



MEMORANDUM

TO: TPB Technical Committee
FROM: Robert d'Abadie, TPB Transportation Engineer
SUBJECT: Performance Measures and Targets for On-Road VOC and NO_x Emissions Reductions from CMAQ-funded projects
DATE: June 5, 2026

This memorandum provides an update on the performance and target setting for the On-Road Volatile Organic Compounds (VOCs) and Nitrogen Oxides (NO_x) Reductions from Congestion Mitigation and Air Quality Improvement (CMAQ) funded projects as part of TPB's performance-based planning and programming process. State DOTs and MPOs must establish targets for these measures, and this year, new targets are required for both two- and four-year horizons (CY 2027 and 2029). State reports on past performance for the 2022–2025 reporting period and on the two- and four-year targets for the 2026–2029 reporting period are due to the FHWA by October 1, 2026.

The TPB has adopted these CMAQ emissions reductions measures since 2018, in accordance with federal regulations. At the June 5, 2026, Transportation Planning Board Technical Committee meeting, TPB staff will brief the Committee on the National Capital Region's progress in meeting its previous On-Road VOCs and NO_x reductions from CMAQ-funded projects and review the process for establishing new targets for the 2026-2029 reporting period.

OVERVIEW OF REQUIREMENTS FOR ON-ROAD VOC AND NO_x EMISSIONS REDUCTIONS FROM CMAQ-FUNDED PROJECTS

Table 1 describes this performance measure with reference to its Federal Code, data source, the required reporting frequency, and the anticipated timeframe for target-setting and adoption. This section also summarizes the coordination requirements with State DOTs, the MPO's reporting requirements for the measures, any consequences that exist for not meeting the targets, and the TPB goal supported by this performance measure.

Coordination Requirements with State DOTs

State DOTs, in coordination with the MPOs, must establish statewide two- and four-year targets for total emissions reduction of VOC and NO_x on-road mobile source emissions for each performance period for all nonattainment and maintenance areas within the state's boundary, for each applicable criteria pollutant and precursor. In the case of the TPB region, ground-level ozone is the only remaining criteria pollutant of concern, and as a result, its precursor pollutants, VOCs and NO_x, are evaluated.

The targets are required to reflect the anticipated cumulative emissions reductions to be reported by state DOTs in the CMAQ Public Access System (CPAS) for CMAQ projects included in the Statewide Transportation Improvement Program (STIP). The requirement for these targets to be evidence-based and predictive of anticipated outcomes does not supersede or diminish any aspirational targets to which local, regional, or state jurisdictions are committed.

Table 1 - Performance Measures for On-Road Emissions Reductions from CMAQ-Funded Projects

Performance Measure	Description	Federal Code	Data Source	Frequency of Reporting
Volatile Organic Compounds (VOCs) Reductions	Sum of the VOC emissions reductions for projects receiving CMAQ funding	23 CFR 490, Subpart H	FHWA CMAQ Public Access System	Every four years, set new two- and four-year targets.
Nitrogen Oxides (NO_x) Reductions	Sum of the NO _x emissions reductions for projects receiving CMAQ funding	23 CFR 490, Subpart H	FHWA CMAQ Public Access System	Every four years, set new two- and four-year targets.

MPO Requirements

As the TPB region has a population of more than one million and contains designated nonattainment and maintenance areas, the MPO is also required to set two- and four-year quantifiable performance targets for VOC and NO_x reductions from CMAQ-funded projects. This is done for the portion of the Washington, DC-MD-VA eight-hour zone nonattainment area within the TPB planning area boundary. Past performance and targets for Calvert County (which is within the DC-MD-VA 2015 ozone non-attainment but outside TPB planning area) are set by Calvert-St Mary's MPO.

MPOs may either support the States' targets or establish their own quantifiable targets, and TPB must adopt a CMAQ Performance Plan with performance targets for the same four-year performance period as the States. TPB supports the states' targets and plans to submit its CMAQ Performance Plan to the States by September 1, 2026. The TPB CMAQ Performance Plan will be appended to the States' Performance Management Forms (PMFs) due October 1, 2026.

Consequences

For the CMAQ emissions performance measure, there are no regulatory consequences to the State DOTs or the MPO if targets are not met. However, failure to meet the targets indicates that the states did not implement the planned projects or that lower-effectiveness projects were substituted for those originally planned. States and MPOs should endeavor to use CMAQ funds for effective project combinations that maximize emissions reductions and meet the CMAQ requirements.

TPB Goal

The performance measures and targets for on-road VOCs and NO_x emissions reductions from CMAQ-funded projects support the TPB in assessing progress toward its established goal of planning a transportation network that provides healthy air.

PAST PERFORMANCE

For the CMAQ On-Road Mobile Source Emissions, past performance is based on projects recorded in the CPAS, available at <https://fhwaapps.fhwa.dot.gov/cmaq2p/>. The CMAQ program provides a funding source for State and local governments to fund transportation projects and programs to help meet the requirements of the Clean Air Act (CAA) and its amendments and is codified at 23 USC Sec 149. CMAQ funds support state and locally selected transportation projects that reduce mobile source emissions in areas designated by the U.S. Environmental Protection Agency (EPA) to be in nonattainment or maintenance of the National Ambient Air Quality Standards (NAAQS).

For past performance, CPAS data was downloaded, and the VOC and NO_x emissions were individually totaled to determine the two- and four-year actual values achieved. These numbers were verified with the states and adjusted for corrections in the CPAS as requested by the states to the FHWA. Specific corrections include, in Virginia, a 2022 project known as the METRO BIKE PED IMPROVEMENTS SHARED USE PATH PACKAGE 2 that was entered into the CPAS but that VDOT has requested be removed. For DC, the 2024 emissions reductions recorded for Commuter Connections and the goDCgo programs should be corrected to report the emissions benefits of projects for only their first year of obligation, rather than summing the expected benefits across all four years of the project. Tables 2 and 3 show the original two- and four-year targets and the actual values recorded in the CPAS, including these updates noted as requested by the states to the CPAS data.

Table 2: Two-Year (2022-2023) Targets and Actual Performance

State	VOC (kg/day)		NO _x (kg/day)	
	Target	Actual	Target	Actual
DC	0.077	0.094	0.508	0.128
MD	0.210	0.144	1.710	0.150
VA (NoVA)	0.323	2.478	0.612	2.665
Total for MPO	0.610	2.716	2.830	2.943

Table 3: Four-Year (2022-2025) Targets and Actual Performance

State	VOC (kg/day)		NO _x (kg/day)	
	Target	Actual	Target	Actual
DC	0.155	140.104	1.016	174.608
MD	6.240	164.244	15.190	205.010
VA (NoVA)	3.013	4.962	4.911	17.842
Total for MPO	9.408	309.310	21.117	397.460

The results show that MD did not meet its two-year targets, but all states met their four-year targets. Both DC and MD met their four-year targets by a wide margin, largely due to the inclusion of new, high-impact projects that were not part of the target-setting process. DC and MD both programmed CMAQ funding for Travel Demand Management (TDM) projects that were not anticipated when the targets were set. In MD, the emissions reduction contribution from the Commuter Connections Program was added to the list of CMAQ projects, while in DC, the anticipated emissions reductions from Commuter Connections and goDCgo were included. As shown in Table 4, TDM programs have very high reported emissions reductions, with these three projects accounting for 96.6% and 93.5% of the total VOC and NO_x reductions, respectively, for the MPO's four-year 2022-2025 reporting period. This alone accounts for the larger reductions in emissions beyond the targets.

Table 4: Reported Emissions Reductions from TDM projects, 2022-2025

State	Year	Project Title	Emissions Reductions (kg/day)	
			VOC	NO _x
MD	2025	Commuter Connection Program FY25	158.9	197.2
DC	2024	Commuter Connection Program	34.01	41.48
DC	2024	District TDM (goDCgo)	106	133
Total	-	-	298.91	371.68

TARGET-SETTING METHODOLOGY

In forecasting the 2026-2029 four-year performance period, TPB staff used a methodology consistent with that from the previous performance period. TPB worked with the state DOTs to determine their predicted emissions from anticipated CMAQ-funded projects. The MD and VA DOTs were able to provide VOC and NO_x reductions for their planned CMAQ-funded projects. The District DOT did not identify specific projects because they are still in the selection phase. As a result, for DC, the two- and four-year emissions reductions reported in 2022-2025 CMAQ projects were used as the 2026-2029 targets. The draft targets reflect the assumption that DC will be moving forward with projects of similar magnitude in the upcoming 2026-2029 reporting period.

EMISSIONS REDUCTION FOR CMAQ-FUNDED PROJECTS DRAFT 2026-2029 TARGETS

Using the methodology described above, TPB staff developed a set of regional emissions reduction targets for CMAQ-funded projects for the 2026-2029 period, as shown in Table 5.

Table 5: DRAFT Two- and Four-Year VOC and NO_x Reduction Targets for CMAQ-funded Projects in the TPB Region

Performance Measure	DRAFT Two-Year Targets 2026 – 2027	DRAFT Four-Year Targets 2026 - 2029
Emissions Reduction for CMAQ-Funded Projects – VOC	0.556 kg/day	252.986 kg/day
Emissions Reduction for CMAQ-Funded Projects – NO _x	3.633 kg/day	316.973 kg/day

NEXT STEPS

- June 2026: TPB staff present draft measures and new targets to the TPB.
- July 2026: TPB staff present final measures and targets to the TPB and Technical Committee. TPB approves new targets.
- July - September 2026: Three states to adopt targets no later than September. TPB finalizes the region’s 2022-2025 and 2026-2029 MPO CMAQ Performance Reports for inclusion in the state Performance Management Forms (PMFs). All three states notify TPB that the PMF is complete.