CMAQ Emissions Calculator Toolkit

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Outline

- CMAQ program overview
- Purpose
- Approach to tool development
- Schedule for tool releases
- Demonstration of tools by project type

CMAQ: A Quick Overview

- Congestion Mitigation and Air Quality Improvement (CMAQ) Program
- Established in 1991 under ISTEA (23 U.S.C. Section 149)

  The CMAQ program is established for transportation projects that contribute to the attainment or maintenance of the national ambient air quality standards for ozone, carbon monoxide, or particulate matter

- Reauthorized in all subsequent transportation reauthorization Acts, most recently the FAST Act
  - Annual funding level at about $2.3 -$2.5 billion (FY 2016-2020)

Basic CMAQ Project Eligibility

- Each CMAQ project must
  - be a transportation project
  - generate emission reductions
  - be located in or benefit a nonattainment or maintenance area
- Emission Reduction
  - Must reduce emissions from transportation sources
    - CO
    - Ozone precursors (VOC and NOx)
    - $PM_{2.5}$ and PM_{10} (both direct and applicable precursors)
  - Reductions must contribute to the area's overall clean air strategy and should be demonstrated by the emissions analysis required by FHWA.

Eligible Projects

- Wide range of eligible projects
  - Diesel engine retrofits & other advanced truck technologies
  - Idle reduction
  - Congestion reduction & traffic flow improvements
  - Freight/Intermodal
  - Transportation Control Measures (TCM)
  - Transit improvements
  - Bicycle and pedestrian facilities and programs
  - Travel demand management
  - Carpooling and Vanpooling
  - Carsharing
  - Alternative fuels & vehicles
  - Inspection & maintenance programs
  - Public education & outreach activities
  - Innovative projects

Expanded Project Eligibility under FAST Act

- Diesel emission control technology for non-road diesel vehicles and engines used in construction projects or port-related freight operations
  - located in ozone and PM areas, and
  - Funded under Titles 23 or 49
- Port related landside non-road or on road equipment
  - In PM2.5 areas
- Installation of vehicle to infrastructure communications equipment

CMAQ Emissions Calculator: Purpose

- Develop tools to assist the estimation of emission benefits of CMAQ projects, and to support reporting activities:
  - Annual CMAQ report
  - Proposed CMAQ on-road mobile source performance measure
- Respond to request from project sponsors who may have limited technical and analytical capabilities to estimate emission benefits
- Provide analysis methodologies for most encountered CMAQ projects
- Provide a common set of methodologies using consistent assumptions, available data sources
- Serve as a resource only; areas are not required to replace methodologies already in practice

Approach to Tool Development

Approach to Tool Development

- Identified **80** project types
- Grouped Project Types
  - Available methodology (fully-, partially-, un-developed)
  - Projects based on changes in: emission rates, speed, idling, VMT, etc.
  - Priority project types
- Prioritized 20 Project Types in 5 CMAQ categories

Project Tools in 2016

CMAQ Project Category	Eligible Project Types	Status
Congestion Reduction and Traffic Flow Improvements	• Intersection Improvements • Traffic Signal Synchronization • Roundabouts	**Now available!**
Advanced Diesel Truck / Engine Technologies	• Vehicle Replacement • Engine Replacement • Heavy Duty Vehicle Retirement Program • Engine Rebuilding • Exhaust Retrofit • After Treatment Hardware/Devices • On-Board Emissions Control Devices	Coming Soon!

http://www.fhwa.dot.gov/environment/air_quality/cmaq/toolkit/

Project Tools Planned in 2017

CMAQ Project Category	Eligible Project Types
Alternative Fuels	• Fueling Facilities • Vehicle Purchase • Fleet Conversion • Engine Replacement • Hybrid Vehicles
Transit Improvements	• New Transit Vehicles • Diesel Engine Retrofits • Bus Replacement • Alternative Fuel Bus Replacement
Travel Demand Management	• Carpooling • Vanpooling

Tool Methodology

Coordination

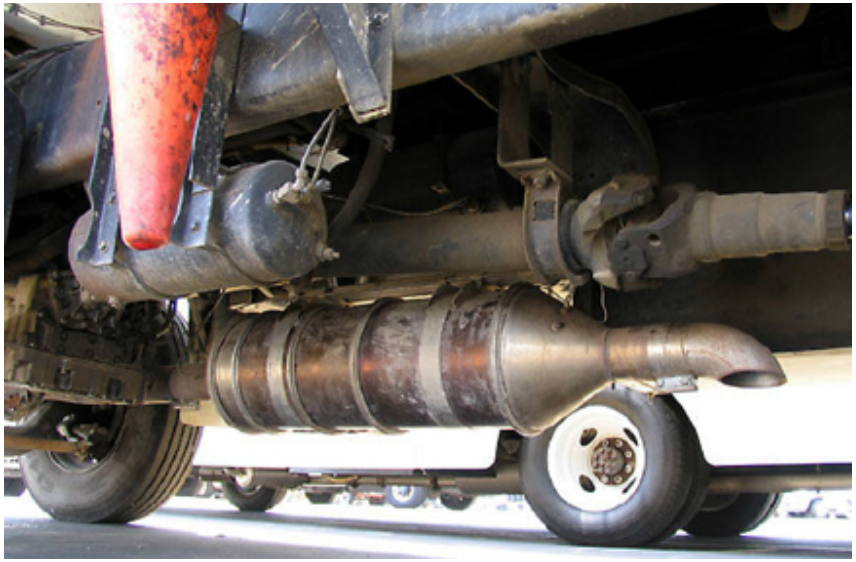
- MPO beta testers provide excellent feedback – thank you!
- Gathered feedback and data from EPA on diesel retrofits and replacements modules
- Coordinating with DOE Clean Cities and Argonne National Laboratory on alternative fuels tool

Summary

- ✓ Easy to use –
  - Excel-based
  - Readily available inputs
- ✓ Consistent methods
- ✓ Customizable with local data

www.fhwa.dot.gov/environment/air_quality/cmaq/toolkit/

Demonstration



Thank you

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