425.01 Air Quality Overview

WSDOT ensures our projects meet all state and federal air quality requirements.

The Clean Air Act requires conformity determinations for projects in nonattainment and maintenance area and addresses only criteria pollutants. A conformity determination ensures a project will not cause or contribute to a violation of the National Ambient Air Quality Standards (NAAQS) set by EPA to protect human health and welfare. Pollutant concentrations can increase, as long as the result does not exceed the standard.

NEPA requires documenting and, as applicable, comparing air quality effects of project alternatives. The NEPA requirement includes criteria pollutants and extends to MSAT and GHG emissions, as well. In addition, temporary construction emissions (fugitive dust), are evaluated qualitatively for larger projects. Commitments for incorporating construction best management practices to reduce fugitive dust emissions are documented.

WSDOT policy to address climate change and greenhouse gas emissions in NEPA documents remains in place. In 2017, the White House Council on Environmental Quality withdrew its final guidance for federal agencies on how to consider greenhouse gas emissions and the effects of climate change in NEPA documents. Federal Courts, however, are still actively issuing decisions indicating that federal agencies have a responsibility to disclose the contribution of greenhouse gases as a cumulative effect. WSDOT’s direction is found in Chapter 440 (Energy), see also the WSDOT website for more information on incorporating these considerations in your NEPA documents.

425.02 Conformity Requirements

Transportation conformity requirements (40 CFR 93) in the Clean Air Act apply in nonattainment and maintenance areas to ensure that transportation projects do not cause or contribute to a violation of the National Ambient Air Quality Standards (NAAQS). WSDOT’s GIS workbench includes air quality maps showing current nonattainment and maintenance areas.

Reminder, per 40 CFR 90.104(d), projects must be implemented (e.g., completion of environmental documents, acquisition of right of way, begin construction) within three years of the project level conformity determination or a new conformity finding is required. Conformity must also be redetermined if there is a significant change in the project’s design concept and scope or a supplemental environmental document is initiated for air quality purposes.
425.02(1) **Exempt Projects**

Projects exempt from conformity are listed in federal and state regulations (40 CFR 93.126 and WAC 173-420-110). These are mostly projects that maintain existing transportation facilities, improve mass transit, or are considered to have a neutral impact on air quality.

Some projects, like park and ride lots, may reduce regional air emissions but increase emissions locally, which is why they are exempt from regional but not project level conformity analysis.

Both the federal and state exempt lists include the category "hazard elimination program" for projects that are normally air quality neutral, like removing rock fallen from the road or replacing guardrails. However, not all projects with hazard elimination program funds are automatically exempt from conformity analysis. For example, if installation of a new traffic signal or re-striping to add new lanes is funded by the program, then conformity analysis is still required.

A metropolitan planning organization (MPO), in consultation with partner agencies, may also determine that a project on the exempt list has the potential for adverse emissions impacts and requires analysis.

425.02(2) **Region-Level Analysis**

Regional conformity analysis is conducted by an MPO for their long-range plan and four-year transportation improvement program (TIP) (see Chapter 200). An MPO must demonstrate through modeling that the emissions from the package of planned projects remain below the motor vehicle emissions budget for the region. If project design concept or scope changes in a way that could affect region-level emissions, the conformity determination must be updated.

Projects requiring a region-level conformity determination must be included in a conforming plan. See WAC 173-420-120 for projects exempt from regional analysis.

Projects DO NOT conform if any of the following occur:

- Project is not in a conforming program.
- Total project is not included in the regional analysis and conforming TIP (may still demonstrate conformity through hotspot modeling).
- Project design and scope are significantly different from the conforming TIP.

425.02(3) **Project-Level Analysis**

Transportation conformity regulations require project-level quantitative, or "hotspot," determination for nonexempt projects within CO or PM\(_{(2.5,10)}\) nonattainment and maintenance areas. Exempt projects are listed in 40 CFR 93.126 and 40 CFR 93.128.

For project-level analysis, all project alternatives must be analyzed for the existing year, estimated year of completion, and design year (end year of current transportation plan).

**Carbon Monoxide (CO)** – Transportation conformity regulations require analysis of all intersections affected by the project within nonattainment or maintenance areas that are Level of Service (LOS) D, E, or F in the Existing or Design Year. "Affected intersections" have at least a 10 percent increase in volumes or a degradation of LOS to D or worse with the project. (Choosing the top three intersections by volume and LOS is no longer an option.)

When the total predicted one-hour CO concentrations (standard is 35 ppm) are less than the eight-hour CO standard (9 ppm), no separate eight-hour analysis is necessary.
If the preferred alternative would result in violations of either CO standard, reasonable mitigation measures should be developed through coordination with interagency consultation partners. The air quality analysis should discuss proposed mitigation measures and include documentation of the coordination.

FHWA has released a Carbon Monoxide Categorical Hotspot Finding that satisfies project-level conformity requirements for eligible projects. For projects outside the parameters of FHWA's finding, Washington State Intersection Screening Tool (WASIST) is approved for hot-spot analysis throughout the state.

**Particulate Matter (PM)** – A project-level $\text{PM}_{2.5,10}$ conformity determination is required for all nonexempt projects located in nonattainment or maintenance areas. $\text{PM}_{10}$ area hot-spot analysis must include both direct (exhaust, tire wear, and brake wear) and re-entrained road dust using EPA's AP-42 emission factors unless a local method is specified in the SIP. A $\text{PM}_{2.5}$ analysis does not need to include re-entrained dust.

Projects meeting the criteria under 40 CFR 93.123(b)(1) must be evaluated through interagency consultation to determine if they are “projects of air quality concern” (POAQC), and, thus, require a quantitative hot-spot analysis. These project types include:

- New or expanded highway projects that have a significant number or significant increase in the number of diesel vehicles.
- Projects affecting intersections that are at or will become Level of Service D, E, or F with a significant number of diesel vehicles.
- New or expanded bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location.
- Projects in or affecting locations, areas, or categories of sites which are identified in the $\text{PM}_{10}$ or $\text{PM}_{2.5}$ applicable implementation plan as sites of violation or possible violation.

If the interagency consultation agencies concur that a project meeting one of these definitions is not a POAQC, a hot-spot analysis is not required. A project-level conformity determination is still required for projects determined to not be POAQC and nonexempt project types not listed in 40 CFR 93.123(b)(1) but meeting applicable criteria in 40 CFR 93.109. In cases where a hot spot analysis is not required, the documentation should clarify that EPA has determined that projects not listed in 40 CFR 93.123(b)(1) meet the Clean Air Act’s requirements without a hotspot analysis.

Contact the Air Quality and Energy Policy Specialist if your project may meet the criteria for a POAQC.

### 425.03 NEPA Requirements

NEPA requires documenting and comparing air quality effects of project alternatives for projects that are not categorically excluded. The NEPA requirement for EA and EIS projects includes criteria pollutants, mobile source air toxics (MSAT). WSDOT policy requires greenhouse gas emissions analysis for EA and EIS projects. Refer to the WSDOT Project-Level Greenhouse Gas Evaluations Under NEPA and SEPA for current requirements. In addition, temporary construction emission (fugitive dust), are evaluated qualitatively for most projects along with commitments for incorporating construction best management practices to reduce fugitive dust. Conformity analyses and determinations must be documented in the air quality section, as well.
For each alternative, documentation should describe the affected environment, current conformity status, latest planning assumptions, analysis methodology and results, potential operational and construction impacts, recommended mitigation, and the results of any interagency coordination. The Air Quality Analysis Checklist lists all the required information for document approval by WSDOT.

### 425.03(1) Criteria Pollutants
In addition to meeting all conformity analysis requirements, projects should compare emissions of the transportation related criteria pollutants and precursors (CO, PM$_{2.5}$, PM$_{10}$, NO$_X$, and VOCs)

### 425.03(2) Mobile Source Air Toxics (MSATs)
WSDOT uses the same requirements as the current FHWA interim guidance on MSATs (2016) that bases the level of analysis on the type of project and likelihood of MSAT effects. Quantitative MSAT emissions analysis is required for projects on facilities with average annual daily traffic (AADT) greater than 140,000 vehicles or where there is potential for the project to substantially increase (10 percent) the number of diesel vehicles using a roadway. Qualitative MSAT evaluations may be required for projects on lower volume facilities.

### 425.03(3) Greenhouse Gas Emissions (GHG)
Refer to Chapter 440 and WSDOT's Guidance for Project-Level Greenhouse Gas Evaluations under NEPA and SEPA for information regarding greenhouse gas emissions. GHG emissions modeling should be coordinated with the air quality analysis for consistent inputs and work efficiency. Although federal policy does not require GHG analysis, WSDOT policy does require this analysis.

### 425.03(4) Temporary Construction Emissions
For most projects, analysis of construction emissions includes a qualitative discussion of best management practices for reducing fugitive dust and a summary of any agreements between the project sponsor and local clean air agency. For some larger projects or those lasting more than five years at one location, a quantitative emissions analysis of construction activities may be recommended. Consult the Air Quality and Energy Policy Specialist for more details.

Requirements on handling and disposing of asbestos are covered in Chapter 447.

### 425.03(5) Fugitive Dust
For projects involving earthwork, construction plans and specifications should be evaluated to identify possible dust producing activities and appropriate best management practices (BMPs). BMPs are required for all WSDOT projects per our Memorandum of Agreement with the Puget Sound Clean Air Agency.

BMPs prevent or reduce fugitive dust emissions. Common methods are outlined in the Guide to Handling Fugitive Dust from Construction Projects from Construction Projects by the Associated General Contractors (AGC) of Washington and are not mutually exclusive. In summary, the BMPs

- Limit creation or presence of dust-sized particles. Cover exposed surfaces, use dust suppressants, install erosion control, minimize surface disruptions, pave dirt access roads, reschedule “dusty” work with consideration to wind and weather, reduce vehicle speeds, minimize spills.
• Reduce wind speed at ground level.
• Bind dust particles together. Apply flocculating agents, spray water.
• Remove and capture fugitive dust from the source. Filter fabric around catch basin, street sweepers, wheel wash, vehicle scrape.

Although water can be one of the main control agents for dust, it is important to plan ahead for water shortages and consider the use of other measures.

425.04 Modeling Requirements

EPA requires all emissions modeling be done with their Motor Vehicle Emissions Simulator Model (MOVES) at both the regional and project level. For CO hot-spot analysis, projects that pass using the WASIST model do not need to conduct dispersion modeling. Recent updates to EPA’s Appendix W allows for CO dispersion screening analysis using CAL3QHC (only needed if the project fails WASIST analysis). For PM dispersion analysis or a refined CO analysis, the CALINE series may be used until approximately December 2019. After that time, EPA requires AERMOD be used.

425.05 Air Quality Permits and Approvals

Regional clean air agencies may require air quality permits for the following activities:
• Land clearing burns.
• Demolition of structures containing asbestos.
• Asphalt batching, mixing concrete, crushing rock, or other temporary sources (new source construction).

Specific permit requirements are listed on the WSDOT Environmental permits and approvals webpage.

425.06 Multi-Modal and Non-Road Air Quality Requirements

Air quality analysis for rail, ferry, and aviation projects requires a different type of conformity analysis (general conformity). Requirements for roadways serving ferry and aviation facilities are similar to highway projects. Consult the Air Quality and Energy Policy Specialist for more details.

425.07 Air Quality Statutes, Regulations, and Guidance

U.S. Environmental Protection Agency (EPA), Washington State Department of Ecology (Ecology), and regional clean air agencies regulate ambient air quality in Washington. Permits and approvals required pursuant to these statutes are listed in Section 425.05.

425.07(1) Federal

• National Environmental Policy Act (NEPA) 42 USC 4321-4370 and federal implementing regulations 23 CFR 771 (FHWA) and 40 CFR 1500-1518 (CEQ).
• Clean Air Act (CAA) 42 USC 7401-7431 et seq. and Clean Air Act and Amendments (CAAA) of 1990.
• 40 CFR 93 Federal conformity regulations, including exempt projects in 40 CFR 93.126.
• 23 CFR 450 FHWA regulations for statewide and metropolitan transportation planning and programming are defined in Planning Assistance and Standards
• FHWA Technical Advisory T 6640.8A for NEPA documents.
425.07(2) **State**
- State Environmental Policy Act (SEPA) and state implementing regulations
  WAC 197-11 and WAC 468-12.
- Washington Clean Air Act, RCW 70.94.
- WAC 173-420 state conformity regulations, including exempt projects in
  WAC 173-420-110 and WAC 173-420-120.
- WAC 173-400-040(9) state fugitive dust regulations.

425.07(3) **Regional**
- Memorandum of Agreement on Fugitive Dust From Construction Projects (1999)
  between WSDOT and the Puget Sound Clean Air Agency (PSCAA).
- Guide to Handling Fugitive Dust from Construction Projects (1997) from Construction
  Projects by the Associated General Contractors (AGC) of Washington

425.08 **Abbreviations and Acronyms**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
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<tbody>
<tr>
<td>AADT</td>
<td>Average Annual Daily Traffic</td>
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<tr>
<td>BMP</td>
<td>Best Management Practices</td>
</tr>
<tr>
<td>CAA</td>
<td>Clean Air Act (Federal)</td>
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<tr>
<td>CAAA</td>
<td>Clean Air Act Amendments</td>
</tr>
<tr>
<td>CAWA</td>
<td>Clean Air Washington Act</td>
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<tr>
<td>CEQ</td>
<td>Council on Environmental Quality</td>
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<tr>
<td>CMAQ</td>
<td>Congestion Mitigation and Air Quality Improvement Program</td>
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<tr>
<td>CO</td>
<td>Carbon Monoxide</td>
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<tr>
<td>FHWA</td>
<td>Federal Highway Administration</td>
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<tr>
<td>GHG</td>
<td>Greenhouse Gas</td>
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<tr>
<td>LOS</td>
<td>Level of Service</td>
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<tr>
<td>MPO</td>
<td>Metropolitan Planning Organization</td>
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<td>MSAT</td>
<td>Mobile Source Air Toxic</td>
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<tr>
<td>NAAQS</td>
<td>National Ambient Air Quality Standards</td>
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<tr>
<td>NEPA</td>
<td>National Environmental Policy Act</td>
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<tr>
<td>NO\textsubscript{X}</td>
<td>Nitrogen Oxides</td>
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<tr>
<td>O\textsubscript{3}</td>
<td>Ozone</td>
</tr>
<tr>
<td>PM\textsubscript{10}</td>
<td>Coarse particulate matter, smaller than 10 micrometers in diameter</td>
</tr>
<tr>
<td>PM\textsubscript{2.5}</td>
<td>Fine particulate matter, smaller than 2.5 micrometers in diameter</td>
</tr>
<tr>
<td>POAQC</td>
<td>Project of air quality concern</td>
</tr>
<tr>
<td>ppm</td>
<td>Parts per million</td>
</tr>
<tr>
<td>SAFETEA-LU</td>
<td>Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users</td>
</tr>
<tr>
<td>SEPA</td>
<td>State Environmental Policy Act (for Washington)</td>
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<tr>
<td>SIP</td>
<td>State Implementation Plan</td>
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<tr>
<td>SO\textsubscript{2}</td>
<td>Sulfur Dioxide</td>
</tr>
<tr>
<td>TCM</td>
<td>Transportation Control Measure</td>
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<tr>
<td>TIP</td>
<td>Transportation Improvement Program</td>
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</table>
425.09 Glossary

Air Quality Analysis – An evaluation of various air pollutants at the project level based on specific project location and type. This evaluation should include discussion of construction phase emissions such as fugitive dust, odors, and asbestos if applicable. This evaluation may include discussion of other air related concerns identified in project development.

Average Annual Daily Traffic (AADT) – The estimated average daily number of vehicles passing a point or on a road segment over the period of one year.

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

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

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

Exempt Projects – Listed in federal and state regulations (40 CFR 93.126 and WAC 173-420-110), these are mostly projects that maintain existing transportation facilities or are considered to have a neutral impact on air quality. See also WAC 173-420-120 for projects exempt from regional analysis.

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

Hot-Spot Analysis – Estimate of future localized CO and PM$_{10,2.5}$ pollutant concentrations and a comparison of those concentrations to the National Ambient Air Quality Standards. Uses an air quality dispersion model to analyze the effects of emissions on air quality near the project on a scale smaller than the entire nonattainment or maintenance area (e.g., roadway intersections or transit terminal). (See 40 CFR 93.101 and 40 CFR 93.116.)

Maintenance Area (Air Quality) – Area previously in nonattainment now in compliance with NAAQS.

Metropolitan Transportation Improvement Program (MTIP) – A fiscally constrained prioritized listing/program of transportation projects covering a period of four years and formally adopted by an MPO in accordance with 23 CFR 450, as required for all regionally significant projects and projects requesting federal funding.

Mobile Source – Any nonstationary source of air pollution such as cars, trucks, motorcycles, buses, airplanes, and locomotives.

Mobile Source Air Toxic (MSAT) – A priority group of nine volatile gases or small particulate compounds coming from the tailpipe of a vehicle: 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter (diesel PM), ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter. EPA has determined that these compounds have significant contributions from mobile sources and contribute to cancer and non-cancer health problems.

Nonattainment Area – An area that does not meet one or more of the NAAQS for the criteria pollutants designated in the Clean Air Act.
Ozone \((O_3)\) – Ground level ozone forms in the atmosphere as a result of complex sunlight activated chemical transformations between nitrogen oxides (NOX) and hydrocarbons (i.e., \(O_3\) precursors).

Particulate Matter \((PM_{10} \text{ and } PM_{2.5})\) – Naturally occurring and artificial particles with a diameter of less than 10 microns or 2.5 microns, respectively. Sources of particulate matter include sea salt, pollen, smoke from forest fires and wood stoves, road dust, industrial emissions, and agricultural dust. These particles are small enough to be drawn deep into the lungs where they can contribute to a variety of respiratory and cardiovascular health problems.

Projects of Air Quality Concern (POAQC) – Add capacity or re-align roads with more than 125,000 AADT and 8 percent trucks, more than 10,000 truck AADT (8 percent of 125,000), or that contribute to substantial increases or concentrations of diesel exhaust emissions (such as bus terminals and transfer points, designated truck routes, and freight intermodal terminals). POAQC located in particulate matter maintenance or nonattainment areas may require a hot-spot analysis.

Regionally Significant Project – A nonexempt transportation project that serves regional transportation needs, major activity centers in the region, major planned developments, or transportation terminals and most terminals themselves. Such projects are normally included in the modeling of a metropolitan area’s transportation network, including, at a minimum, all principal arterial highways and all fixed guide way transit facilities that offer an alternative to regional highway travel (40 CFR 93.101).

Regional Transportation Improvement Program (RTIP) – A fiscally constrained prioritized listing/program of transportation projects for a period of six years that is formally adopted by a Regional Transportation Planning Organization in accordance with RCW 47.80, as required for all regionally significant projects and projects requesting federal funding.

State Implementation Plan (SIP) – Required by federal law (40 CFR Part 51), this state plan describes how the state will meet and maintain compliance with the National Ambient Air Quality Standards (NAAQS). Specific plans are developed when an area does not meet the NAAQS and include controls to quickly reduce air pollution in a nonattainment area and provide controls to keep the area clean for 20 years. WSDOT projects must conform to the SIP before the FHWA and the EPA can approve construction.

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