Oregon Department of Transportation

Statewide Air Quality Program Quality Plan

Project Delivery QA/QC Program
Oregon Department of Transportation

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Oregon Department of Transportation

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Oregon.gov/odot/geoenvironmental/pages/air.aspx

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Revision History (the current revision is first entry)

Release Date	Change made by	Section(s) Updated	Summary of what, why changed
10/212025	Natalie Liljenwall	Throughout	Improve language, remove greenhouse gases, update links
9/17/2024	Natalie Liljenwall	All	Initial version

1. Air Quality Program Quality Management

Quality in air quality analysis is the degree to which the results and document of the analysis are accurate and conform to the methodologies and procedures described in the ODOT Air Quality Manual and federal and state air quality guidance.

Quality is the result of a cooperative partnership between the providers of project development services (engineering services and technical reports) and those responsible for quality assurance (QA). Those providing project development services must implement quality control (QC) to ensure products and services meet customer requirements and expectations. Those responsible for QA review the process to confirm the quality management efforts are achieving desired results.

The quality management system efforts foster continuous improvement in the ongoing quest to meet customer expectations, provide high quality engineering and technical services, and make efficient use of resources.

2. Quality and Technical Standards

The ODOT Project Delivery QA/QC Program website provides an overview of the ODOT Project Delivery QA/QC Program and access to the quality standards of practice. The Project Delivery Quality Program Manual can be found there, as well as a listing of the quality plans and guidance documents, including the region technical center quality plans, the statewide discipline quality plans, and the Statewide ODOT Delivered Local Agency Program Quality Plan. There is also a listing of the associated quality forms and checklists.

The Air Quality Manual contains guidance, methodology, and state specific inputs for air quality analyses and outlines technical reports. The air quality program coordinator in the environmental section updates the manual as needed in collaboration with internal and external stakeholders. The external stakeholders include the Federal Highway Administration (FHWA), Federal Transit Administration (FTA), Oregon Department of Environmental Quality (DEQ), Lane Regional Air Protection Agency, and Region 10 Environmental Protection Agency (EPA).

There are links to technical guidance, checklists, and a sample document on ODOT's air quality webpage. The air quality program coordinator works closely with the consultant to ensure they use the latest guidance, models, and input data.

Relevant air quality guidance and regulations:

ODOT Air Quality Manual

Federal Transportation conformity rule 40CFR 93

Air Quality Dispersion Modeling (EPA)

Motor Vehicle Emission Simulator (MOVES)

FHWA Infrastructure Carbon Estimator (ICE) Final Report and User's Guide

Updated Interim Mobile Source Air Toxics Guidance

ODOT Air Quality Manual

3. Roles and Responsibilities

This section describes the roles and responsibilities for implementing quality management for air quality.

Table 1: Roles and Responsibilities for ODOT Produced Work Products

Roles	Responsibilities
Air quality program coordinator	• Maintains guidance used to conduct ODOT air quality work. • Reviews and signs technical report checklist prepared for air quality per Section 4.2. • Completes quality assurance review per Section 5.1. • Signs technical report checklist prepared per Section 4.2.
Air quality project coordinator	• Reviews technical reports. • Signs technical report checklist prepared per Section 4.2.
Air quality project analyst	• Conducts air quality modeling. • Prepares technical reports. • Conducts QC reviews.
ODOT reviewer	• Reviews air quality work done within ODOT. • Signs the QC checklist to approve the work. This can be either the air quality program coordinator or the air quality project coordinator.

Table 2: Roles and Responsibilities for Outsourced Work Products

Roles	Responsibilities
Air quality program coordinator	• Maintains guidance used to conduct ODOT air quality work. • Reviews and signs technical report checklist prepared for air quality by consultant per Section 4.2.
Air quality project coordinator	• Reviews technical reports prepared by consultants. • Signs technical report checklist prepared for air quality per Section 4.2.
Consultant air quality analyst	• Conducts air quality modeling. • Prepare technical reports. • Conducts QC reviews.
Consultant reviewer	• Reviews air quality work. • Signs QC review. • Must possess discipline-specific training or qualifications required of an air quality reviewer.

4. Quality Control

4.1. Quality Control Milestones

ODOT air quality analyses have a flexible schedule and do not necessarily line up with a specific ODOT milestone. Some projects trigger a regional conformity analysis which is very involved and must be identified in planning since it can take up to two years to complete.

Generally, air quality analyses occur when National Environmental Policy Act (NEPA) review occurs for other environmental disciplines. Most air quality analyses use traffic data, so coordination is needed by the project team to ensure the traffic analysis happens early enough in the project schedule to allow time to complete the air quality analysis before the NEPA process is complete.

The table below gives examples of typical air quality milestones. Air quality analyses include both qualitative and quantitative analyses for CO, PM_{10}, $PM_{2.5}$, and mobile source air toxic (MSAT). Guidance will be on the air quality webpage such as traffic data requests form and PM_{10} and $PM_{2.5}$ project checklist.

Table 3: QC Milestones

Milestone	Required Document	Requirements
Project Initiation	Air quality modeling methodology	Electronically shared. No signature.
DAP or Preliminary Plans	• Draft and final PM_{10} and $PM_{2.5}$ project level checklist (form 734-5364) and interagency consultation documentation • Draft air quality qualitative or quantitative report with QC checklist form 734-5272 (CE) or form 734-5357 (EA, EIS). Electronic emission and dispersion modeling files if applicable. • Final air quality qualitative or quantitative report and QC checklist form 734-5272 (CE) or form 734-5357 (EA, EIS). Electronic emission and dispersion modeling files if applicable.	Signed form
PS&E Package	Indirect Source Construction Permit (Lane County)	TBD

4.2. Quality Control Reviews

4.2.1 Air Quality Qualifications

Air quality services must be executed by an air quality specialist meeting the qualifications as stated or referenced in the project scope of work. The air quality analyst must have at a minimum a bachelor's degree in environmental engineering, atmospheric sciences, transportation engineering or a closely related field or be a registered professional engineer in civil, environmental, or closely related field. In addition, the analyst must have a minimum of four years of experience in research, analysis, and performing complex air quality modeling for transportation projects.

The reviewer must have recent experience of conducting and reviewing air quality analyses. If the project work involves an Environmental Assessment (EA) or Environmental Impact Statement (EIS), the analyst and reviewer must have experience working on transportation projects requiring NEPA documentation at the level of an EA or EIS.

Additionally, the analyst and reviewer:

- Must have attended a formal classroom training for USEPA Motor Vehicle Emission Simulator ("MOVES") with project level and county level analysis (no later than MOVES2010) with EPA and must have used the MOVES model at the analysis level of project or county on multiple projects within the past 5 years or have extensive relevant experience in quantitative MSAT, PM_{10} or $PM_{2.5}$ MOVES analyses. The analyst must have formal training or mentorship and prior experience on the dispersion models used (CAL3QHC, AERMOD or other). It is preferred that the consultant has training in the most recent version of MOVES.
- Must have extensive knowledge of the National Ambient Air Quality Standards (NAAQS), transportation air dispersion models, various air pollutants and air toxics, and experience in both qualitative and quantitative (mesoscale and microscale) analysis. For example, for conformity, the consultant should understand applicability, pollutants of concern, frequency, consultation, criteria, procedures, and emissions related to transportation conformity.

The analyst must also have a thorough understanding of the Transportation Conformity Rule OAR 340-252-0010 through 0230 and 40 CFR 93.

4.2.2 Air Quality Training

The ODOT air quality program coordinator and project coordinator offer training to regional offices on request. National training is available through FHWA and the EPA on transportation air quality modeling and transportation conformity. The main models used in transportation air quality work are:

- EPA Motor Vehicle Emission Simulator (MOVES) (emission model).
- CAL3QHC (screening dispersion model).
- AERMOD (dispersion model).

More details about these models including manuals, guidance and executables can be found at the following links:

Conformity Training (FHWA)

MOVES Training Sessions (EPA)

Air Quality Dispersion Modeling (EPA)

4.2.3 Air Quality Consultant Staffing

Consultants may make necessary adjustments to the proposed staff used for the services, provided alternate staff are qualified to complete the tasks and the changes can be made without surpassing the overall not-to-exceed amount for the services.

The consultant shall email a notice to air quality program coordinator for approval prior to implementing staff assignment changes. If requested by agency, the consultant shall provide qualifications of any staff assigned to work on a project.

4.2.4 Air Quality Review

The air quality project coordinator or program coordinator will perform quality checks by using the required air quality checklist, located on the ODOT air quality webpage, to ensure all the steps for analysis and documentation have taken place. Additionally, the QC includes comparison to scope and methodologies presented previously and recommendations that may have been provided during air quality interagency consultation of the project.

The air quality program coordinator or project coordinators use modeling files, spreadsheets, and draft and final reports to review air quality analyses. ODOT staff will provide comments to the consultant(s) by inserting comments in the technical report word document or PDF. If preferred, the project team can use a spreadsheet.

After receiving ODOT comments, consultant returns revised technical reports as a redline copy with responses to comments, a clean copy with all the comments addressed and a pdf of the clean document with all figures. Provide modeling files and calculation spreadsheets with draft and final versions and an index of file names. If additional report drafts are needed, hold a meeting to clarify remaining analysis and document needs.

For in-house air quality reports, the air quality project analyst provides the analysis. Either the air quality project coordinator or air project program coordinator completes the review.

Consultants must use ODOT's QC checklists when submitting the draft air quality technical report and the final technical report. The checklist includes all pollutants and qualitative and

quantitative analyses and documentation. The QC checklist must be signed by an ODOT air quality reviewer and analyst for the analysis to be completed.

4.3. Authority of the Reviewer

In the event of a minor or moderate technical disagreement between reviewer and analyst, the parties may elect to write a short justification and include it with the electronic documentation.

If there is a major technical disagreement, elevate the issue within the discipline or region technical center, as applicable. If the issue cannot be resolved at that level, elevate it to the discipline section level, i.e. state environmental section manager, and if needed, up to the chief engineer.

4.4. Software, Tool, and Data Validation

All air quality analysts are required to take EPA's MOVES emission modeling training. Analysts must have experience or work with someone who has experience using MOVES. Prior experience is required for other air quality models, e.g. CAL3QHC, or AERMOD

Document input parameters for emissions and dispersion modeling tools within the technical report. Additionally, prior to starting work, analysts should confirm their methods and data sources with ODOT's air quality project or program coordinator. Provide all input assumptions, input and output files and calculation spreadsheets electronically with the draft and final reports for review and for final project storage. ODOT air quality specialists thoroughly review calculation spreadsheets and model input and output files and documentation for consistency.

4.5. Quality Control Documentation

Create quality records as project QC work is done to provide reviewable evidence documenting quality work that was done. Quality records also provide the basis for quality reviews and/or audits (performed by professional auditors).

Provide the required checklist form (see Table 3) with each draft and final document. If standard QC checklists, forms, or templates are unavailable for a particular task, you are still required to have documentation of modeling, as described in manuals, guidance, or considered necessary to meet modeling standard of care. Document all reviewed work products or tasks in the project file.

Record review comments and notes to the greatest extent possible to promote good communication and minimize misunderstandings. Reviewers should have a conversation with the person who created the work product or task to go over their comments. This establishes a personal relationship that helps to lessen possible conflicts. Retain reviewer comments in ProjectWise.

Retain draft deliverables within the project file to the extent it is reasonable to document the process of deciding on the final approach. Electronic version control should be in accordance

with file naming convention detailed below. Retain drafts for significant projects with multiple iterations.

Store quality records in ProjectWise in their regular discipline or milestone directory, with either "QC," "QA," or "QV" in the document title or description, to facilitate searches for quality documentation. Add quality files from each discipline or milestone folder in ProjectWise to a set created in the 7_quality" folder for Environmental: *E*_K#####_##. See ProjectWise 7_Quality folder FAQ's and guidance on How_to_Create_Document_Sets_QG.pdf.

Store all quality records needed to confirm a through QC review was completed at the time of production in ProjectWise following ODOT ProjectWise protocols and naming conventions.

Electronic signatures and initials are considered valid secure signatures. The electronic signatures must include signer's name and date they signed the document. A hard copy with wet signature may be used to provide additional information, but at minimum include an electronic document with electronic signature in the project file to track timelines.

4.6. QC Communications

The process described by this section defines the minimum level of communication and collaboration necessary to meet the requirements of the ODOT air quality plan. Members of the project team internally and externally are encouraged to freely communicate with air quality specialists by email or phone throughout the life of the project to assure a high level of service and quality and reduce significant amounts of rework, errors, or omissions.

At any step in the document review process, reviewers may provide constructive comments to the originators of the document and require document revisions if necessary for completeness, clarity, and accurateness.

5. Quality Assurance

Quality assurance (QA) is a system undertaken to maximize the effectiveness of the quality program. The QA process will assist in measuring the effectiveness of the quality efforts to provide input into continuous improvement of the work and assist in identifying technical development needs.

The goals of an effective QA process are:

Verification – A primary purpose of the QA program is to confirm all elements of the QC process took place at the right time and applicable standards were applied effectively. Collect and process information relative to the connection between quality processes and outcomes.

Competency Building – The QA process will assist in developing an agency-wide vision of the current needs with respect to technical knowledge and competence. Evaluation of where projects succeed or fail, and the role of the QC program in assuring success will provide data to be used in identifying gaps or weaknesses within the current knowledge base.

Continuous Improvement –The QA process enables continuous improvement within both the quality program as well as within the practice community providing air quality services for ODOT projects.

The QA process must be objective, transparent, and effectively communicated.

5.1. Quality Assurance Review Process

The air quality program coordinator is responsible for all air quality analyses and documentation developed internally and externally. When questions arise from consultants or other ODOT staff that are unknown, the air quality program coordinator engages with regulatory agencies or other DOTs or holds an interagency consultation meeting to resolve the concern. The existing interagency process is in place for transportation conformity.

Program QA reviews occur once a year for one to two projects. One project should be a CE and the other an EA/EIS if one is available. The review will include air quality program coordinator, noise program coordinator and a REC from one of the regions. Provide a copy of the QA review to the Project Delivery QA/QC program for posting on the internal quality website.

5.2. Quality Assurance Documentation

Store quality records in ProjectWise in their regular discipline or milestone directory, with either "QC," "QA" or "QV" in the document title or description, to facilitate searches for quality documentation. Add quality files from each discipline or milestone folder in ProjectWise to a set created in the "7_quality" folder for Environmental: *E*_K#####_##. See ProjectWise 7_Quality folder FAQ's and guidance on How_to_Create_Document_Sets_QG.pdf).

5.3. QA Communications

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Appendix A – Glossary

Insert terms and acronyms named in document. Include all acronyms used in quality plan or associated forms, checklists, or templates.

Table A-2: Glossary of Terms, Titles, and Acronyms

Term	Explanation
API	Area of potential impact
AADT	Annual average daily traffic volume
AERMOD	Atmospheric dispersion modeling software
CEQ	Council of environmental quality
CAAA	Clean air act amendments
CAL3QHC	EPA's line source dispersion model
CO	Carbon monoxide
CFR	Code of federal regulations
DAP	Design acceptance package; statewide phase gate project delivery milestone.
DEQ	Department of Environmental Quality
EPA	US Environmental Protection Agency
EA/EIS	Environmental assessment/ environmental impact statement
FHWA	Federal Highway Authority
FTA	Federal Transit Administration
ISCP	Indirect source construction permit
LOS	Level of service
LRAPA	Lane Regional Air Protection Agency
PS&E	Plans, specifications, and estimates; statewide phase gate project delivery milestone.
MOVES	EPA's motor vehicles emission simulator model
MSAT	Mobile source air toxics
NAAQS	National ambient air quality standards
NEPA	National Environmental Policy Act
NOX	Nitrogen oxides
PM_{10}	Particulate matter of less than or equal to a nominal 10 micrometers in diameter

Term	Explanation
$PM_{2.5}$	Particulate matter of less than or equal to a nominal 2.5 micrometers in diameter
POAQC	Project of air quality concern
PPM	Parts per million
QC	Quality control, focused on the product fulfilling quality requirements as it is developed.
QA	Quality assurance, focused on the process and assurances that quality requirements are being fulfilled. • Verifying that QC was done following the quality processes. • Reviews of QC and QA processes, supporting continuous improvement. • Project and program level QA reviews.
Quality Management	Policies, processes, activities, and responsibilities that ensure the overall quality of tasks and deliverables in project delivery. Quality management is implemented by means such as quality planning, QC, QA, and continuous improvement within the system.
Quality Verification (QV)	Review process to ensure technical sufficiency of all deliverables, verify performance of all quality tasks, and to document the completion of those tasks.
POR	Professional of record
REC	Region environmental coordinator
RTP	Regional transportation plan
SIP	State implementation plan
SO2	Sulfur dioxide
SOW	Statement of work
STIP	State transportation improvement program
TCM	Transportation control measure
Technical sufficiency	Reviewing a deliverable for technical sufficiency means technical review, checking that the deliverable is in compliance with all applicable laws, rules, regulations, technical standards, guidance, policies, and procedures, suitable for the milestone. An initial check of key elements can be used to decide whether additional review is warranted.
TIP	Transportation improvement program
TPAU	Transportation Planning Analysis Unit
UGB	Urban growth boundary
V/C	Vehicle to capacity ratio
VMT	Vehicle miles traveled

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