

***Scoping Guidelines
for
Project-Level
Air Quality Analyses***

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APPENDIX:

Optional Template Tables for the Air Quality Modeling Protocol

1. Introduction

The Virginia Department of Transportation (VDOT) contracts consultant services for the preparation and updates or re-evaluations of environmental clearance documents that address a range of topics including air quality. This guide¹ addresses the preparation of the scope of work for any project-level air quality analysis (which includes any update or re-evaluation) to be conducted on behalf of VDOT or otherwise to be subjected to Department review and approval^{2,3}.

This guide⁴ complements the Department “*Resource Document for Project-Level Air Quality Analyses for the Commonwealth of Virginia*” (Resource Document) and “*Template Report for Project-Level Air Quality Analyses*” (Template Report), which are listed as key references and reviewed in separate sections below. The application of these resources helps streamline the preparation of analyses and ensure that they meet all applicable regulations and guidance and the needs of the Department.

This guide also includes a section on frequently asked questions (FAQs), which will be updated periodically as questions and comments are received.

2. General Requirements

The scope of work must specify tasks and/or sub-tasks that when completed may reasonably be expected to lead to the successful completion of the study, on the schedule and within the budget specified in the overall contract. Overall, while the scope of work should be concise, it must also provide sufficient detail to indicate that:

- Project-specific conditions and information have been appropriately reviewed.
- The proposed approach has been streamlined to the extent feasible for the type and scope of the project, degree of public and stakeholder interest expected, and level of National Environmental Policy Act (NEPA) document involved (see Sections 2.1 and 2.2).
- The proposed approach and level of analysis, including but not limited to modeling, analysis, consultation and documentation, will address as appropriate all applicable regulatory requirements and guidance specified by the Federal Highway Administration (FHWA)⁵ and US

¹ This Guide in conjunction with the referenced Resource Document supersedes the previously existing (2009) Department “Consultant Guide” that specified requirements for the submission of an air quality protocol (scope) for review as well as other administrative or contractual requirements and also provided a limited set of technical data for the previous era of EPA models and associated guidance.

² The scope of work for air quality must meet all applicable requirements specified in the solicitation and contract. Nothing in this guide is intended to change any of those requirements.

³ If the project does not involve the preparation of a scope of work for VDOT but review and approval by the Department of the final air quality report is expected, as may occur with local assistance projects, then the air quality modeling protocol (see Section 3.3) must still be prepared for Department review and approval.

⁴ Copies of the Scoping Guidelines, Resource Document, and Template Report may be accessed on or via links provided on the VDOT website: <http://www.virginiadot.org/programs/pr-environmental.asp>.

⁵ Additional information on FHWA guidance may be found at:

General: http://www.fhwa.dot.gov/environment/air_quality/

Guidance: <https://environment.fhwa.dot.gov/projdev/impta6640.asp>

Environmental Protection Agency (US EPA)⁶.

2.1 Streamlining

Federal and Departmental objectives for streamlining project development and environmental clearance processes (including air quality analyses) apply and may be supported by the effective utilization of the following key resources:

- FHWA and VDOT resources for streamlining (programmatic agreements etc.)(see Section 3.5.1)
- VDOT Resource Document (see Section 3.5.2), including both:
 - Modeling inputs as specified or referenced in the Resource Document, and
 - Streamlining and other protocols as specified in the Resource Document.
- VDOT template report for project-level air quality analyses (NEPA documentation) (see Section 3.5.3).

2.2 Treatment of Higher Profile or More Complex Projects

Notwithstanding the need for streamlining, the level of analysis and detail for modeling to specify in the air quality scope of work may be greater for certain types of projects, as listed below. The level of analysis needed for such projects is typically determined by the Department on a case-by-case basis.

1. **Projects involving the preparation of an Environmental impact statement (EIS):** At the discretion of the Department, a minimum level of analysis or detail may be required for projects involving an EIS even if it would not be done for projects involving an environmental assessment (EA) or categorical exclusion (CE).
2. **Projects of greater interest to the public and other stakeholders:** A greater level of analysis or detail for air quality may be appropriate for projects that involve or may involve a greater degree of public and/or stakeholder interest, particularly if air quality is identified as a specific issue for that project. Close coordination with Department air quality staff is needed in these cases.

and/or

3. **Projects that are relatively complex:** Projects that involve or may involve modeling of a relatively detailed or complex nature typically need to be addressed in greater detail in the scope of work. This includes projects for which:
 - Modeling for mobile source air toxics (MSATs) may be required.
 - The development of traffic data and forecasts may be relatively complex, such as when:

⁶ Additional information on EPA requirements and guidance may be found at:

Project-Level: <http://www.epa.gov/otaq/stateresources/transconf/projectlevel-hotspot.htm>

Conformity: <http://www.epa.gov/otaq/stateresources/transconf/policy.htm>

MOVES Model: <http://www.epa.gov/otaq/models/moves/>

Dispersion Models: http://www.epa.gov/ttn/scram/dispersion_prefrec.htm

- Multiple sets of traffic forecasts must be applied, requiring steps to be taken to ensure consistency between the individual forecasts. This may occur for projects for which regional modeling is needed for MSATs in addition to separate corridor-specific forecasts for CO. Additionally, for MSATs, the identification of affected links may be made particularly more complicated in cases in which the design year is greater than the horizon year of the approved long range transportation plan, i.e., greater than the horizon year of the current official network model for the region.
 - Traffic simulation results may be available, covering the project area and analysis years in whole or in part.
 - Drive cycles or operating mode distributions are to be applied for roadway links, instead of average speeds.
- Multiple alternatives and/or phasing of projects must be modeled. This may be further complicated if one or more alternatives involve off-network modeling (e.g., for park-and-ride, transit and/or inter-modal facilities) and/or nearby stationary sources, and/or if there are nearby major projects also being implemented with opening years in the same time frame.

Section 3.2 provides additional examples of potential challenges that may qualify a project as one that is relatively complex.

Conversely, a project that does not involve an EIS, is not considered high profile or relatively complex, and involves at most worst-case (screening) modeling for carbon monoxide (CO)(and not detailed modeling for MSATs) is considered relatively routine for air quality. The level of analysis and detail to be specified in the scope of work for such a project should therefore be relatively streamlined compared to those for higher profile or relatively complex projects.

3. Specific Requirements

In addition to the general considerations identified in the previous section, specific requirements for the scope of work apply as summarized below.

3.1 Key Elements of the Scope of Work

The scope of work should address the following key elements, as applicable:

- Potential Challenges or Issues (*see Section 3.2*)
- Air Quality Modeling Protocol (*see Section 3.3*)
- Project Description and Alternatives⁷
- Planned Approach for Generating Traffic and Planning Data and Information (*see Note 1*)
- Current conformity status of the project (*if applicable*)

⁷ Summary information only as needed for scoping the air quality analysis, referencing more detailed descriptions that may be provided elsewhere. If the proposed scope for air quality is part of an overall proposal for NEPA services in which the alternatives are already summarized in a separate section, then an additional and duplicative summary of the alternatives would not be needed within the air quality scope.

- Pollutants or pollutant classes to be assessed (*including the potential for streamlining per Section 3.5.1*)⁸:
 - Carbon Monoxide (CO)
 - Mobile Source Air Toxics (MSATs)
 - Greenhouse Gases (GHGs)⁹
- Indirect Effects and Cumulative Impacts (IECI)¹⁰
- Mitigation¹¹
- Deliverables (see *Note 2*)
- Optional Addendum (see Section 3.4)

Notes:

(1) The scope of work should include the following key terms or their equivalents for the section on traffic and planning data:

- *For projects in which consultants are to provide the traffic data and forecasts needed for the air quality assessment: the consultant will generate the data and forecasts (including any post-processing for air quality modeling purposes) using only qualified personnel (typically traffic engineers or transportation planners) consistent with the requirements of the VDOT Resource Document (Protocol 2.6.3.1).*
- *For projects for which the Department will supply the traffic: the consultant will specify in detail the data and forecasts needed for the air quality analysis. This includes review for completeness and QA/QC for any traffic data collection needed for that purpose.*
- *The consultant will subject all traffic data and forecasts to thorough QA/QC review and ensure that all traffic data and forecasts are consistent internally (if different traffic forecasts are supplied for each pollutant) and with other traffic data and forecasts developed for the project for design purposes. In particular, if a quantitative MSATs analysis is to be conducted, the consultant will ensure that the identified traffic impact areas are reasonably consistent between the MSATs analysis and the traffic impact area(s) identified in the project design process (or otherwise provide a clear explanation for any notable differences.)*
- *The consultant will also obtain or generate as appropriate all design information needed for the air quality analysis, including all geometric data (including road grades) and information needed to model the base and all future year alternatives as applicable. This includes any*

⁸ Unless directed otherwise by VDOT Air Quality staff, do not propose modeling or an analysis for any pollutant that is not needed to meet an applicable regulatory requirement or is not specified in FHWA guidance for NEPA analyses. For projects involving updates to previous air studies, which may reference previously existing nonattainment or maintenance areas for fine particulate matter (PM_{2.5}), CO and/or ozone, please keep in mind that such designations change over time and designations therefore must be checked and confirmed at the time of preparation of any air quality analysis. At the time of preparation of this document, all of Virginia is in attainment for all of the NAAQS, except for northern Virginia, which is nonattainment for ozone.

⁹ Typically, as a Department policy (Section 4.7 of the VDOT Resource Document), GHG analyses are not expected unless the project involves an EIS, and then only a qualitative analysis would be needed. An example of a qualitative GHG analysis is provided with the Department Template report for air quality; see Section 3.5.3 for additional information on the template report.

¹⁰ Typically a brief qualitative analysis is all that is expected for IECI for air quality.

¹¹ Historically, mitigation has not been needed in Virginia for air quality, but the scope should address the topic if there is a possibility that it will be needed. The project report typically includes a brief section on construction emissions and mitigation, referencing VDOT guidance for this purpose. See the VDOT Template report for an example.

nearby or affected facilities (including plans for future improvements) to be modeled as part of the air quality analysis for any pollutant, e.g., nearby intersections for CO analyses and nearby links for an MSATs analysis.

(2) The scope of work typically includes the following key terms for the section on deliverables:

- *The deliverables will include:*
 - a) *Draft and Final Traffic Request/ Specification for the Air Quality Analysis (including any traffic and activity data collection and analysis),*
 - b) *Draft and Final Air Quality Modeling Protocol,*
 - c) *Draft and Final Air Quality Technical Report, and Draft and Final air quality section of the main NEPA document.*
 - d) *An electronic archive as detailed below.*

The draft and final air quality report will include an Executive Summary designed to be excerpted with minimal editing for inclusion in the draft main NEPA document or otherwise provide a ready basis for the summary air quality assessment to be included in that document.

The Department template air quality report or equivalent (or Consultant template report) will be applied.

- *Electronic archive: All scoping and report files as listed above will be delivered in original MS Office format as well as portable document (pdf) format. All modeling files (input and output) and related data and information will also be delivered, including:*
 - a) *All files used for emission and (as applicable dispersion) modeling, including files for Environmental Protection Agency (EPA) emission and dispersion models as well as any third-party or vendor software that were applied for the project,*
 - b) *All spreadsheet, GIS and other files used in the analysis, and*
 - c) *All traffic and design information (e.g., PDFs of plans) on which the modeling was based.*

3.2 Identification of Potential Challenges and Issues

The scope of work should include a brief section in which any aspects of the proposed analysis that may be particularly challenging and/or may become an issue are identified. A reference should also be provided to the task or subtask (if any) in which the issue and proposed resolution may be addressed in more detail. The intent of this section is to identify any challenge(s) early in the project development process so that proactive steps may be taken as appropriate to mitigate or avoid them. Further:

- If the project involves an EIS, is higher profile and/or relatively complex (per Section 2.2), this requirement is that much more necessary.
- If no particular challenges or issues have been identified, the scope of work should include a statement to that effect.

In addition to the examples provided in Section 2.2, potential challenges and issues that may be identified in this section include:

- Inter-agency consultation is being proposed for the project
 - To consult on the proposed use of models, methods, assumptions or data not specified in or consistent with the Resource Document, and/or
 - As a discretionary option, if the project is considered high profile.

- Challenges with traffic, emission and/or dispersion modeling inputs and/or approach:
 - Selection of the best or most appropriate approach for generating traffic and/or activity forecasts, especially for high profile/complex projects that involve modeling for multiple pollutants, multiple alternatives and/or phasing.
 - Selection of appropriate modeling years, especially if traffic is not available for the anticipated year of peak emissions and/or a nearby project is opening at or near the same year.
 - Design year extending beyond the horizon year of the currently available regional network model, and regional modeling is needed, e.g., for MSATs.
 - Inputs for emission or dispersion modeling that are substantively different from those specified in the VDOT Resource Document are being proposed.
 - Determining or obtaining specific modeling inputs.

- Challenges or questions about streamlining options regarding:
 - The potential applicability for the project of programmatic agreements and/or categorical finding.
 - Possible exempt status. For example, the project may appear to qualify for an exemption under safety given available studies that identify safety as an issue and the proposed improvements may reasonably be expected to result in improvements in safety, but it is not clear to what extent the project may be cleared on that basis alone.
 - Whether a specific change or changes in modeling input(s) or approach would meet the definition of a “substantive change” as specified in the Department Resource Document and referenced in this guide.

- Changes to applicable regulations or guidance:
 - For example, the conformity status for the region in which the project is located may change in the course of the project, or an update to federal regulations or guidance may be pending that would affect the proposed approach for the study.

- Project schedule:
 - Potential challenges in timing for delivery of key modeling inputs (e.g., traffic)

3.3 Air Quality Modeling Protocol

The scope of work must include a task to develop an air quality modeling protocol (AQM protocol), which is simply an overview or summary of the final proposed modeling and analysis approach based on the latest project information (i.e., updated or final traffic forecasts and design details).¹² Note protocols prepared for updates and re-evaluations are generally completed that same as for initial studies, i.e., they must be comprehensive and address all required elements of the study, and not be limited to specific pollutants or analyses. The intent of the AQM protocol is two-fold:

¹² For local assistance projects for which the requirement to provide a scope of work to the Department is not applicable, an AQM protocol must still be developed and submitted to the Department for review and approval.

- 1) to finalize the modeling (or re-evaluation) approach as outlined in the initial scope, which is typically relatively general, using updated/final traffic data and forecasts and design information developed in the course of the study, and to address any other changes as needed to the scope of work, and
- 2) to provide a means to gain consensus with FHWA on the proposed approach, if and as needed.

Regarding the first point, changes to the scope of work may also be needed on occasion to adjust the proposed work for changes that may occur in the course of a study in applicable regulations, guidance and/or models, and/or the development of alternatives and/or the selection of a preferred alternative. Such changes or updates, if substantive, may result in changes in decisions on what would be the best or the most appropriate approach for the modeling and analysis for the project.

If there are no substantive changes from the original scope, the modeling approach as originally proposed (or with minor changes) may be used as the basis for the AQM protocol. This may occur for example with a minor project for which it was expected that the project can be screened using a programmatic agreement, which can only be confirmed once traffic forecasts are received.

Key factors to consider in developing the AQM protocol include:

- *Prerequisite for Modeling & Analysis:* The AQM protocol must be reviewed and approved by VDOT Air Quality staff typically before any detailed modeling or analysis is initiated for the project.
 - Once the contract has been executed, and traffic data and forecasts and design information for the project have been obtained and reviewed in detail by the consultant, the consultant will prepare the AQM protocol for submittal to VDOT Air Quality staff for review and approval.
 - In some cases, if time is of the essence (e.g., if the development of final traffic forecasts has been delayed), and if so directed by VDOT Air Quality staff, it may be reasonable to proceed with modeling for one pollutant (e.g., worst-case modeling for CO) based on preliminary traffic and design information while waiting for final traffic forecasts needed to determine the level of analysis required for another pollutant (e.g., MSATs).
 - In these cases, the AQM Protocol should still be prepared for review and approval by VDOT Air Quality staff but should note that a contingent approach (proceeding with analysis of one pollutant while waiting for final traffic forecasts for another pollutant) is being proposed in the interests of time.
 - An updated AQM Protocol should be provided for VDOT Air Quality staff review and approval when the final traffic forecasts are received.
- *Format:* The AQM protocol should follow the outline provided in section 3.1 for the scope of work¹³. If this format was applied with the original scope, as is typically the case, then the AQM protocol would effectively be the original scope updated using the latest project information. It may be written in summary or bullet-point format for this purpose.
 - If the original scope did not for some reason follow the outline in Section 3.1 or was not originally developed for VDOT review and approval (which may occur with local assistance projects), the AQM protocol should be developed following that outline.
- *Potential Challenges:* The AQM protocol must highlight any potential challenges or issues and their proposed resolution.
- *VDOT Resource Document:* The AQM protocol should refer to the VDOT Resource Document as

¹³ With the exception of the specification of deliverables.

the source for modeling inputs, and otherwise highlight any proposed exceptions.

- *Streamlining*: The AQM protocol must document the proposed application (if any) of the available resources for streamlining (see Section 3.5.1).
- *Traffic and Design Information*: The consultant must obtain all traffic and design information needed to finalize the modeling analysis and approach, and the AQM Protocol should include a summary of available design and traffic information for the project as needed for screening purposes, i.e., to determine the level of analysis appropriate for the air quality study using the resources for streamlining identified in Section 3.5.1. The summary should include:
 - Traffic:
 - Design year average daily traffic (ADT).
 - Congested speeds, if available.
 - Additional information for off-network facilities, if applicable, e.g., for park-and-ride lots.
 - Design Information:
 - Number of lanes (through, turning and auxiliary)
 - Skew angles for intersections and grade separations.
 - Average Road grades
 - Posted speeds
 - For freeway-arterial grade separations and interchanges, the distance between from the nearest edge of the travel lanes of the freeway to those of the immediately adjacent intersection(s) on either side of the freeway.

Notes for Traffic and Design:

- 1) *Terms of programmatic agreements and FHWA categorical findings are subject to change over time. In such cases, additional and/or different information from what is listed above may be needed. Refer to the current agreements and/or finding as appropriate for the specific information needed.*
 - 2) *Copies of detailed traffic data and forecasts and plans as needed for the air quality analyses should be attached or otherwise made available to supplement the summary tables and exhibits.*
- For projects involving an EIS, or are otherwise higher profile or complex, the AQM protocol will typically be subjected to review and comment by FHWA with the intent of gaining early consensus on the proposed modeling and analysis approach for this project. At the discretion of the Department, an FHWA review may be initiated early in the process, e.g., with the preparation of the initial scope.

3.4 AQM Protocol Summary Tables (Optional Addendum)

The Appendix to this Guide provides templates for a set of summary tables that may be completed and provided as an addendum to the AQM Protocol. The tables provide a standard format for project-related data and information and are intended to both facilitate the review process and support decision-making on the models, methods and assumptions/data to be applied in the analysis. Even if they are not completed for the AQM Protocol, they may serve as a checklist for what is to be included in it. The tables are:

Table 1: General project information (project identification, location etc.).

Table 2: General approach for the emission and air quality analysis, including which of the programmatic agreements and FHWA categorical finding (if any) may be invoked.

Table 3: Details as needed on the proposed emission and air quality modeling approach.

3.5 Application of Key Resources

The scope of work should reference and apply as appropriate the following resources¹⁴: 1) VDOT Resource Document, 2) FHWA and VDOT Resources for Streamlining, and 3) VDOT Template Report for project-level air quality analyses. Each is reviewed in turn below.

3.5.1 VDOT Resource Document

The VDOT Resource Document provides a comprehensive summary of models, methods and assumptions/data for application as appropriate in air quality analyses for projects located in Virginia. It specifies Department protocols that serve in part to streamline analyses and also criteria for assessing potential projects of air quality concern for particulate matter. Application of the Resource Document in the development of the scope of work and in the air quality analysis helps minimize the time and cost for completing analyses including the development of modeling inputs and associated quality assurance/control activities. The draft version of the Resource Document and associated online data repository were subjected to inter-agency consultation with FHWA, EPA, the Virginia Department of Environmental Quality (VDEQ) and others before being finalized, as documented with the final version, and so may be applied for projects across the Commonwealth.

3.5.1.1 Process for Review and Approval of Exceptions to the Models, Methods and Assumptions Identified in the Resource Document

If any departures from or exceptions to the models, methods and assumptions/data specified in the Resource Document are anticipated for a proposed analysis, they must clearly be identified in the scope of work (or AQM Protocol as applicable) along with their basis or rationale, and whether they should be considered “substantive changes”¹⁵ as defined in the Department Resource Document. The proposed departures or exceptions may be approved or disapproved by the Department in consultation as appropriate with the FHWA Division Office.

Note: All proposed departures or exceptions of a substantive nature to the models, methods, assumptions, data and/or protocols specified or provided in the Resource Document (including the online data repository) must be reviewed and approved by the Department before being implemented.

¹⁴ Documents maintained by the Department may be accessed from or via the VDOT website at: <http://www.virginiadot.org/business/environmental.asp>.

¹⁵ The term “substantive change” is defined in the Resource Document as follows: “For project-level air quality analyses conducted to meet conformity requirements and/or for purposes of NEPA, a substantive change is defined here as one that would significantly affect the modeling results and/or the analysis to the degree that it would change a finding, determination or conclusion that all applicable requirements for the air quality analysis for the project would be met and the project cleared. For analyses involving project-specific dispersion modeling for any pollutant(s) for conformity purposes, this includes whether the project would pass the applicable conformity test(s).”

3.5.2 FHWA and VDOT Resources for Streamlining

In keeping with federal and Department objectives for streamlining environmental clearance processes and associated air quality analyses:

1. Review each of the resources presented in the sub-sections below for potential application for the proposed project, and
2. If any are determined to be eligible for application for the proposed project, clearly identify their proposed application in the scope of work (and AQM Protocol as applicable) along with the technical basis, i.e., how the project would meet the specified technical criteria.

Resources for streamlining currently available include: FHWA-VDOT programmatic agreements, the FHWA categorical finding for CO, VDOT Resource Document protocols, and the list of exempt projects from the federal transportation conformity rule.

3.5.2.1 FHWA-VDOT Programmatic Agreements

The Department working with the Federal Highway Administration (FHWA) has executed a number of programmatic agreements that help streamline the environmental clearance process. At present, the following programmatic agreements executed by the Department address the preparation of project-level air quality analyses:

- *Programmatic Agreement for Project-Level Air Quality Analyses for Carbon Monoxide (2016)*¹⁶: This agreement establishes technical criteria for determining whether project-specific modeling for carbon monoxide will be needed. The current agreement is based on templates developed in the 2015 NCHRP study “*Programmatic Agreements for Project-Level Air Quality Analyses*”¹⁷.
- *No-Build Analysis Agreement for Air and Noise Studies (2009)*: This agreement provides guidance and criteria for determining whether a no-build scenario must be modeled for carbon monoxide.
- *Procedures for Updating Air Studies When New Planning Assumptions Become Available (2004)*: This agreement provides guidance for determining if and when an update is needed to an existing air quality analysis.

Notes:

- (1) *Unless specifically excluded in the text of the agreement*¹⁸, programmatic agreements executed by the Department may also be applied for local assistance projects. In these cases, appropriate documentation of the application of any programmatic agreement should be included with the

¹⁶ Under protocols 3.2.3 and 4.2.3 established in the VDOT Resource Document, the Department at its discretion may apply programmatic agreements relating to air quality and the FHWA categorical finding for CO either individually or together (without one limiting the utility of the other in clearing projects) for projects located anywhere in Virginia.

¹⁷ ICF International, Zamurs and Associates LLC, and Volpe Transportation Systems Center, “*Programmatic Agreements for Project-Level Air Quality Analyses*”, NCHRP 25-25 (78), 2015.
<http://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=3311>

¹⁸ Which was not done with agreements in place at the time of preparation of this document.

- air quality analysis or review prepared in support of the NEPA documentation for the project.*
- (2) *Key elements of the agreements have been incorporated to the extent feasible in Department protocols specified in the Resource Document. This not only provides some redundancy, it also serves to effectively extend the applicability of key terms in the agreements that were originally developed for purposes of NEPA only to projects located in areas that are also subject to conformity rule requirements.*

3.5.2.2 FHWA Categorical Finding for Carbon Monoxide

In February 2014, the FHWA implemented a categorical finding for CO^{19,20}, which they developed in consultation and cooperation with EPA. Section 4.2.3 in the VDOT Resource Document (*Application of Categorical Findings for Purposes of NEPA*) provides for the application of the FHWA Categorical Finding for the purposes of NEPA, i.e., anywhere within the Commonwealth. Accordingly, the FHWA categorical finding may be applied as appropriate for projects located in Virginia, with documentation included with the report for air quality and included with the electronic files for the project archive. More information on the federal finding may be found at:

FHWA Carbon Monoxide Categorical Hot-Spot Finding:

https://www.fhwa.dot.gov/environment/air_quality/conformity/policy_and_guidance/cmcf_2017/index.cfm

The FHWA categorical finding includes a web-based tool that enables project-specific information to be entered and the results obtained online. It is available at:

FHWA Carbon Monoxide Categorical Hot-Spot Finding Tool:

https://www.fhwa.dot.gov/environment/air_quality/conformity/policy_and_guidance/cmcf_2017/tool.cfm

In general, analyses that apply the FHWA Hot-Spot Finding Tool to show that the proposed project would qualify for the FHWA categorical finding must include a copy of the finding printed directly from the website in the documentation for the air quality analysis. An electronic copy of the finding should also be included with the electronic records for the project.

3.5.2.3 Exempt Projects

The proposed project should always be reviewed against the list of exempt projects specified in the federal transportation conformity rule (40 CFR 93.126²¹), and considering as appropriate any clarifications provided by EPA²². Check with Department air quality staff if you are uncertain about the possible exempt status of a project, and/or raise the question in the list of potential challenges and

¹⁹ See <https://www.gpo.gov/fdsys/pkg/CFR-2015-title40-vol20/xml/CFR-2015-title40-vol20-sec93-123.xml>. Excerpt (40 CFR 93.123(a)(3)): *DOT, in consultation with EPA, may also choose to make a categorical hot-spot finding that (93.116(a) is met without further hot-spot analysis for any project described in paragraphs (a)(1) and (a)(2) of this section based on appropriate modeling. DOT, in consultation with EPA, may also consider the current air quality circumstances of a given CO nonattainment or maintenance area in categorical hot-spot findings for applicable FHWA or FTA projects.*

²⁰ See: http://www.fhwa.dot.gov/environment/air_quality/conformity/policy_and_guidance/cmcf/.

²¹ See: <https://www.gpo.gov/fdsys/pkg/CFR-2015-title40-vol20/xml/CFR-2015-title40-vol20-sec93-126.xml>

²² See Question 6 in "PM Hot-spot Analyses: Frequently Asked Questions", EPA-420-F-18-011, June 2018.

Link: <https://www.epa.gov/state-and-local-transportation/project-level-conformity-and-hot-spot-analyses#pmguidance>

Direct link: <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100UKQS.pdf>

issues to be included in the scope of work or its transmittal (see Section 3.2).

3.5.3 VDOT Template Report for NEPA Documentation for Project-Level Air Quality Analyses

Application of the VDOT template report for project-level air quality analyses is intended to benefit quality control, facilitate the review and approval process, and minimize costs²³. The template report should be refined as needed for each project, addressing the following points:

- Update project-specific sections as needed, including but not limited to: project description, modeling inputs, modeling results, etc.
- Note which of the available resources for streamlining, e.g., FHWA-VDOT Programmatic Agreements, were applied (if any) for the project.
- If conformity applies for pollutant(s) assessed in the project-level analysis, reference the interagency consultation for conformity (IACC) conducted on the Resource Document using the template text provided in the Resource Document for this purpose. If project-specific IACC is conducted, it should be summarized in the report with details (meeting notices, minutes, email etc.) provided in an appendix.
- Reference the Resource Document as appropriate for the selection of models, methods and assumptions/data for the analysis as well as any exceptions (and associated project-specific IACC) as applicable.
- Ensure references to applicable regulations and guidance (which are subject to change) are current.
- Ensure the Executive Summary is concise and designed to be excerpted for inclusion into the overall NEPA document.

4. Frequently Asked Questions

What are the Department focus areas for review for the scope of work?

Focus areas for reviews include:

- Any challenges or issues:
 - Including those identified for the project per Section 3.2.
- Appropriate use of the available resources for streamlining (Section 3.5.1):
 - Have the applicable programmatic agreements and categorical finding been considered for application as appropriate?
 - Is project-specific modeling being proposed that would be unnecessary given the streamlining options?

²³ The Department template is based upon a generic version that was developed originally under the National Highway Cooperative Research Program (NCHRP). See: The Louis Berger Group Inc., “*Templates for Project Level Analysis Using MOVES, CAL3QHC/R, and AERMOD*”, NCHRP Project 25-25 Task 71, 2012. Direct link: [http://onlinepubs.trb.org/onlinepubs/nchrp/docs/NCHRP25-25\(71\)_Template.pdf](http://onlinepubs.trb.org/onlinepubs/nchrp/docs/NCHRP25-25(71)_Template.pdf)

- Exempt status:
 - Has the project been checked against the list of exempt projects specified in the federal transportation conformity rule?
 - Is safety part of the project purpose and need statement to be included in the NEPA document? Were safety issues identified in a study conducted for the project and will they be addressed as part of the planned improvements for the project?
- Appropriate use of the VDOT Resource Document:
 - Has the Resource Document been appropriately considered in developing the modeling approach (including the application of Department protocols) and selection of data?
 - Are exceptions to the models, methods and assumptions presented in the Resource Document being requested?
 - Are all key inputs for modeling appropriately addressed (e.g., background concentrations, meteorological data, road grades, traffic forecasts etc.)?
- Level of Analysis:
 - Appropriate to the project and level of environmental clearance document
 - Limiting modeling to what is needed to meet regulatory requirements, with regard to the pollutants, years, scenarios (build, no-build), and number of runs.
- Traffic Forecasts:
 - Planned approach
 - Source (Consultant or Department)
- Is the final report to be based on the Department template for NEPA documentation?

Will the Department provide traffic forecasts for the analysis?

Only if specified in the contract. It should not be assumed for the scope of work for the air quality analysis.

Will the Department provide related plan information such as average road grades for the analysis, especially for roadways that are not part of the project but may be affected?

Only if specified in the contract. It should not be assumed for the scope of work for the air quality analysis.

Are there any limitations on vendor or interface models acceptable to the Department?

The modeling results must be acceptable to the FHWA, US EPA, and the Department, and therefore as standard practice must meet requirements of 40 CFR Part 51 Appendix W for regulatory application. Analyses based on software that does not meet these requirements may not be accepted. Models to be applied for regulatory purposes are addressed in the VDOT Resource Document.

For projects for which modeling was conducted using vendor interface software (that executes EPA regulatory models), do you really need input and output files in the format for the EPA regulatory models in addition to those for the vendor interface software?

Yes. The deliverables must include all modeling files, both for original regulatory models as well as the interface models if applied. For example, if a vendor or other third-party model software interface is applied for modeling CO using CAL3QHC, the modeling files to be delivered must include all input and output files for both the interface software as well as for CAL3QHC. This is necessary as the Department may or may not have the same vendor or other third-party interface software, but does have the regulatory models from EPA.

Does the Department have requirements for modeling greenhouse gases and/or energy?

For greenhouse gases, the Department policy is to provide a qualitative analysis only (no modeling) for projects involving an EIS. Template text is provided for this purpose in the Department template report for NEPA documentation. If the project does not involve an EIS, no analysis is provided for greenhouse gases.

For energy, the Department does not require qualitative or quantitative analyses. This policy does not vary with the level of NEPA document.

The project is in an area currently subject to federal transportation conformity requirements (regional, not project-level) but does not appear to be included (or is included but not with the same scope or schedule) in the currently conforming transportation plan and program. How should the report address this need?

Within the air quality report, simply state that the project is in an area subject to conformity requirements and therefore must be included in a currently conforming transportation plan and program before being implemented per 40 CFR 93.114 and 40 CFR 93.115. The project status in the currently conforming plan and program must still be addressed in the NEPA document.

5. Department Contacts

Any questions or comments relating to scopes or AQM Protocols for specific projects should be directed to the appropriate staff in the Air Quality Section, Environmental Division:

Name	Title	Email	Phone
Jim Ponticello	Air Quality Program Manager	jim.ponticello@vdot.virginia.gov	(804) 371-6769
Christopher Voigt*	Environmental Engineer Senior	christopher.voigt@vdot.virginia.gov	(804) 371-6764
Dan Grinnell	Environmental Specialist Senior	daniel.grinnell@vdot.virginia.gov	(804) 371-2614

* Author of this guide, to whom suggestions for updates should be directed.

Appendix:

Optional Template Tables for the Air Quality Modeling Protocol

TABLE 1: PROJECT IDENTIFICATION AND BACKGROUND

(SAMPLE FORMAT; REFINE AS NEEDED)

VDOT Contract-Task Order:	<#>
Project UPC(s):	<#>
Project Title:	<As listed on VDOT IPM/CEDAR>
Project Website:	<http://____>
Project Location:	<__ County, Northern Virginia>
Map of Overall Project Area:	<See attached map showing the project area including locations of populations, businesses, other institutions, & any air quality monitors>
Route:	<#> - <Roadway or Facility Name>
From:	
To:	
Project Description/Scope:	<Widening from x to y lanes, new x-lane road on new location, inter-modal facility etc.>
Ultimate Concept:	<Same as the preferred alternative> or <Specify>, <Not funded in LRTP>
Phasing:	<na> or <Phase 1 to address: ... > <Phase 2: ...>
Scheduled Advertisement for Construction:	<Month Year>
Scheduled Completion Date (Open to Traffic):	<Month Year>
Design Year (Default: Ad Year + 22):	<Year>
Project status in the regional transportation plan and program (as applicable):	<na>, or <The project as currently scoped is included in the <Year> LRTP & FY Y1-Y2 TIP, listed as UPC or ID# ____. <The referenced Plan & TIP are posted on the following websites: http://_____>

TABLE 2: OVERALL SCOPE

(SAMPLE FORMAT; REFINE AS NEEDED)

NEPA Document:		<CE, EA or EIS>
	Purpose & Need:	<summary statement>
	Number of Alternatives:	<Three- See link for descriptions and figures: link >
	Preferred Alternative:	<Alt.1: Widen from x to y lanes from Termini 1 to Termini 2>
Air Quality Attainment Status:		<Nonattainment for ozone>
Preliminary Screening:		
	Exempt categories that may apply for the project :	<None>
	Federal Categorical Finding for CO:	<Not applicable based on preliminary traffic forecasts <i><reference></i> >>
	FHWA-VDOT Programmatic Agreement for CO:	<Applicability TBD following receipt of updated plans and/or traffic forecasts, expected by <i><date(s)></i> > or <Not applicable based on preliminary traffic forecasts <i><reference></i> >>
	FHWA-VDOT Agreement for CO Study Updates:	<Not applicable as no prior study>
	FHWA-VDOT Agreement for CO No-Build Scenarios:	<Not applicable based on NEPA Document type>
	Department Protocols (VDOT Resource Document):	<2.2.2, Project in grace period for: <MOVES update>, <Reg.change> etc.> <2.3.1, n/a as no prior study to update> <2.6.4, Modeling based on average speeds; no microsimulation.> <2.9.1, No nearby stationary sources to consider.> <etc.>
Overall Approach for the Air Quality Analysis:		
	Key Challenges (if any):	<EIS, High Profile and/or Relatively Complex project>, <IACC proposed as EIS, but not required since Resource Document data being used>, <Delays in receiving traffic forecasts may delay the IACC & Air Q. Study.>
	CO:	<TBD when traffic forecasts received, but planning <u>worst-case screening</u> >
	MSATs:	<TBD when traffic forecasts received, but expect <u>qualitative analysis only</u> . Do not expect to meet FHWA thresholds for quantitative analyses.>
	Greenhouse Gases:	<Qualitative analysis only for projects involving an EIS (per Dept. policy).>
	Indirect Effects and Cumulative Impacts:	<Qualitative assessment>

TABLE 3: MODELING DETAIL

(SAMPLE FORMAT; REFINE AS NEEDED)

<See Section # of the attachment for details>	
Source of Traffic for Air Quality Modeling:	<VDOT or consultant <i><name firm></i> >
Status:	<Summary traffic available now, with update due by <i><date></i> >
CO:	<Cleared with FHWA-VDOT Programmatic Agreement> or <Federal CF>, or <Hot-Spot Analysis proposed (worst-case modeling)>
Models:	<EPA: MOVES and CAL3QHC>(Note version numbers)
Interface Software:	<Name (Version#) for <EPA Model>>
Scenarios:	<Build Alternatives __, No-Build as applicable>
Modeling Year(s):	<Year(s)>
Number of Modeling Runs:	<#, details>
Project area for analysis or analyses:	<See attached map/exhibit.>
Construction Emissions (Conformity):	<Not included as the EPA five-year criterion is not met.>
Exceptions to Resource Document:	< No exceptions to models, methods and assumptions in the Resource Document are required> or <Exceptions needed: <i><list></i> >
MSATs:	<Qualitative or Quantitative MSATs>
Models:	<EPA: MOVES><Note versions>
Scenarios:	<Build Alternatives __, No-Build>
Modeling Years:	<Years>
Number of Modeling Runs:	<#/year, and total, for Build (Preferred Alt)-No Build>
Project area for analysis or analyses:	<See attached map/exhibit.>
Exceptions to Resource Document:	< No exceptions to models, methods and assumptions in the Resource Document are required> or <Exceptions needed: <i><list></i> >
Greenhouse Gases:	<Qualitative analysis only, for projects involving an EIS>
Indirect Effects and Cumulative Impacts:	<Qualitative assessment, based on the VDOT template>