

To: Transportation Committee
Cost Review and Schedule Subcommittee

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Subject: Performance Measures and Target Setting – On-Road Mobile Source Emissions

This memorandum presents and reviews the On-Road Mobile Source Emissions Measure and the associated CTDOT Performance Measure Target, and offers potential CRCOG recommendations for review and discussion at the July Subcommittee and Transportation Committee meetings. CRCOG has until November 16, 2018 to either adopt CTDOT's target or set our own.

On-Road Mobile Source Emissions Measures

The performance measure:

- Total Emissions Reduction


To understand this measure, it is important to have the following background:

- The measure consists of the cumulative 2-year and 4-year Emissions Reductions (kg/day) for CMAQ-funded projects for nonattainment and maintenance areas.
- Covers the *criteria pollutants*: **Nitrogen Oxide (NO_x)**, **Carbon Monoxide (CO)**, **Particulate Matter (PM₁₀ & PM_{2.5})**, and **Ozone (O₃)**, as well as *applicable precursors*: **NO_x**, **CO**, **PM₁₀** & **PM_{2.5}**, and **Volatile Organic Compounds (VOCs)** for nonattainment and maintenance areas.
- The contribution of a given project toward emissions reduction are counted in its launch year, not subsequently.
- The emission reduction measure does not measure the actual level of pollutants in the environment. Instead, a rate of reduction (kg/day) is being measured. This rate must be at least maintained in order to continue to make progress under the rule.
- No penalty has been formulated for failure to meet an emissions reduction performance target. However, MPO's could potentially expect to receive more scrutiny in the future if targets are not met.

Staff Review of CTDOT's Target for On-Road Mobile Source Emissions

Congestion Mitigation and Air Quality (CMAQ) supported transportation projects are subject to this performance measure requirement. The Capitol Region, along with the rest of Connecticut, is classified as a non-attainment area and is therefore eligible for Federal funds for transportation projects that will help it attain the National Ambient Air Quality Standards (NAAQS). Air quality does not conform to political borders and thus pollution in one region can greatly affect the air quality in another and vice versa. The measure is calculated as the sum of the reduction of each individual criteria pollutant in kilograms per day over both a cumulative 2-year period, and a cumulative 4-year period. The analysis process is very complex, requiring access to specialized data sources and analytical tools that aid in the calculation. CTDOT has been developing these resources as well as needed expertise for some time. The rate of emission reduction improved gradually in 2013 and 2014, then saw drastic improvement in 2015 because of the CT*fastrak* launch. However, additional reductions were not as significant in

2016 and 2017. Future CMAQ projects that contribute to additional emission reductions in the next 2-year (2018 and 2019) and 4-year (2020 and 2021) periods, are not expected to be of the same magnitude created by past projects.

 Air Quality Measure		Current Measurements (CMAQ Public Access as of 2017)		2-year targets (2020)	4-year targets (2022)
		2-year cumulative kg/day	4-year cumulative kg/day	2-year cumulative kg/day	4-year cumulative kg/day
<ul style="list-style-type: none"> • Total Emissions Reduction • From projects entered into the CMAQ Public Access system in previous year 	VOC	10.820	263.890	19.320	30.140
	NOx	34.680	462.490	67.690	102.370
	PM2.5	1.040	12.950	1.632	2.674
MATURITY	TOP RISK(S)				CONFIDENCE
Extrapolation Level 2	1. Qualitative benefits are not captured in measure 2. Given program priorities, quantifiable benefits may appear low with respect to other agencies				Moderate

Staff Recommendations

Given the complexity and resource demands of developing measures and targets for emissions reduction, considerable expertise and experience needed, CRCOG staff feel it is premature to employ a separate method on a regional basis. Understanding this, CRCOG staff recommends supporting CTDOT’s 2 and 4-year targets for On-Road Mobile Source Emissions.

However, to further understand and develop this performance measure and associated future target setting, CRCOG staff also recommends that we work on the following initiatives:

- Being aware of the environmental benefits in terms of emission reductions that CMAQ transportation projects in our region can produce.
- Developing staff understanding and competency in assessing emission’s data.
- Incorporating consideration of On-Road Mobile Source Emissions Measure and maps into CRCOG’s Long Range Transportation Plan
- Monitoring applicable best practices in other states and Regional Planning Organizations