PM Hot-Spot Guidance: Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in PM$_{2.5}$ and PM$_{10}$ Nonattainment and Maintenance Areas

Guidance Change Bulletin: October 2021

Overall Guidance Changes:

Changes throughout the document include:
- Updates to reflect MOVES3
- Updates to eliminate references to outdated EMFAC model version
- Updates to reflect that AERMOD is the required air quality dispersion model for PM hot-spot analyses
- Updated web pages and references

Specific Guidance Changes:

Part of Guidance	Change from 2015 Guidance to 2021 Guidance	Reason for Change
Section 1.2: Requirement for Quantitative PM Hot-Spot Analyses	Section abridged	Requirement for quantitative PM hot-spot analyses has been in effect since 2012
Section 1.5: Other Purposes for this Guidance	Additional specificity about other purposes, such as National Environmental Policy Act or assessing near-source air quality in communities with environmental justice concerns	Provides clarity to be helpful to stakeholders
Section 2.3: Interagency Consultation and Public Participation Requirements	Deleted example to only model one quarter Added sentence about importance of documentation	Example has not been used in implementation to date Reflects guidance implementation and experience in the field
Section 2.4: Hot-Spot Analyses Are Build/No-Build Analyses	Added "design concentration" terminology in addition to design value; this new term is used throughout the guidance	Term included in the last update to the Appendix W regulation published January 2017. Design concentration is calculated based on monitoring and modeled data
Section 2.8: Appropriate Time Frame and Analysis Years	Added example for selecting both a near-term and a longer-term analysis year	Provides a useful example
Section 2.9: Agency Roles and Responsibilities	Added more description of EPA's role (Section 2.9.3)	Clarifies all of EPA's responsibilities to improve implementation of guidance and related requirements

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Section 3.3: Determine Approach, Models, and Data (Step 2)	Added text about using interagency consultation to help identify the appropriate receptor locations in the area substantially affected by the project (Section 3.3.2) Deleted discussion of modeling only one quarter of an analysis year (Section 3.3.4)	Adds useful concepts and detail to assist in implementation Example has not been used in implementation to date
Section 3.3.6: Determining the models and methods to be used	Added cite to EPA's Appendix W *Guideline* Deleted sentence about selecting an air quality model	Appendix W is the regulation that governs air quality modeling AERMOD is now the only model for PM hot-spot analyses, per the Appendix W regulation published January 2017
Section 3.6: Select Source Types, Data Inputs, and Receptors for AERMOD (Step 5)	Revised to clarify that AERMOD is the required model	AERMOD is now the only model for PM hot-spot analyses, per the Appendix W regulation published January 2017
Section 3.10: Document the PM Hot-Spot Analysis	Added cite to transportation conformity regulation Added to what should be included in documentation, including maps and diagrams, explanation of naming conventions if used for project links, and step-by-step explanation of how emissions are used as inputs in air quality modeling	Provides clarity Reflects guidance implementation and experience in the field
Section 4: Estimating Project-Level PM Emissions Using MOVES	Comprehensively revised in its entirety to reflect MOVES3	EPA released MOVES3 ([86 *Federal Register* 1106](#)); this revised guidance applies to minor revisions to MOVES3 when issued
Section 4.2: Characterizing a Project in Terms of Links	Updated text	Adds clarity
Section 4.3.: Determining the Number of MOVES Runs	Changed guidance for number of MOVES runs: for most projects (those without gasoline starts), four MOVES runs are sufficient to capture variability instead of 16	PM temperature effects have changed with MOVES3; see EPA's report *Emission Adjustments for Temperature, Humidity, Air Conditioning, and Inspection and Maintenance for Onroad Vehicles*

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		in MOVES3, November 2020, EPA-420-R-20-013, available on EPA's website at: https://www.epa.gov/moves/moves-onroad-technical-reports#moves3
	Deleted discussion of modeling only one quarter of an analysis year	Example has not been used in implementation to date
Section 5: Estimating Project-Level PM Emissions Using the EMFAC Model in California	Sections 5.1 – 5.3 updated	Eliminates references to outdated EMFAC version; provides EMFAC general guidance
	Sections 5.4 – 5.9 deleted	Sections were based on outdated EMFAC model; EMFAC modelers directed to California Air Resources Board model documentation, consistent with approach in 2015 version of EPA's guidance
Section 7: Estimating Project-Level PM Concentrations Using AERMOD	Section updated throughout to remove CAL3QHCR	AERMOD is now the only model for PM hot-spot analyses, per the Appendix W regulation published January 2017
Section 7.3: Using AERMOD	Sentences added to describe new AERMOD source types (RLINE and RLINEXT)	New source types added to AERMOD in version 19191
	Text added to describe that it is useful to consider modeling decisions in advance, for example, with a modeling protocol	Reflects guidance implementation and experience in the field
Section 7.6: Placing Receptors	Added examples of where maximum concentrations may not be located closest to the project	Reflects guidance implementation and experience in the field
	Clarified guidance for receptor placement, including when additional receptors are used for communities in the project area	Reflects guidance implementation and experiences in the field

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Section 8.1: Introduction Section 8.2: Nearby Sources that Require Modeling	Clarified that nearby sources would be included in air quality modeling when they are not reflected in background data, in addition to when those sources would be affected by the project	Important point to include, consistent with Appendix W requirements
Section 8.3: Options for Background Concentrations	Removed option to adjust air quality monitoring data using an onroad mobile source adjustment factor (previously, Section 8.3.3)	This option was appropriate in limited use cases; example has not been used in implementation to date
Section 9: Calculating PM Design Concentrations and Determining Conformity	Entire section updated with the term "design concentration"	Adds clarity by distinguishing design concentration, which is a combination of modeled and monitor values, from design value, which is based solely on monitor values
Section 9.3: Calculating Design Concentrations and Determining Conformity for PM Hot-Spot Analyses	Moved paragraph about alternative design concentration methods from Section 9.3.4 (PM10 NAAQS) to introduction, Section 9.3.1 Eliminated calculation steps pertaining to CAL3QHCR model Some steps amended to reflect available website information	Paragraph pertains to all PM NAAQS CAL3QHCR model removed in the January 2017 Appendix W regulation New information available on EPA's website
Section 10: Mitigation and Control Measures	Updated web links	Ensures document is current
Appendix A: Clearinghouse of Websites, Guidance, and Other Technical Resources for PM Hot-Spot Analyses	Updated web links and documents	Ensures document is current
Appendix B: Examples of Projects of Local Air Quality Concern	Added examples found in EPA's PM Hot-spot FAQs	Ensures document is current and includes all examples
Appendix D3: Option 2: Using Link Drive Schedules	Updated graphic and discussion	Provides additional clarity about this option; may make it easier to implement
Appendix G: Example of Using EMFAC2011 for a Highway Project	Removed content but appendix retained	Example pertained to a version of EMFAC no longer in use

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Appendix H: Example of Using EMFAC2011 to Develop Emission Factors for a Transit Project	Removed content but appendix retained	Example pertained to a version of EMFAC no longer in use
Appendix I.3: Determining When to Analyze Emissions (Locomotives)	Deleted discussion of modeling only one quarter of an analysis year	Example has not been used in implementation to date
Appendix J: Additional Reference Information on AERMOD	Appendix J updated throughout to remove CAL3QHCR References to AERMOD updated Updated discussion of how to match MOVES runs with periods of time in AERMOD via EMISFACT (Section J.3.3)	AERMOD is now the only model for PM hot-spot analyses, per the Appendix W regulation published January 2017 Ensures document is current Adds clarity and reflects guidance change for number of MOVES runs for certain cases
Appendix K: Examples of Design Concentration Calculations for PM Hot-Spot Analysis	Updated years in examples	Ensures document is current