


# CMAQ PRIORITIZATION

Air Quality Subcommittee

October 13, 2016



# WILMAPCO CMAQ PRIORITIZATION PROCESS

- ▶ AQS identifies and prioritizes projects within the TIP (spring)
    - ▶ Approved by TAC and Council
    - ▶ Submitted to DeIDOT for consideration
  - ▶ DeIDOT submits proposal for CMAQ spending (summer)
    - ▶ AQS reviews
    - ▶ Approved by TAC and Council
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# WILMAPCO CMAQ PRIORITIZATION PROCESS

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## Air Quality

### CMAQ Public Access System


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All 50 states and the District of Columbia submit annual reports of their CMAQ project obligations in March of every year. The FHWA uses these yearly submissions to maintain an active database of CMAQ investments, air quality benefits, Project trends within the program, and other anecdotal information focusing on the program's performance.

This database of CMAQ Project information had been reserved for internal planning purposes by authorized FHWA personnel, for Congressional reporting and made available to state DOTs and MPOs on an individual request basis.

The release of the CMAQ Public Access System was the first opportunity that the general public could have full access to FHWA approved CMAQ Project data submitted through the annual reporting process. The CMAQ Public Access System makes available searchable, read only, project information from 1992 to present in various reporting formats.

CMAQ system support and guidance information are available through the FHWA, [Air Quality CMAQ](#) ([http://www.fhwa.dot.gov/environment/air\\_quality/cmaq/](http://www.fhwa.dot.gov/environment/air_quality/cmaq/)) website.



**Disclaimer** **Note to User:** Data present in the CMAQ Public Access System (PAS) is composed solely of projects from state DOT annual reports submitted and approved by FHWA, HQ Staff. Availability of project data for the previous fiscal year and subsequent years will be lagged and will be complete on September 30 of the succeeding calendar year.

[https://fhwaapps.fhwa.dot.gov/cmaq\\_pub/](https://fhwaapps.fhwa.dot.gov/cmaq_pub/)

# WILMAPCO CMAQ PRIORITIZATION PROCESS

1. **Shared Ride** – VOC 4\*; NOx 3
2. **Transit** – VOC 2; NOx 3
3. **Traffic Flow Improvements** – VOC 3; NOx 1
4. **I/M and other TCMs** – VOC 1; NOx 2
5. **Pedestrian/Bicycle**– VOC 0; NOx 1

\*Data represent the median of each year's (2003 – 2013) reported emission reduction (kg/day) for each project type. Years where emission reductions were calculated for fewer than 10 projects for a given project type were not included. Total projects considered in the analysis varied by project type, ranging from 429 to 4,195.

# WILMAPCO CMAQ PRIORITIZATION PROCESS

- ▶ Projects are ranked by type
- ▶ Diesel emission retrofits/replacements top priority

1. Diesel emission retrofits/replacements
2. Shared ride
3. Transit
4. Traffic flow improvements
5. I/M and other TCMs
6. Pedestrian/bicycle

# WILMAPCO CMAQ PRIORITIZATION PROCESS

Within project types, sort by quantitative emission benefits for diesel projects and qualitative benefits for others. Quantitative benefits can be determined from EPA calculators. An index determining the qualitative benefit follows.

## \*Qualitative Index


- ▶ Reduce VMT - negligible (0); moderate (3); significant (6)
- ▶ Cost - >2 million (0); \$500,000 - \$2 million (3); <\$500,000 (6)
- ▶ Life expectancy - <5 years (0); 5-10 years (3); >10 years (6)



# WILMAPCO CMAQ PRIORITIZATION PROCESS

<i>ID</i>	<i>Project</i>	<i>Notes</i>	<i>FY17-20 TIP</i>	<i>Project Type</i>	<i>VTM</i>	<i>Cost</i>	<i>Life</i>	<i>Total</i>
1	Rideshare Program, statewide		\$1,800,000	Shared Ride	3	3	6	12
2	Christiana Mall Park and Ride		\$3,250,000	Shared Ride	3	0	6	9
3	Transit Vehicle Expansion, NCC	Fixed-route only	\$2,622,500	Transit	6	0	3	9
4	Rail: Newark Regional Transit Center		\$42,999,800	Transit	3	0	6	9
5	Transit Vehicle Replacement and Refurbishment	Fixed-route only	\$79,741,100	Transit	0	0	3	3
6	Wilmington Traffic Calming: Walnut: MLK Blvd. to 13th		\$1,500,000	Traffic Flow	3	3	6	12
7	US 40: US 40/SR 72 Intersection (multimodal)		\$14,514,500	Traffic Flow	3	0	6	9
8	SR 2 (Elkton Rd): MD Line to Casho Mill Rd. (multimodal)		\$26,958,300	Traffic Flow	3	0	6	9
9	Wilmington Traffic Calming: 4th St: Walnut - I-95		\$500,000	Ped/Bike	3	6	6	15
10	US 13: Duck Creek - SR 1		\$1,500,000	Ped/Bike	3	3	6	12
11	US 40: US 40/SR 7		\$780,000	Ped/Bike	3	3	6	12
12	New Castle Industrial Track: S of Christina River - Riverwalk		\$12,050,000	Ped/Bike	6	0	6	12
13	Grubb Road Pedestrian Improvements: Foulk Rd. - Naamans Rd.		\$550,000	Ped/Bike	3	3	6	12
14	Wilmington Traffic Calming: King/Orange: MLK Blvd. to 13th		\$6,650,000	Ped/Bike	3	0	6	9
15	US 13: Memorial Drive - US 40 Pedestrian Safety Improvements		\$3,700,000	Ped/Bike	3	0	6	9
16	Myrtle & Manor Avenue Sidewalk Improvements		\$2,220,000	Ped/Bike	3	0	6	9
17	Garasches Lane		\$3,800,000	Ped/Bike	3	0	6	9

# FHWA CMAQ COST EFFECTIVENESS TABLES

- ▶ Recently completed per MAP-21
  - ▶ Data sources
    - ▶ CMAQ assessment studies
    - ▶ CMAQ tracking system
    - ▶ State and local project summaries
    - ▶ Multi-pollutant Emissions Benefits of Transportation Strategies
    - ▶ MOVES
    - ▶ Diesel Emissions Quantifier
    - ▶ DERA
    - ▶ Academic and industry professionals
- 



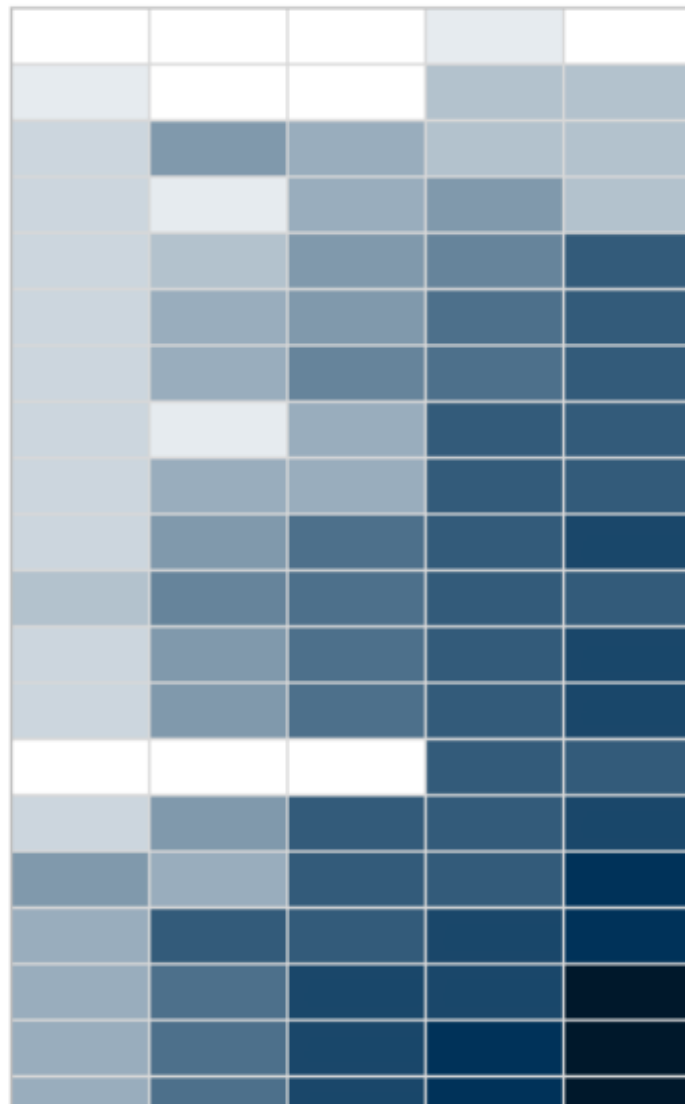
# FHWA CMAQ COST EFFECTIVENESS TABLES

- ▶ Lots of project types considered
- ▶ Estimates represent lifetime emission mitigation for single pollutant, divided by total project cost
- ▶ [https://www.fhwa.dot.gov/environment/air\\_quality/cmaq/reference/cost\\_effectiveness\\_tables/#Toc445205102](https://www.fhwa.dot.gov/environment/air_quality/cmaq/reference/cost_effectiveness_tables/#Toc445205102)

## Project Type

CO NOx VOC PM10 PM2.5

Dust Mitigation  
 Diesel Retrofits  
 Extreme-Temperature Cold Start Technologies  
 Truck Stop Electrification  
 Natural Gas Fueling Infrastructure  
 Transit Service Expansion  
 Bike-Pedestrian Paths  
 Heavy Vehicle Engine Replacements (Diesel)  
 Incident Management  
 Transit Amenity Improvements  
 Intersection Improvements  
 Employee Transit Benefits  
 Carsharing  
 Employer Rideshare Support  
 Park and Ride  
 Intermodal Freight  
 Roundabouts  
 Bikesharing  
 Subsidized Transit Fares  
 Electric Charging Stations



## Legend

	\$0	-	10,000.00
	\$10,000	-	\$49,999
	\$50,000	-	\$99,999
	\$100,000	-	\$249,999
	\$250,000	-	\$499,999
	\$500,000	-	\$999,999
	\$1,000,000	-	\$1,999,999
	\$2,000,000	-	\$4,999,999
	\$5,000,000	-	\$9,999,999
	\$10,000,000	-	\$19,999,999
	\$20,000,000	+	

Median Cost-effectiveness  
 for All  
 Pollutants

Project Type	C/E - Median (\$/ton, \$ x 1M)			
	PM2.5	VOCs	NOx	Total
Diesel Retrofits	0.04		0.01	0.05
Idle Reduction	0.08	0.00	0.12	0.20
Heavy Vehicle Engine Replacements (Diesel)	0.12	0.02	0.15	0.29
Park and Ride	2.10	0.09	0.46	2.66
Transit Service Expansion	2.70	0.10	0.50	3.30
Incident Management	3.00	0.17	0.17	3.34
Extreme – Temperature cold Start Technologies	3.00	0.37	0.14	3.50
Bicycle and pedestrian	3.20	0.15	0.69	4.04
Natural Gas Fueling Infrastructure	4.50			4.50
Intermodal Freight	4.20	0.25	2.60	7.05
Transit Amenity Improvements	5.70	0.32	1.30	7.32
Employee Transit Benefits	6.10	0.30	1.40	7.80
Car sharing	7.70	0.32	1.70	9.72
Ridesharing	8.80	0.63	2.10	11.53
Intersection Improvements	13.00	0.74	1.10	14.84
Roundabouts	17.00	3.00	4.30	24.30
Bike sharing	25.00	1.20	5.40	31.60
Subsidized Transit fares	28.00	1.10	6.40	35.50
Electric Charging Stations	33.00	1.50	7.30	41.80

# PROPOSAL

Use FHWA cost-effectiveness tables to prioritize projects

- ▶ Within same project categories, prioritize by cost
    - ▶ Lower-cost projects receive higher ranking
  - ▶ More project categories available
  - ▶ Uses a more comprehensive data set
  - ▶ Reduces WILMAPCO staff time
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