (AQCD)

for 2008-2011 Transportation Improvement Program (TIP)

Rogue Valley Metropolitan Planning Organization

The RVMPO is staffed by the Rogue Valley Council of Governments
155 North First Street, PO Box 3275 Central Point, OR 97502
(541) 664-6674

Appendix B

Using MOBILE 6.2.03: Mobile Source Emission Factor Model

RVCOG has used the following MOBILE6.2.03 model input parameters for transportation conformity analysis. Carbon monoxide and PM_{10} exhaust, tire and brake wear emission factors are derived from this model.

Figure C-1 Mobile 6.2 Emissions Factors

Inputs to Mobile 6.2	CO Analysis	PM Analysis
Non-Seasonal Values		
1. VMT Fractions (fleet mix)	National defaults	
2. Anti-Tamp Program	86 81 50 22222 22222222 1 12 90 22212222	
3. No Refueling	TRUE	
4. RAP Oxy Waiver	2	
Winter Values		
5. Min Temp	23.7	23.7
6. Max Temp	45.7	45.7
7. Fuel RVP	13.6	13.6
8. Absolute Humidity	30.9	30.9
9. Oxygenated Fuels	0.000_0.300_0.000_0.035_2	0.000_0.300_0.000_0.035_ 2
10. Diesel Sulfur	350	350
Summer Values		
11. Min Temp	n/a	52.9
12. Max Temp	n/a	91.1
13. Fuel RVP	n/a	9.0
14. Absolute Humidity	n/a	48.5
15. Oxygenated Fuels	n/a	0.000_0.300_0.000_0.035_2
16. Diesel Sulfur	n/a	260 ppm in 2005, 15 ppm in 2006 and later Our best information indicates that sulfur content of diesel fuel in Jackson county is currently averaging about 260 parts per million (ppm) in summer. Information suggests that refiners serving the northwest are on track to implement the federal requirement for 15 ppm sulfur diesel fuel starting mid 2006. Use 15 ppm diesel sulfur for all analysis years after 2005. Mobile 6.2 has

Inputs to Mobile 6.2	CO Analysis	PM Analysis
		its own internal factors for light duty vehicle (gas) sulfur content.
Non-Seasonal (file format)		
17. regdata.in (vehicle age distribution)	MOBILE 6.2 national default values will be used. Area specific data may be used, if necessary.	
18. imfile.in (Maintenance Programs -if applicable)	Jackson county has three levels of tests so there needs to be 3 I/M program entries; 1) 1996 to CY minus 4 years OBD exhaust benefits; 2) 1996 to CY minus 4 years OBD evaporative benefits; and 3) the period of "analysis year minus 20 years" until 1995 gets the basic test.	

Re-suspended Road Dust Emission Factors

The analysis used EPA's basic AP-42 equation for computing re-suspended paved road dust. This was used to calculate emission factors (EF) for the Medford Ashland AQMA. The formula is as follows:

$$EF\ (grams/mile) = (7.3)\ \{(sL/2)0.65 \times (w/3)1.5\}$$

The correction factor for 1980's exhaust, tire and brake wear (C) was not used to calculate emission factors in the SIP and was not used here.

The methodology used is conservative and does not take into account the affect of precipitation on the re-suspension process for long term averages. However, AP-42 does allow adjustment of EF's due to precipitation and could be used in future PM_{10} emissions estimates.

Emission factors in the table below were calculated using the AP-42 methodology and were used to calculate PM-10 emissions for this Conformity determination.

Figure C-2 Emission Factors (gram/mile) Unpaved and Paved Road Dust

	2010	2015	2020	2030
Unpaved Roads	521.63	521.63	521.63	521.63
White City Low ADT Roads	6.61	6.74	6.78	6.83
White City High ADT Roads	3.62	3.7	3.72	3.75
White City Avenue G	14.17	14.46	14.55	14.65
Medford Ashland AQMA Low ADT	1.7	1.72	1.72	1.74
Medford Ashland AQMA High ADT	0.86	0.87	0.87	0.88
Interstate	0.32	0.33	0.33	0.34

Appendix C

Traffic Data Request Checklist

Air Quality Analysis Traffic Data Requirements Check List

Project _____

Highway _____

County _____

Key # _____

Data Needed

Analysis Years and Cases - Burden:

Existing	_____
Project Completion Year	_____
20-year Projection	_____
No-Build	_____
Build	_____

1 Design Year Build AADT

If AADT greater than 140,000, a detailed MSAT analysis will be required. Links with volume changes of 5% or more will need to be included. Traffic volumes in blocks or hourly over a 24-hour period may be needed. Methodology should be reviewed with FHWA. TPAU and air analysts should meet to discuss MSAT methodology.

2 Regional Annual VMT and average regional speed ,or average daily traffic and average speeds on links

Analysis Years and Cases - Local CO:

Local CO is based on peak hour data.

Existing	_____
Project Completion Year	_____
20-year Projection	_____
No-Build	_____
Build	_____

1 Ranking of intersections affected by the project by LOS/delay and total entering volume for project completion year and 20-year projection for Build cases only. _____

2 For selected intersections (from ranking), synchro sheets showing: _____

Lane configurations
Type of signal (pretimed, actuated, semi-actuated)
Saturated flow (permitted and protected as appropriate)
Lane group actual volumes
Total cycle length
Effective green time
Yellow times

3 Free flow speeds for links at the selected intersections _____

4 Arrival type for links at the selected intersections (1 to 5 for best to worst progression) _____

Analysis Years and Cases - Local PM10:

Project Completion Year	_____
20-year Projection	_____
No-Build	_____
Build	_____

1 If a PM10 analysis is required _____

Highest ADT on links in project limits

Appendix D

ODOT Consultant SOW Analysis Requirements Checklist

Air Quality SOW template for EIS or EA work
Required SOW tasks based on project location and project type.

Project Location	**Task 3.5.1**	**Task 3.5.2**	**Task 3.5.3[1]**	**Task 3.5.5[2]**	**Task 3.5.6[3]**	**Task 3.5.7[4]**	**Task 3.5.8**
"Attainment" areas: areas with no history of violating the NAAQS	☒	☐	☐	☐	☐	☐	☒
"Non-attainment" or "Maintenance" areas:							
Region 1:							
Portland (METRO boundary)	☐	☒	☒	☐	☒	☒	☒
Region 2							
Salem-Keizer (SKATS: Salem-Keizer Area Transportation Study)	☐	☒	☒	☐	☒	☒	☒
Eugene-Springfield (AQMA: Air Quality Maintenance Area – UGB)	☐	☒	☒	☒	☒	☒	☒
Oakridge (UGB: Urban Growth Boundary)	☐	☒	☐	☒	☒	☐	☒
Region 3							
Medford (UGB: urban growth boundary)	☐	☒	☒	☐	☒	☒	☒
Medford-Ashland (AQMA: Air Quality Maintenance Area) but outside the UGB	☐	☒	☐	☒	☒	☐	☒
Medford-Ashland (UGB and AQMA) project located within both boundaries	☐	☒	☒	☒	☒	☒	☒
Grants Pass (CBD: Central Business District)	☐	☒	☒	☐	☒	☒	☒
Grants Pass (UGB: Urban Growth Boundary) but outside CBD boundary	☐	☒	☐	☒	☒	☐	☒
Grants Pass (CBD and UGB) project located within both of these boundaries	☐	☒	☒	☒	☒	☒	☒
Region 4:							
Klamath Falls (UGB: Urban Growth Boundary)	☐	☒	☒	☒	☒	☒	☒
Lakeview (UGB: Urban Growth Boundary)	☐	☒	☐	☒	☒	☐	☒
Region 5:							
La Grande (UGB: Urban Growth Boundary)	☐	☒	☐	☒	☒	☐	☒

TASK DESCRIPTIONS:

Task #	**TASK DESCRIPTION**
3.5	**Prepare an air quality analysis and technical report**
3.5.1	General Air Analysis for projects in areas that are "in attainment" of the NAAQS
3.5.2	General Air Analysis for projects in areas that are in "non-attainment or maintenance" of the NAAQS
3.5.3	CO Hot-Spot Analysis Determination and "qualitative" analysis
3.5.4	Quantitative CO Hot-Spot Analysis (CONTINGENCY)
3.5.5	Qualitative PM-10 Hot-Spot Analysis Determination
3.5.6	Pollutant Burden Analysis
3.5.7	Indirect Source Construction Permit Determination
3.5.8	Prepare an Air Quality Technical Report

Instructions:

1. Verify if the project's location is within one of the nonattainment or maintenance boundaries listed above. If the project is located outside all of these boundaries, then the project location is considered to be "in attainment" of the National Ambient Air Quality Standards (NAAQS).
2. After you've determined the project's location and its designation status (attainment or nonattainment/maintenance area) you can begin to assign what tasks are needed based on boxes checked for that area.

Important note: Be sure to follow the footnotes assigned on the tasks and compare this to your project description. The checked boxes above DO NOT necessarily reflect all project types. The checked boxes reflect various regulatory or agency requirements based on project location. The checked boxes indicate the "maximum" level of analysis that would be required based on the project location.

NOTE: Task 3.5.1 OR Task 3.5.2 must always be included in every SOW, NEVER both tasks. Mobile Source Air Toxics analysis is also covered in General Analysis Tasks 3.5.1 and 3.5.2.

[1] Task 3.5.3 CO hot spot analysis task should be included if project is located in one of the following CO areas: Portland METRO (UGB), Salem-Keizer (SKATS), Eugene-Springfield (AQMA), Medford (UGB), Grants Pass (CBD) or Klamath Falls (UGB) Quantitative analysis may be required and is done as Contingency Task 3.5.4. When Task 3.5.3 is included in the SOW, always include Task 3.5.4 as a contingency task.

[2] Task 3.5.5a PM-10 hot spot analysis determination is required if the project is located within the PM10 boundary of Eugene-Springfield (AQMA) , Medford-Ashland (AQMA), Grants Pass (UGB), Klamath Falls (UGB), Lakeview (UGB), La Grande (UGB), or Oakridge (UGB). If the consultant determines that a PM10 analysis is required, contingency task 3.5.5 (b) should occur.

[3] Task 3.5.6 Pollutant Burden Analysis is required in any nonattainment or maintenance area for projects that are regionally significant. This typically includes projects large in size that will increase vehicular capacity, or involve the construction of new roadway sections, and where the project will significantly change traffic volumes and traffic flow.

[4] Task 3.5.7 Indirect Source Construction Permit Determination is required if the project is located in Lane County.. For projects in areas outside of Lane County, an ISCP Determination is required only if the project includes a new parking facility or modification of an existing parking facility AND is located within the CO boundary of Portland (METRO), Salem-Keizer (SKATS) , Medford (UGB), or other CO areas where populations are 50,000 or more.

Appendix E

Projects Exempt from Conformity

Table E-1 Projects Exempt from Conformity Requirements

Safety	Mass Transit	Air Quality	Other
Railroad/highway crossing. Hazard elimination program. Safer non-Federal-aid system roads. Traffic control devices and operating assistance other than signalization projects. Shoulder improvements. Increasing sight distance. Safety improvement program. 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.	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 replace existing vehicles or for minor expansions of the fleet.[1] Construction of new bus or rail storage/maintenance facilities categorically excluded in 23 CFR 771.	Continuation of ride-sharing and van-pooling promotion activities at current levels. Bicycle and pedestrian facilities.	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. Emergency or hardship advance land acquisitions (23 CFR 710.503). 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, locational or capacity changes.

Source: Oregon Administrative Rule (OAR) 340 Division 252-0270 "Table 2 Exempt Projects." http://www.deq.state.or.us/aq/rules/div252/table.htm as modified by 40 CFR 93.126 http://www.fhwa.dot.gov/environment/conformity/rule.pdf

Note: A project is not exempt if the Metropolitan Planning Organization, in consultation with other agencies, determines that it has potentially adverse effects. This would be an unusual circumstance.

[1] In PM_{10} and $PM_{2.5}$ nonattainment or maintenance areas, such projects are exempt only if they are in compliance with control measures in the applicable implementation plan. See Table D-2 for a summary of PM control measures and links to the full text of the PM maintenance plans.

Projects Exempt from Regional Emissions Analyses

In addition to the projects listed in Table E-1, which are exempt from the conformity requirements, the following projects are exempt from only the regional emissions analysis component of conformity (OAR 340 Division 252-0280 “Table 3 Exempt Projects.”):

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

Project-level conformity still applies to the projects listed above.

Appendix F

Typical Wording for Construction Impacts and Mitigation

Short Term Construction Impacts Mitigation – typical wording [Note: modify wording appropriately for the magnitude of the project and the planned project construction activities – this is typical language for a large project, cut out non-pertinent information when addressing impacts for a small project]

Construction impacts would result from the generation of dust from site clearing, excavation, and grading, direct emissions from construction vehicles, and impacts to traffic flow in the project area. Traffic congestion increases idling times and reduces travel speeds resulting in increased vehicle emission levels. Construction of concrete structures may have associated dust-emitting sources, such as concrete mixing operations. Asphalt mix plants could also be associated with construction and could have particulate, hazardous air pollutant and combustion source emissions. Stationary sources such as concrete and asphalt mix plants are generally required to obtain air permits from DEQ (or LRAPA) and to comply with regulations to control dust and other pollutant emissions.

Construction contractors are required to comply with Division 208 of OAR 340 which addresses visible emissions and nuisance requirements. Subsection 210 of OAR 340-208 places limits on fugitive dust that causes a nuisance or violates other regulations. [Note: modify the references to DEQ regulations appropriately if project is in Lane County and under the jurisdiction of LRAPA] Violations of the regulations can result in enforcement action and fines. The regulation provides a list of reasonable precautions be taken to avoid dust emissions:

- Use of water or chemicals where possible for the control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads or the clearing of land;
- Application of asphalt, oil, water, or other suitable chemicals on unpaved roads, materials stockpiles, and other surfaces which can create airborne dusts;
- Full or partial enclosure of materials stockpiles in cases where application of oil, water, or chemicals are not sufficient to prevent particulate matter from becoming airborne;
- Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials;
- Adequate containment during sandblasting or other similar operations;
- When in motion, always covering open-bodied trucks transporting materials likely to become airborne;
- The prompt removal from paved streets of earth or other material that does or may become airborne.

In addition, contractors are required to comply with ODOT standard specifications. Section 290 of the specifications has requirements for environmental protection, which include air pollution control measures. These control measures, designed to minimize vehicle track-out and fugitive dust, would be documented in the pollution control plan that the contractor is required to submit prior to the pre-construction conference [Note: verify that the preceding sentence is appropriate to the project being analyzed – small projects may not have this measure]. To reduce the effect of construction delays on traffic flow and resultant emissions, road or lane closures should be restricted to non-peak traffic periods when possible.

Appendix G

Definitions and Acronyms

Definitions

Air Quality Nonattainment Area: A region that exceeds the National Ambient Air Quality Standards for a criteria pollutant.

Area Source: A group of adjacent sources which individually may not contribute significantly to a community's air pollution problem, but collectively can become a major pollution problem.

Background Concentration: Represents the concentration of carbon monoxide (CO) that would be found in the atmosphere within the project area due to areawide mobile and stationary sources of emissions.

CAL3QHC: An interrupted flow dispersion model used to predict CO concentrations.

Categorical Exclusion (CE): An action that does not individually or accumulatively have significant impact on the environment.

Clean Air Act (CAA): A series of Congressional acts and amendments passed in an effort to improve air quality. The last amendment was made in 1990.

Conformity Rule: State OAR that requires Regional Transportation Plans (RTP), Transportation Improvement Programs (TIP), transportation projects that receive funding or require approval from Federal Highway Administration (FHWA) or Federal Transit Authority (FTA), and regionally significant projects - regardless of funding source- to conform to the *purpose* of a State Implementation Plan (SIP).

Control Measures: measures that are applied to address all sources of emissions and can affect transportation facilities.

Dispersion Model: Model used to predict how pollutant emissions will spread out through the air from their source based on meteorological, site, traffic, and emission variables.

Emission Budget: Total allowable emissions within an area. It is defined to attain/maintain air quality standards and is based on a revision to the applicable implementation plan.

Emission Factor: A factor that describes the amount of pollutant emitted from a transportation source, usually expressed in grams per mile.

Environmental Assessment (EA): An assessment of an action where the significance of an impact is not clearly established.

Environmental Impact Statement (EIS): An assessment of an action where the impact will be significant to the environment.

Finding of No Significant Impact (FONSI): A federal action when the EA concludes that there will be no significant negative impact on the environment.

Free-Flow Link: A link(s) of roadway where vehicles are moving without experiencing the delays typically associated with intersections.

Hot-Spot Analysis: An estimation of likely future localized CO and PM_{10} pollutant concentrations and a comparison of those concentrations to the National Ambient Air Quality Standards.

Idle Emission Factor: Defined as an emission factor that accounts for vehicles idling at an intersection.

Indirect Source: A facility, building, structure, or installation or any combination of these, which indirectly causes vehicular activity that results in emissions of air pollutants.

Indirect Source Construction Permit: A permit that is issued by the lead air quality agency for the construction of indirect sources.

Intermodal Surface Transportation Efficiency Act (ISTEA): A Congressional Act that changed the focus from building out of transportation troubles to getting as much out of what is already in place.

Maintenance Period: The time after EPA redesignates an area to attainment. During this time control strategies are required to maintain the attainment of the standards.

Regional Analysis: An analysis of emissions in a maintenance or nonattainment area. Usually done to demonstrate plan and program conformity.

Area/project level Analysis: Small scale to address local effects of a project. Usually done to demonstrate project conformity.

National Ambient Air Quality Standards (NAAQS): The standards for pollutants developed in response to the 1970 CAAA.

National Environmental Policy Act (NEPA): A broad based environmental legislation requiring that an Environmental Impact Statement be prepared to examine the social, economic and environmental effects of major Federal actions that significantly affect the quality of human environment.

Persistence Factor: A factor that is applied to predicted 1-hour concentrations to obtain 8-hour concentrations. It is pollutant specific.

Primary Standards: Standards established to protect human health.

Queue Link: A straight segment of roadway having a constant width, traffic volume, and vehicle emission factor where vehicles are idling for a specific period of time.

Receptor: The location at which concentrations are estimated.

Regional Transportation Plan (RTP): The official intermodal metropolitan transportation plan that is developed through the metropolitan planning process for the metropolitan planning area.

Secondary Standards: Standards established to protect human welfare.

State Implementations Plan (SIP): A federally enforceable state law which specifies measures to be used in attainment and maintenance of National Ambient Air Quality Standards (NAAQS).

Transportation Control Measures (TCM): Any measure that is specifically identified and committed to in the applicable implementations plan that is either one of the types listed in δ 108 of the CAA or measures for the purpose of reducing emissions or concentrations of air pollutants from transportation sources by reducing vehicle use or changing traffic flow or congestion conditions.

Transportation Improvement Program (TIP): A staged, 3-year (updated every 2 years), intermodal program of transportation projects covering a metropolitan planning area which is consistent with the metropolitan transportation plan.

Acronyms

AADT:	Annual Average Daily Traffic
APCA:	Air Pollution Control Act of 1955
AQMA:	Air Quality Maintenance Area
CAA:	Clean Air Act
CATS:	Eugene Central Area Transportation Study
CBD:	Central Business District
CE:	Categorical Exclusion
CM:	Control Measure
CO:	Carbon monoxide
DE:	Diesel Exhaust
DEQ:	Department of Environmental Quality
EA:	Environmental Assessment
EIS:	Environmental Impact Statement
EPA:	Environmental Protection Agency
FHWA:	Federal Highway Administration
FONSI:	Finding of No Significant Impact
FTA:	Federal Transit Administration
ISCP:	Indirect Source Construction Permit
IRIS:	Integrated Risk Information System
ISTEA:	Intermodal Surface Transportation Efficiency Act
LOS	Level-of-Service
LRAPA:	Lane Regional Air Protection Agency
Mph:	Miles per Hour
MPO:	Metropolitan Planning Organization
MSAT	Mobile Source Air Toxics
MWVCOG:	Mid-Willamette Valley Council of Government
NAAQS:	National Ambient Air Quality Standards
NOx:	Nitrogen oxides
NEPA:	National Environmental Policy Act
OAR:	Oregon Administrative Rule
ODOT	Oregon Department of Transportation
PM10:	Particulate matter of less than, or equal to a nominal 10 micrometers in diameter
PM2.5:	Particulate matter of less than, or equal to a nominal 2.5 micrometers in diameter
ROD:	Record of Decision
RTP:	Regional Transportation Plan
SAFETEA-LU:	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SAQR:	Statewide Air Quality Report
SIP:	State Implementation Plan
SKATS:	Salem-Keizer Area Transportation Study Boundary
SO2:	Sulfur Dioxide
SOW:	Statement of Work
STIP:	State Transportation Improvement Program
TCM:	Transportation Control Measures
TIP:	Transportation Improvement Program
TPAU:	Transportation Planning Analysis Unit
UGB:	Urban Growth Boundary
VOC:	Volatile Organic Compound
VMT:	Vehicle Miles Traveled