Project-Specific Data Preparation for Air Quality Modeling: Lessons from the Phoenix Area Hot-Spot Analysis

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Research Summary

- Hot-spot analysis data issues for EPA MOVES and Air Dispersion Models (CAL3QHCR, CAL3QHC, AERMOD, etc.)
- Require project-specific input data
- Require modification of travel demand model (TDM) outcomes
- Lack of an appropriate state-wide TDM
- Depend on MPO’s TDM data and MOVES inputs used for Regional Conformity Analysis
- Need to develop a tool to transform the regional data into project-specific data
SR303 Project in Phoenix Area

- Located in PM10 Nonattainment and CO Maintenance areas
- A Project of Air Quality Concern
  - Increases truck traffic volume: PM
  - Worsens Level of Service (LOS): CO
  - Requires hot-spot analyses for both PM and CO
Project-Specific Data Problems

• Link-specific data required for MOVES and Air Dispersion Models
  – No detailed traffic information for the links available
  – Should estimate traffic data with Regional Conformity Analysis (RCA) inputs and MOVES defaults
  – Should run Level of Service (LOS) models separately

• Other MOVES input issues using RCA data, for examples,
  – RCA uses different MET calculations
  – Time (month and year) in RCA does not match the existing/build periods for hot-spot analysis
Conclusion: Development of a Practical Tool

• Current (temporary) methods:
  – Request MPO for special TDM runs
  – Hire consultants to run Intersection Capacity Analysis for LOS estimates
  – Use MOVES defaults and EPA Conversion Tools for MOVES inputs

• Developing integrated conversion software including:
  – MPO TDM conversion module
  – State-wide TDM conversion module for rural areas
  – Other project-specific MOVES input module (MET, Fuel, I/M, etc.)
  – Integrated GUI for GIS, MOVES and AERMOD