

Dispersion Modeling Research

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U.S. Department of Transportation
Federal Highway Administration

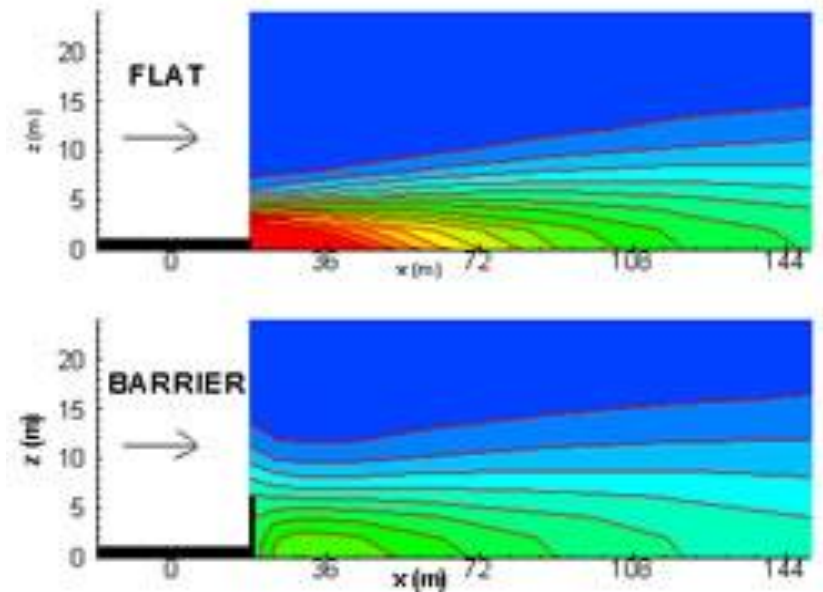
Outline

FHWA and EPA Cooperative Research

AERMOD Source Type Testing

Dispersion Modeling Research

Questions



Source <https://www.cmascenter.org/r-line/>

FHWA and EPA Cooperative Research

FHWA and EPA Cooperative Research

FHWA worked with EPA as part of their effort to incorporate RLINE/RLINEXT Source Types into AERMOD

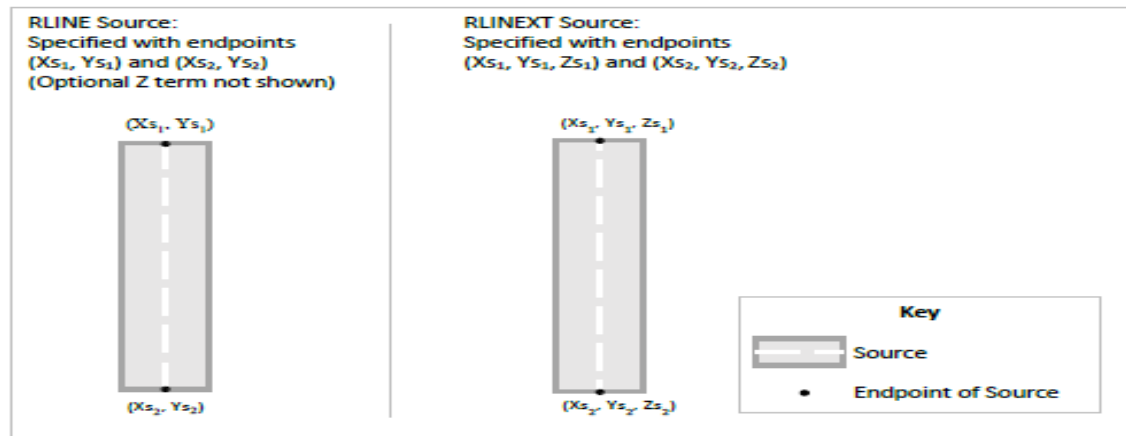


Figure 3-1: RLINE and RLINEXT Source Types

Source: EPA Guidance on New R-LINE Additions to AERMOD 19191 for Refined Transportation Project Analyses

FHWA and EPA Cooperative Research

RLINE Urban Option

Evaluation of Barrier Algorithms

Scoping Vehicle Induced Turbulence

AERMOD Source Type Testing

GEORGIA

NEW MEXICO

VIRGINIA

AERMOD Source Type Testing Background

In 2017, Environmental Protection Agency (EPA) published a final rule that revised the agency's *Guideline on Air Quality Models (Appendix W to 40 CFR Part 51)*. This made AERMOD the preferred model for refined transportation project analyses beginning in January 2020.

In 2019, EPA released [AERMOD Modeling System](#) (Version 19191), including for transportation purposes the RLINE and RLINEXT source types to the existing LINE/AREA and VOLUME source types. Each of the R-LINE features in AERMOD is either a “BETA” or “ALPHA” feature in AERMOD:

- BETA features are vetted through the scientific community and are waiting to be promulgated as regulatory options.
- ALPHA features within AERMOD are research or experimental options that are provided for review and evaluation by the user community.

https://www3.epa.gov/ttn/scram/appendix_w-2016.htm

AERMOD Source Type Testing Purpose

Better understanding of how the RLINE and RLINEXT perform with the goal of making available modeling tools that are more applicable to highway applications

State Departments of Transportation (DOTs) are partnering with FHWA for testing two new source types, RLINE and RLINEXT in the AERMOD 19191 model

AERMOD Source Types Testing to provide insights to further improve the BETA RLINE source type and the ALPHA RLINEXT source type

Address different applications of the RLINE and RLINEXT source types in AERMOD and to improve the performance of AERMOD

AERMOD Source Type Testing Purpose

Need analysis for refined conformity hotspot and sometimes want it for NEPA.

Research shows possible benefits of barriers in the near road environment.

Ultimately, this project may assist State DOTs in conducting project level air quality analysis by making additional modeling options and features, such as the barrier and depressed roadway functions, available in AERMOD for regulatory use.



Source: FHWA

AERMOD Source Type Testing Emphasis

Analyze:

- AERMOD RLINE and RLINEXT source types
- Urban vs rural applications
- Barrier effects
- Depressed roadways applications

Results to be compared with AERMOD LINE/AREA and/or VOLUME source types.

Product is a report (case study) and presentation documenting the analysis and present the results at a peer exchange.

AERMOD Source Type Testing Timeline

Testing project draft case study reports due	February 2021
Peer Exchange	May 2021
Final testing project study reports due.	June 2021

Dispersion Model Research

FHWA RESEARCH

Dispersion Model Research

Purpose of Research – Investigate near road dispersion models to ensure that they are:

Fast

Familiar

Accurate

Questions



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