



# CMAQ Program: From MAP-21 to the FAST Act

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U.S. Department of Transportation  
Federal Highway Administration



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# CMAQ Project Tracking System Redesign and Update



# General Requirements for the Project Tracking and Public Access Systems as Prescribed under MAP-21

## 23 USC 149 (i):

**IN GENERAL** – The Secretary shall maintain and disseminate a cumulative database describing the impacts of projects, including specific information about each project, such as the project name, , location, sponsor, cost, and cost effectiveness based on reductions in emissions and congestion.

**AVAILABILITY** – The database shall be published or otherwise made available by the Secretary in electronically accessible format and means such as the Internet for public review.





# Needs for Project Tracking System Improvement

- Project Tracking System (PTS) relatively unchanged since original development.
- Existing System not compatible with other FHWA systems, applications and hardware.
- Aspects of PTS not consistent with CMAQ Program Guidance.
- Data uploads, searches and reports were problematic and inefficient.



# Additions and Improvements





# Software Upgrade

- System files and database converted from Java to Microsoft .NET software format.
- Provides compatibility between CMAQ PTS and PAS with other FHWA computer systems, LANs and databases
- Greatly increases speed and functionality of the PTS and the Public Access System



# Enhanced Project Entry Environment

- Expanded list of project reporting categories to better reflect eligibility classifications.
- Additional drop down project description options to provide more detailed explanation of project function.
- Inclusion of Operating Assistance and Congestion Relief as project features.
- Increased focus on quantitative emission benefit reporting.





# New Project Reporting Categories

- Advance Diesel Truck / Engine Technologies
- Alternative Fuels and Vehicles
- Bike and Pedestrian Facilities and Improvements
- Congestion Reduction and Traffic Flow Improvements
- Freight and Intermodal
- Inspection and Maintenance Programs (I/M)
- Ride Sharing
- STP/CMAQ
- Transit Improvements
- Travel Demand Management
- Other



# Project Search

- Simple and Advanced Search options
- Projects presented in Excel like format with sortable columns
- Additional feature provides single or multiple column filtering based on project characteristics





# Roll Out

- Release of New Project Tracking and Public Access Systems Mid-February.
- Webinars for FHWA Division Personnel and State DOTs and MPOs Mid- February.
- Due date for annual reports extended to June 1<sup>st</sup>.



# CMAQ Cost Effectiveness Tables Development and Results





# General Requirements for the Cost Effectiveness Tables as Prescribed under MAP-21

## 23 USC 149(i):

**IN GENERAL** - The Secretary in consultation with the Administrator of the Environmental Protection Agency shall evaluate projects on a periodic basis and develop a table or other similar medium that illustrates cost effectiveness of a range of project types for funding under this section as to how the projects mitigate congestion and improve air quality.

**USE OF TABLE** - States and metropolitan planning organizations shall consider the information in the table when selecting projects or developing performance plans under subsection (I)



# FHWA Objectives

- Provide representative cost-effectiveness (C-E) estimates to guide project selection and funding request processes at the State and local level
- Promoting ownership of a role in achieving high environmental impact returns on project funds





# Scope of Analysis

- Within scope:
  - ❖ C-E estimates of criteria pollutants and precursors (PM<sub>2.5</sub>, PM<sub>10</sub>, NO<sub>x</sub>, CO, VOCs)
  - ❖ All project types either receiving CMAQ funding or that may receive CMAQ funding in the near future
  - ❖ Congestion impacts, where applicable



# Key Data Sources

- CMAQ assessment studies
- CMAQ project tracking system
- State and local project summaries
- *Multi-Pollutant Emissions Benefits of Transportation Strategies*
- MOVES
- Diesel Emissions Quantifier
- DERA
- Academic and industry professionals





# Analytical Process: Assumptions

- Emission impacts are not discounted across project lifetimes;
- The cost-effectiveness of a project with respect to one pollutant is independent of the project's impacts on other pollutants;
- The full project cost is included in calculations of cost-effectiveness measures, rather than the share of project costs receiving CMAQ funding;
- The full project cost is assigned to the first year of the project, rather than discounting across years that projects would be active



# Analytical Process: Limitations

- The range of analytical scenarios covers neither the full range of potential outcomes within a project type, nor the full range of potential projects;
- States and MPOs may have access to distinct sets of information and operate under distinct sets of constraints or objectives;
- Estimated project costs are assumed to cover the full extent of capital, operating and maintenance costs;
- The estimates are not intended as a guide on how to analyze projects.





# Project Types Selected for Analysis

- Bikesharing
- Bicycle / Pedestrian Projects
- Carsharing
- Dust Mitigation
- Electric Vehicle Charging Stations
- Employee Transit Benefits
- Extreme Cold Temperature Cold-Start Technologies
- Heavy Duty Vehicle Engine Replacements
- Heavy Duty Vehicle Retrofits
- Incident Management
- Intermodal Freight Facilities
- Natural Gas Re-Fueling Infrastructure
- Park and Ride
- Ride Share Programs
- Roundabouts
- Signalization and Intersection Improvements
- Subsidized Transit Fares
- Transit Amenity Improvements
- Transit Service Expansion
- Truck Stop Electrification



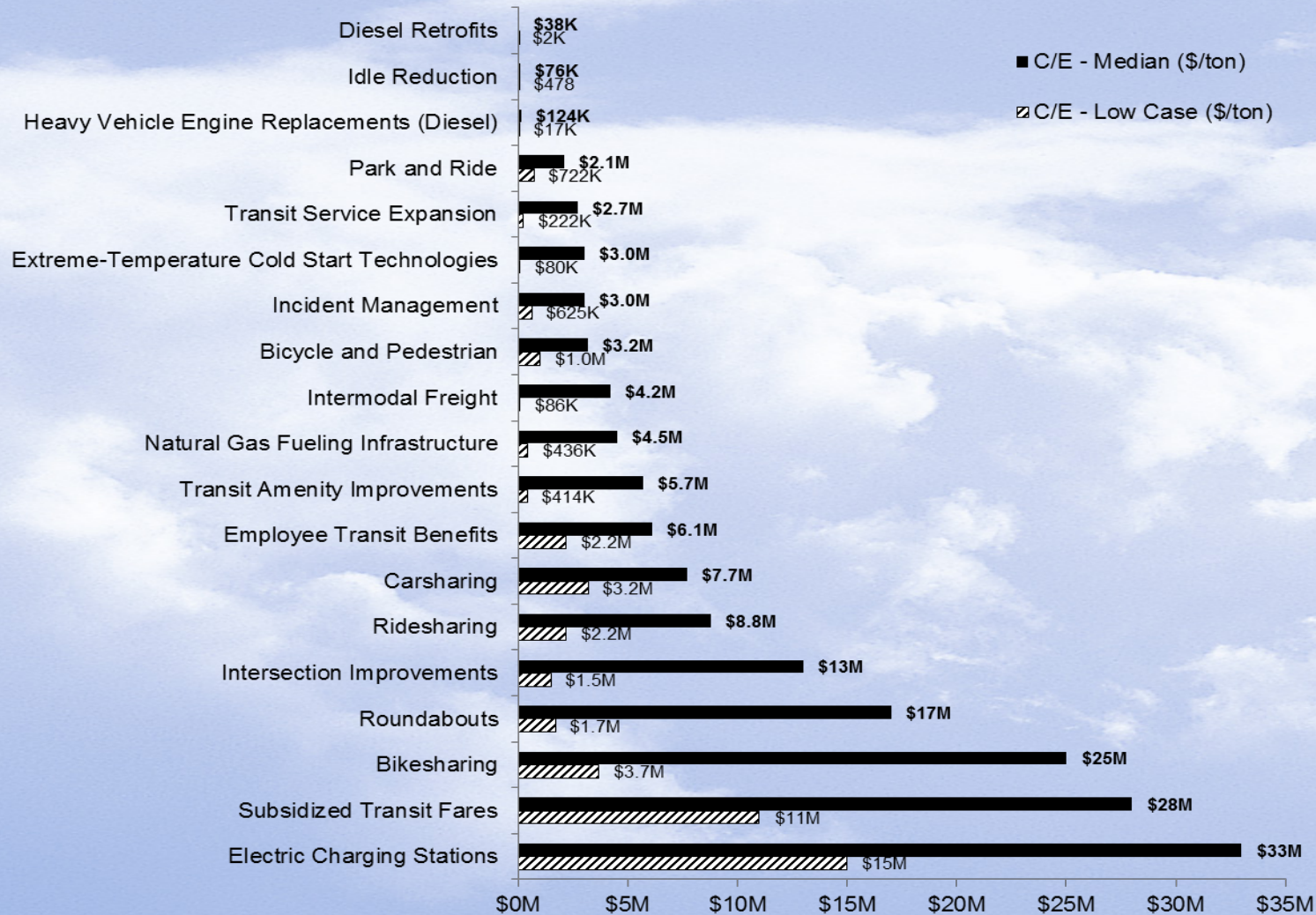
# Analytical Scenarios

- C-E estimates represent lifetime emission mitigation for a single pollutant, divided by project cost
- A range of individual cases (scenarios) was analyzed for each project type, in order to generate C-E estimates at the project-type level.
- When required information was not available for an eligible project, representative values from related projects or the literature were substituted
- More complex cases required accounting for increased emissions associated with new, alternative travel behavior (e.g., new bus routes)



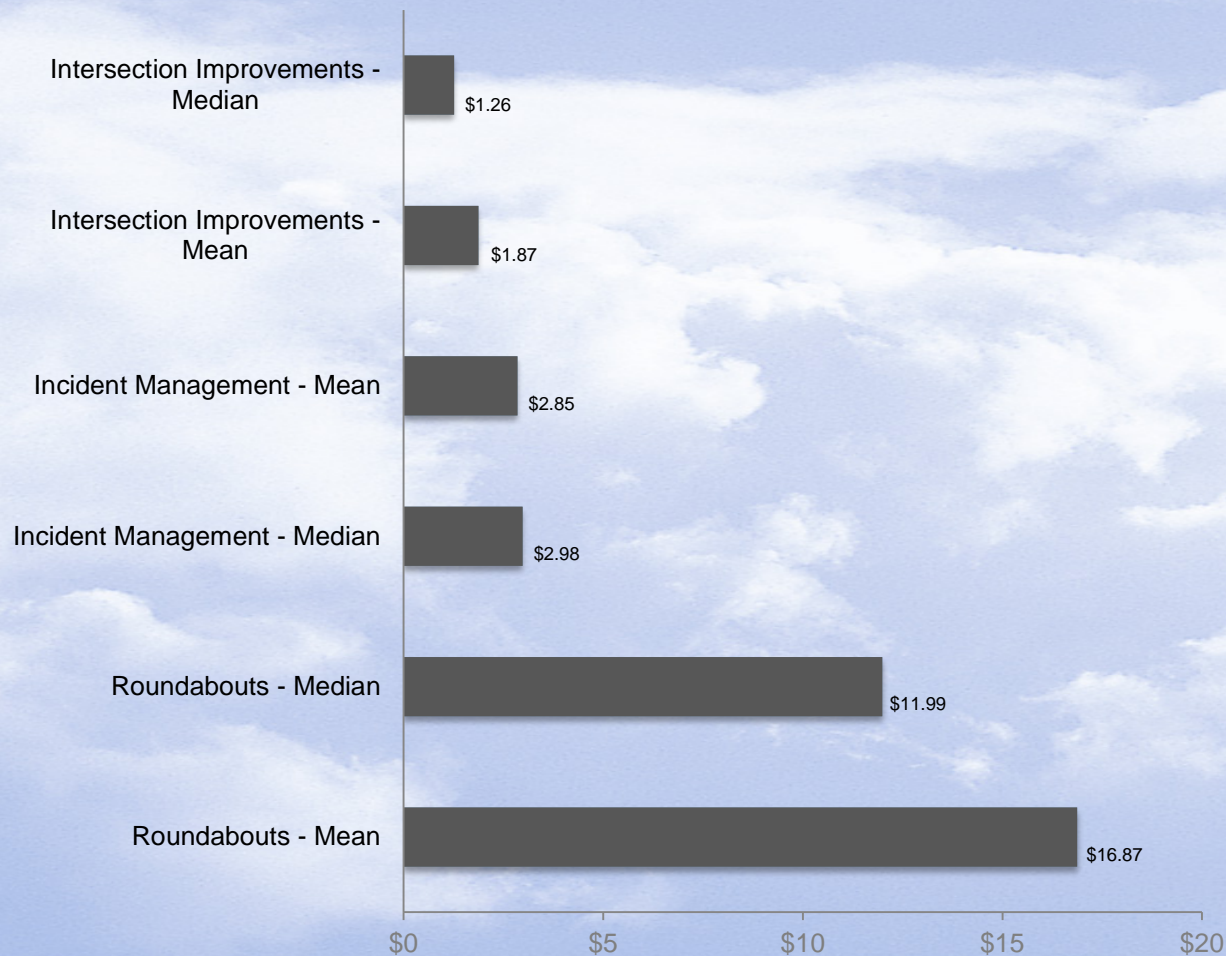


## Median Cost-Effectiveness (Cost per Ton Reduced) of PM<sub>2.5</sub>





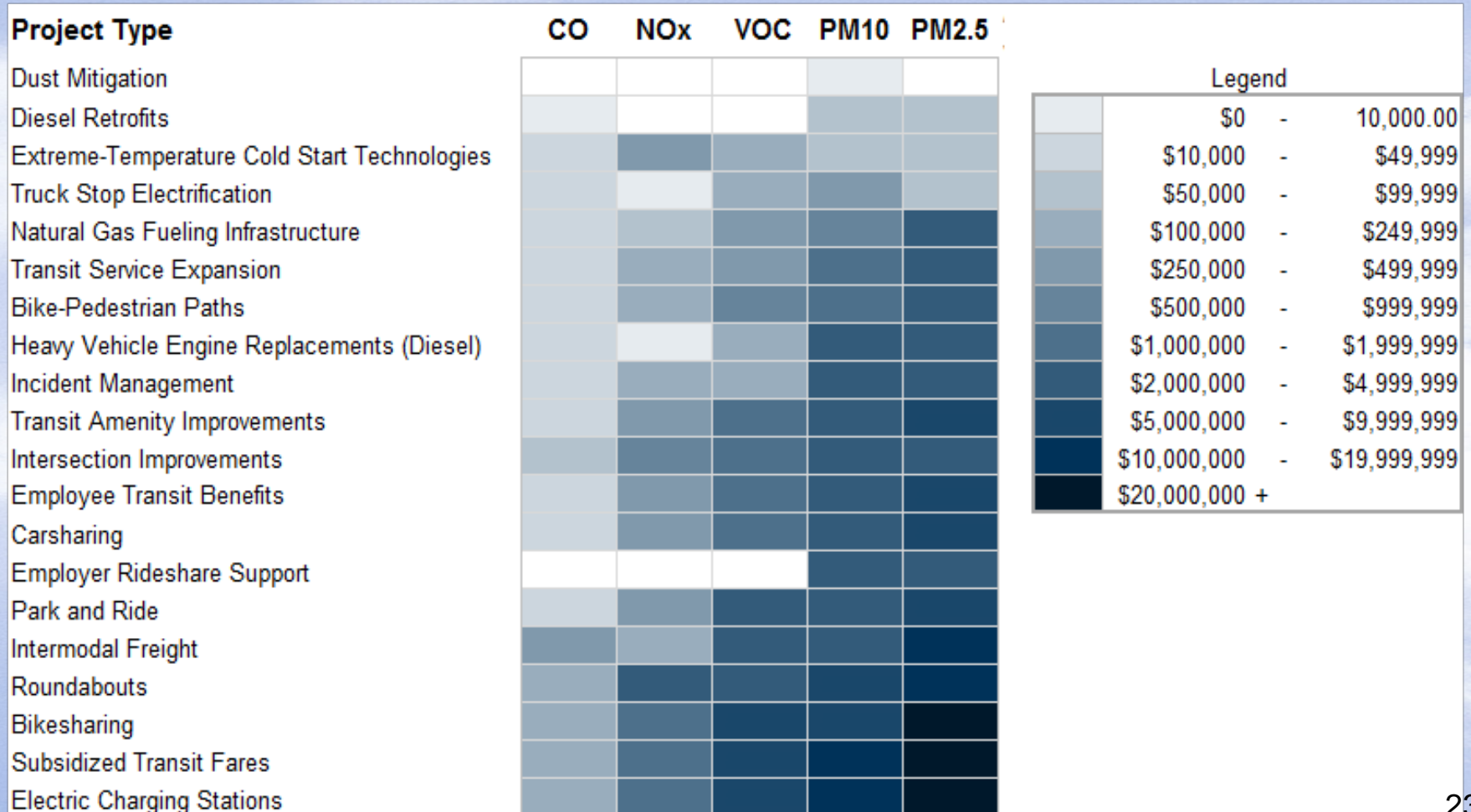
## Congestion Impacts (Dollars per Vehicle-Hour of Delay Reduced)







## Median C-E for All Pollutants





# General Findings

- High, specialized effectiveness:
  - ❖ Dust mitigation (PM10)
  - ❖ Diesel retrofits (PM2.5, PM10, CO)
- High general effectiveness:
  - ❖ Heavy vehicle diesel engine replacements
  - ❖ Extreme-temperature cold start technologies
  - ❖ Truck stop electrification





# General Findings

- Low general effectiveness:
  - ❖ Electric vehicle charging stations
  - ❖ Subsidized transit fares
  - ❖ Bikesharing
  - ❖ Roundabouts
  - ❖ Intersection improvements



# Roll Out

- Posted to FHWA / CMAQ website mid-February.
- Webinar for FHWA Division Personnel conducted April 5.
- Webinar for State DOTs and MPOs scheduled for April 28. Will be recorded and posted to the website.





# CMAQ Final Program Guidance

- Revised to accommodate statutory changes required by the FAST Act.
- Currently under FHWA/OST Expedited Review
- Next stop OMB for final review and approval
- Expecting release summer 2016.



# CMAQ Related Performance Measures

- Traffic Congestion and on-road mobile source emissions.
- NPRM for System Performance, Freight and CMAQ will be published in the Federal Register soon.





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Federal Highway Administration

# FAST Act



# Funding Features

Fiscal year	2016	2017	2018	2019	2020
Estimated funding*	\$2.309 B	\$2.360 B	\$2.405 B	\$2.449 B	\$2.499 B

- State allotment of CMAQ Funds are based on 2009 apportionment amount.
- States with PM2.5 Nonattainment or Maintenance Area receive 25% set-aside.
- Exclusive of the 25% set-aside, 50% of funds may be transferred





# Project Eligibility Modifications

- Expanded eligibility for set-aside funds in PM<sub>2.5</sub> Nonattainment and Maintenance Areas.
  - ❖ Diesel emission control technology for non-road diesel and construction equipment
  - ❖ Port related landside non-road or on road equipment.
  - ❖ Expanded uses of vehicle to infrastructure communications equipment
  - ❖ Priority consideration of electric vehicle and natural gas infrastructure within designated corridors.



# New Area Exemption

- Exemption from  $PM_{2.5}$  set-aside for states with low population density (80 or fewer persons per sq. mi.)
  - ❖ Not apply to projects not contained in a MTP or TIP
  - ❖ Regional motor vehicle emissions are insignificant contributor to  $PM_{2.5}$  as determined by USEPA.





# Information and Contacts

- HEPN Website:  
[http://www.fhwa.dot.gov/environment/air\\_quality/](http://www.fhwa.dot.gov/environment/air_quality/)
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