



MEMORANDUM

To: Interested Parties

From: CMAP Staff

Date: June 3, 2015

Re: Review of the FFY 2016-2020 CMAQ Project Applications related to Direct Emissions Reduction Projects

As part of the FFY 2016-2020 Congestion Mitigation and Air Quality Improvement program development process, CMAP staff is seeking feedback from mode-specific “focus groups” on CMAQ applications submitted and on the project rankings developed by staff, including the air quality rankings. The feedback can include input on technical aspects of the projects, particularly whether there are any “fatal flaws,” as well as qualitative information not captured in the project rankings. Meetings are being held with the Regional Transportation Operations Coalition (highway projects, May 28) and Bicycle and Pedestrian Task Force (bicycle projects, June 10).

Since only six direct emissions project applications were received, it seems less critical to meet with the Direct Emissions Focus Group. However, staff is still interested in any additional information that can be used to refine the staff-recommended program for the Project Selection Committee to consider on June 25th.

To aid in reviewing the applications, several pieces of information are being provided.

1. A description of the CMAQ project ranking methodology
2. A descriptive summary of the projects and rankings sorted by cost per kilogram of volatile organic compounds eliminated.

To view a full project application, visit the [CMAQ/TAP Program Development](#) webpage and find the applications sorted by project type and then CMAQ project ID. Feedback should be given to staff in writing by sending an email to Doug Ferguson, dferguson@cmap.illinois.gov.

Overview of FFY 16-20 Direct Emission Reduction Projects

For this CMAQ cycle, 118 applications were received. Of these, 6 are direct emission focused, coming to approximately \$31 million. These projects are focused on diesel pollution and specifically reducing the amount of fine particulate matter from the combustion of diesel fuel.

Project Ranking Process

The primary consideration for CMAQ projects is the cost-effectiveness of their air emissions reductions. Additional criteria are also taken into consideration when evaluating projects for potential funding. These are referred to as Transportation Impact Criteria and are scored on a 30-point scale by project type category. The Transportation Impact Criteria and their weights are as follows:

Project type	Transportation Impact Criteria and Weights		
Highway	Reliability 15	Safety 5	On CMP network 10
Transit	Ridership 15	Reliability (transit service) or asset condition (transit facilities) 15	
Bicycle	Safety & attractiveness 10	Transit accessibility 10	Facility connectivity 10
Direct Emissions Reduction	Benefits sensitive population 20	Annual health benefits 5	Improves public fleets 5

Air Quality Cost-Effectiveness

The cost-effectiveness of emissions reductions for direct emissions reductions projects is based on the implementation of cleaner vehicle and fuel technologies. CMAP staff utilized the U.S. Environmental Protection Agency's Diesel Emissions Quantifier tool along with other EPA resources to estimate the potential benefits of these projects to reduce fine particulate matter.

All cost-effectiveness values are annualized by multiplying by the capital recovery factor assuming a 3% discount rate. An air quality cost-effectiveness score is generated by taking 60 as the maximum (90 for projects classified as "other") and scaling the project scores so that a middle score of 30 corresponds to the median cost-effectiveness of the projects submitted.

Improving the Condition of Public Fleets

Given the funding challenges of public agencies and the condition of public fleets, as a matter of policy a project improving public sector vehicles should be a higher priority than one benefitting the private sector. The score is 5 if the project improves publicly owned fleets and 0 if it does not.

Annual Health Benefits

Annual health benefits are calculated by Diesel Emissions Quantifier at the county level and divided by annualized project costs. No points are given for a benefit/cost ratio less than \$1.00. One point is given for a cost/benefit ratio of \$1.00 and one point for each \$0.50 above that, with a maximum of 5 points.

Benefits to Sensitive Populations

Impacts from fine particulate matter emissions may be more pronounced in children and older adults, who are especially susceptible to illnesses caused or exacerbated by exposure to fine particulate matter. Minority and poverty status likely influence susceptibility as well. The sensitive population index shows the relative proportions of persons in a census tract who are over 65, under 5, minority, and low-income. Higher index values indicate greater sensitivity. To score a project, the sensitive population index is then multiplied by an estimate of the population benefiting from the project, the magnitude of the emissions reduction, and the time of exposure. The final project score is assigned 0 to 20 scale.

Project Rankings and Analysis – Direct Emissions Reduction

CMAQ ID	Project	Project Summary	Project Total Cost	CMAQ Requested Funds	Air Quality		Transportation Impact Criteria				Composite Priority Index ¹
					Annualized \$ per Kg PM2.5 Eliminated	AQ Cost Effectiveness Score	Population Sensitivity Score	Annual Health Benefit/ Annualized Cost	Health Benefit Score	Public Fleet Score	
DR13164111	IEPA - Railserve\Ingredion Switcher Locomotive Engine Replacement	The purpose of this projects is the replacement of four pre-1973 switcher locomotives with Tier IV-powered LEAF genset locomotives. The current switcher engines operate 24/7/365 at the Ingredion, Inc. facility in Bedford Park. The locomotives are owned by Railserve, Inc. and leased to Ingredion.	\$4,142,000	\$2,692,300	\$36	59.8	14.0	82.11	5	0	78.8
OT01164101	CDOT - Chicago Water Taxi Fleet	For the replacement of World War II era passenger ferryboat with diesel-electric hybrid passenger ferryboat for use as a commuter boat on the Chicago River. The ferryboat will be operated between Ogilvie Transportation Center and locations such as Michigan Ave, North Ave/Goose Island and Chinatown.	\$1,400,000	\$1,120,000	\$320	58.4	9.0	5.94	3	0	70.4
DR13164112	IEPA - Chicago Area Green Fleet Grant Program	The project is requesting an additional for the Chicago Area Green Fleet Grant Program. The primary purpose of the Chicago Area Green Fleet Grant Program is to provide an incentive for the purchase of, or conversion to, vehicles that operate on alternative fuels. These cleaner fuels include natural gas and propane, as well as electricity for off-road engines. The types of vehicles the project is targeting include delivery trucks, school buses, refuse trucks, shuttle buses, public works trucks, law enforcement vehicles, and park district vehicles. Off-road equipment would be certain types of new construction, rail yard, quarry, and similar heavy-duty units.	\$14,000,000	\$7,000,000	\$1,286	54.0	7.0	2.29	3	0	64.0
DR01164110	CTA - Purchase of Up To 25 Electric Buses and Charging Stations	This project will provide for the purchase of up to 25 fully accessible electronic buses and charging stations.	\$25,000,000	\$20,000,000	\$4,248	42.3	14.0	0.69	0	5	61.3
DR05164108	Berwyn - Public Works 2.5 Ton Fleet Vehicle Replacement 1990	The purchase of a replacement dump truck. Project is not eligible for CMAQ funding.	\$115,000	\$92,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A
DR05164109	Berwyn - Public Works 1 Ton Fleet Vehicle Replacement 1999	The purchase of two replacement dump trucks. Project is not eligible for CMAQ funding.	\$85,560	\$68,448	N/A	N/A	N/A	N/A	N/A	N/A	N/A

1 - Calculated by adding the scores for the Cost Effectiveness and Transportation Impact Criteria.
N/A = Not Analyzed
N/D = No Data