

CONGESTION MITIGATION AND AIR QUALITY PROGRAM PERFORMANCE PLAN

Final Report
October 2018



National Capital Region
Transportation Planning Board

CONGESTION MITIGATION AND AIR QUALITY PROGRAM PERFORMANCE PLAN

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ABOUT THE TPB

The National Capital Region Transportation Planning Board (TPB) is the federally designated metropolitan planning organization (MPO) for metropolitan Washington. It is responsible for developing and carrying out a continuing, cooperative, and comprehensive transportation planning process in the metropolitan area. Members of the TPB include representatives of the transportation agencies of the states of Maryland and Virginia and the District of Columbia, 24 local governments, the Washington Metropolitan Area Transit Authority, the Maryland and Virginia General Assemblies, and nonvoting members from the Metropolitan Washington Airports Authority and federal agencies. The TPB is staffed by the Department of Transportation Planning at the Metropolitan Washington Council of Governments (COG).

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CMAQ PROGRAM PERFORMANCE PLAN

This report summarizes the federal requirements for the National Capital Region Transportation Planning Board (TPB), which is a Metropolitan Planning Organization (MPO), for the metropolitan Washington, DC area, for the development of a Congestion Mitigation and Air Quality Program (CMAQ) Performance Plan as required under federal metropolitan planning regulations. The TPB also serves a population of over 6 million people which is considered a large Transportation Management Area. The performance plan includes a description of baseline conditions and performance, the establishment of performance measure targets associated with the CMAQ Program, and a description of anticipated CMAQ projects over the next four years. The performance measure targets include unified Washington, DC-MD-VA urbanized area targets for the performance measures of Peak Hour Excessive Delay (PHED) and Mode Share (Non-SOV Travel) in the area of traffic congestion and targets for Emissions Reduction for applicable pollutants and precursors for the portion of the Washington, DC-MD-VA eight-hour zone nonattainment area within the TPB planning area boundary. Additionally, information concerning the CMAQ Program in general is presented, as well as details concerning CMAQ project selection and programming for the states of Virginia, Maryland, and the District of Columbia.

BACKGROUND

The Federal Highway Administration (FHWA) published the *National Performance Management Measures; Assessing Performance of the National Highway System, Freight Movement on the Interstate System, and Congestion Mitigation and Air Quality Improvement Program* final rule on January 18, 2017, with an effective date of May 20, 2017. The state departments of transportation (DOTs) then had one year until May 20, 2018 to set their initial targets. The rule requires states to set targets for three performance measures concerning Highway and Freight: 1) Interstate Travel Time Reliability (TTR), 2) National Highway System (NHS) TTR, and 3) Freight Reliability (Truck Travel Time Reliability (TTTR) Index). In addition, the FHWA requires states to set three performance measures concerning CMAQ: 1) Peak Hour Excessive Delay (PHED), 2) Mode Share, and 3) Emissions Reduction – see Table 1.

After the states have established their targets on May 20, 2018. MPOs must either support the State target or establish their own quantifiable targets within 180 days. MPOs with a population more than 1 million and with designated nonattainment and maintenance areas must develop both two-year and four-year quantifiable targets. Otherwise, only four-year targets are required. In addition, per statute 23 USC 134 (h)(2) MPOs serving a large Transportation Management Area (TMA) must develop a CMAQ Performance Plan. In the CMAQ Performance Plan and its biennial updates, these MPOs report 2 and 4-year targets, describe how they plan to meet their targets, and detail their progress toward achieving the targets over the course of the performance period. On July 9, 2018, FHWA released the *Congestion Mitigation and Air Quality Improvement Program: A Guidebook for Preparing Performance Plans for Metropolitan Planning Organizations* which provided additional information on the requirements for the performance plan.

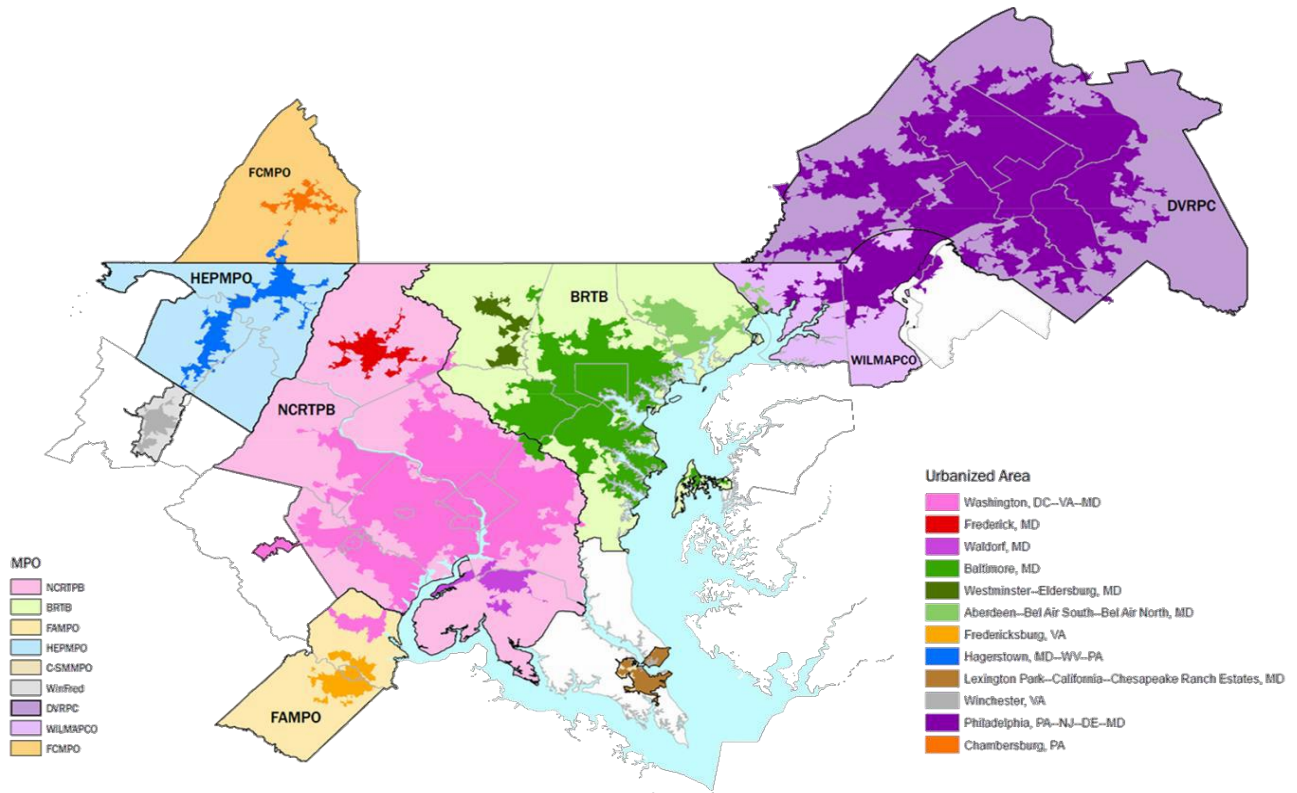
This report is to be attached to the applicable State Departments of Transportation (DOTs) biennial performance reports for the Baseline, Mid Period and Full-Period of each four-year performance period, required under 23 CFR 490.107(c) and 23 USC 149(l).

Table 1: Summary of CMAQ Program Performance Measures

	Performance Measures
CMAQ Program: Traffic Congestion	Peak Hour Excessive Delay – Annual hours of peak hour excessive delay per capita
	Mode Share – Percent of Non-SOV Travel on the NHS
CMAQ Program: Emissions Reduction	Emissions – CMAQ-funded projects on-road mobile source total emissions reduction for each applicable criteria pollutant and precursor

The planning area for the TPB and its relationship with the Washington DC-MD-VA urbanized area as well as nearby MPOs and other urbanized areas is shown in Figure 1.

Figure 1: The MPO and UZA Boundaries for the National Capital Region and Surrounding Area



TARGET SETTING AND REQUIREMENTS

Peak Hour Excessive Delay (PHED)

Applicable State DOTs and MPOs collectively established a single PHED target for each applicable urbanized area for the first performance period by May 20, 2018. As part of a phased implementation approach, only four-year targets will be reported in the State's baseline performance period report due by October 1, 2018. There is no requirement for States to report two-year targets or baseline condition for this specific measure in the report for the first performance period. With the first mid performance period progress report, due October 1, 2020, four-year targets may be adjusted, and two-year condition/performance will be reported as baselines.

After the states established their targets by May 20, 2018, MPOs have 180 days to adopt a target. It should be noted again that this target for the applicable urbanized area must be unified, and both DOTs and MPOs should have coordinated and exchanged information with the development of these targets.

Mode Share

Applicable State DOTs and MPOs must collectively establish a single, unified two-year and four-year mode share target for each applicable urbanized area for the first performance period by May 20, 2018. A baseline report for the first performance period is due October 1, 2018 and must include two and four-year targets and a description of the data collection method used. After the states established their targets on May 20, 2018, MPOs have 180 days to adopt a target. It should be noted again that this target for the applicable urbanized area must be unified, and both DOTs and MPOs should have coordinated and exchanged information with the development of these targets.

Emissions Reduction

State DOTs, with coordination from the MPO, must establish statewide two and four-year targets for total emissions reduction of on-road mobile source emissions for each performance period for all nonattainment and maintenance areas within the state boundary, for each applicable criteria pollutants and precursors. State DOTs must set targets by May 20, 2018 and targets must be reported to FHWA by October 1, 2018. MPOs, in coordination with state DOTs, must establish two and four-year targets for all nonattainment and maintenance areas within the metropolitan planning area. Targets are to be set within 180 days after state DOTs have set their targets. In both cases, the targets shall reflect the anticipated cumulative emissions reductions to be reported by state DOTs in the CMAQ Public Access System for CMAQ projects included in the Statewide Transportation Improvement Program (STIP).

MPO COORDINATION WITH STATE DOTs

MPOs are required to establish their performance targets in coordination with their state partners and these targets should be data-driven and realistic. 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. Coordination is essential between the MPO and state DOTs in setting the CMAQ Program targets. Both are to work together to share data, review strategies, and understand outcomes.

TPB staff has worked in close coordination with the Virginia Department of Transportation (VDOT), Maryland Department of Transportation (MDOT) and District Department of Transportation in the development of these performance targets. The TPB and these state DOTs have also signed Letters of Agreement (LOAs) which detail the guidelines and expectations in terms of coordination on data sharing and the development of these targets. This is in accordance with 23 CFR 450.208 which sets forth the requirements for coordination between applicable states and MPOs.

BASELINE PERFORMANCE

The first elements of the CMAQ Performance Plan is a report on baseline conditions. The baseline serves as the starting point where performance will be compared to in the future. A baseline year of 2017 was selected for PHED and Mode Share (Non-SOV Travel) performance measures. In terms of the Emissions Reduction performance measure FY14 – 17 was utilized as the baseline. This section will provide a breakdown on the collection of data for these performance measures in developing a baseline. This baseline data collection will later be applied to establishing appropriate targets.

PEAK HOUR EXCESSIVE DELAY (PHED)

PHED is based on the calculation of all segments of the National Highway System. PHED is defined as the extra amount of time spent in congested conditions defined by speed thresholds that are lower than a normal delay threshold. For this measure, the speed threshold is 20 mph or 60% of the posted speed limit, or whichever is greater. The FHWA requires that the data collected must occur during the weekdays (Monday through Friday), with a required morning peak timeframe of 6:00AM – 10:00AM, and a choice between two evening peak timeframes: 3:00PM – 7:00PM or 4:00PM – 8:00PM. TPB staff selected the earlier PM peak (3:00PM – 7:00PM) for all calculations; the same PM peak is also being used by the coordinating state DOTs.

Data for all peaks were collected for the region from the National Performance Management Research Data Set (NPMRDS). This data was collected by INRIX using a widget created for the Regional Integrated Transportation Information System (RITIS). RITIS is an automated data sharing, dissemination, and archiving system that includes many performance measure, dashboard, and visual analytics tools that help agencies gain situational awareness, measure performance, and communicate. The data from this is calculated to create a measure by the University of Maryland Center for Advanced Transportation Technology Laboratory (CATT Lab). The RITIS widget is designed to provide historical data and baseline metrics. Table 2 illustrates the data that was collected for the Washington DC-MD-VA UZA for the baseline condition of PHED.

Table 2: Summary of the Washington DC-MD-VA UZA PHED Data

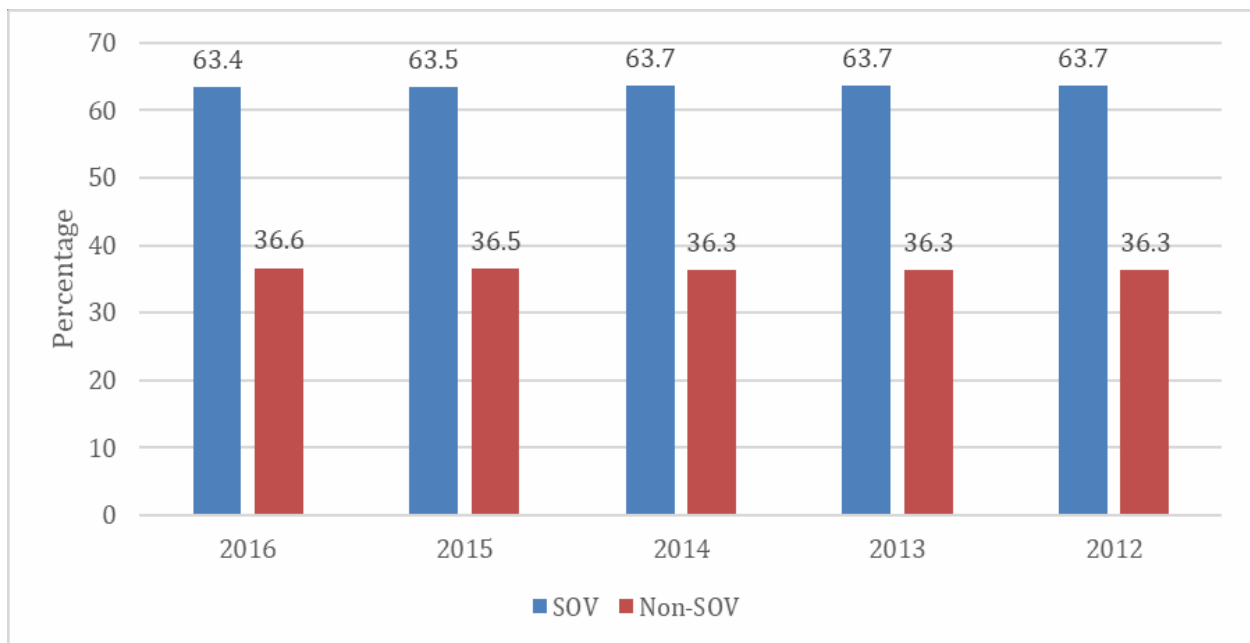
	2014	2015	2016	2017
PHED for the Washington DC-MD-VA Urbanized Area	18.5	19.1	21.1	23.0

MODE SHARE

Mode Share is a calculation of the percent of Non-SOV Travel within the urbanized area. Non-SOV Travel, defined by the FHWA, applies to travel occurring on modes other than driving alone in a motorized vehicle and includes travel avoided by telecommuting. It is a measure of the percentage of all surface transportation occurring in an urbanized area with a population of at least 1 million. For the TPB region, this includes the Washington DC-MD-VA UZA.

The FHWA has provided three data collection models as a means of estimating the required performance targets. Model A allows use of the U. S. Census Bureau’s American Community Survey (ACS) data found in the table titled “Journey to Work.” Model B allows for data collected from localized surveys. Model C involves estimating the percent of non-SOV based on volume measurements of actual use for each mode of transportation, including telework. For purposes of this region’s measure, Model A was utilized. Figure 2 summarizes the ACS data for the Washington DC-MD-VA UZA for a five-year period. Figure 2 shows the data that was collected from the ACS. A baseline year of 2016 was selected showing the Mode Share of Non-SOV travel being 36.6% for the Washington DC-MD-VA UZA.

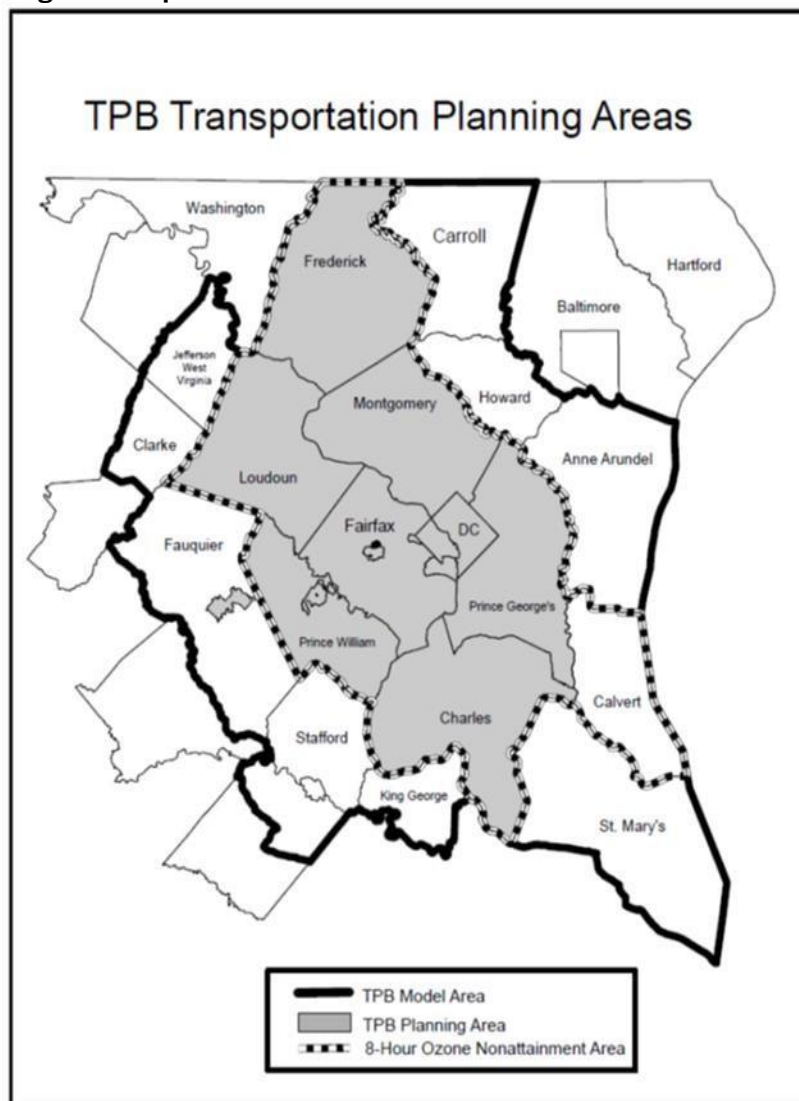
Figure 2: Summary of the Washington DC-MD-VA UZA Mode Share (Non- SOV) Data



EMISSIONS REDUCTION

Emissions reduction is defined as the total on-road mobile source emission reductions for each applicable criteria pollutant and precursor for a nonattainment area. For the eight-hour ozone

Figure 3: Map of the TPB Ozone Nonattainment Area



nonattainment area in the TPB region, shown in Figure 3, the applicable criteria pollutants are Volatile Organic Compounds (VOCs) and Nitrogen Oxides (NO_x). This performance measure applies to projects that receive or are programmed for CMAQ funding. Data were collected from the CMAQ Public Access System, as specified in the federal rulemaking. State DOTs report emissions reductions information in the Public Access System for CMAQ funded projects in their Statewide Transportation Improvement Program (STIP).

It should be noted that the regional eight-hour ozone nonattainment area includes Calvert County, however, this county is not part of the TPB planning area, as shown in Figure 3. Maryland DOT and Calvert County are conducting a separate performance measure analysis for emissions reduction for that part of the nonattainment area.

CMAQ PROJECT PROGRAMMING

Three state jurisdictions share the Washington DC-MD-VA Ozone Nonattainment area. All three of these states have different internal processes concerning the selection and programming of CMAQ projects. These separate processes are detailed as follows. This section also contains Table 3, which provides a summary of the Washington DC-MD-VA Ozone nonattainment emissions reduction.

Table 3: Summary of Washington DC-MD-VA Ozone Nonattainment Emissions Reduction

FISCAL YEAR	VOC (kg/day)	NOx (kg/day)
2014	8.087	11.688
2015	0.072	0.816
2016	3.672	5.956
2017	2.532	4.074

Maryland

The Maryland Consolidated Transportation Program (CTP) is a six-year capital budget for transportation projects, where CMAQ programming is determined during the one-year development process. CMAQ projects selected for programming are done so based on criteria provided by the CTP. Projects should meet all federal and legal requirements; support departmental program priorities; meet all federal match requirements to maximize federal revenue; support State plans and objectives; support existing project commitments and uphold intergovernmental agreements; and lastly support alternative modes of transportation (transit, bike, pedestrian). Projects selected for programming must be included in the STIP and must also be consistent with local plans and be included in the regional MPO long-range plan.

A majority of the CMAQ funding is used for transit projects (bus replacements, MARC, and light rail). CMAQ funding has also been used for park and ride projects, traffic flow improvement projects, such as signal synchronization and the Coordinated Highways Action Response Team (CHART) program.

Virginia

Within the region, the Northern Virginia Transportation Authority (NVTA) coordinates Northern Virginia's annual programming of federal CMAQ projects as well as Regional Surface Transportation (RST) funds. CMAQ funds contribute to the attainment and maintenance of the National Ambient Air Quality Standards (NAAQS).

The recommendation of programming is done through the NVTA's Regional Jurisdiction and Agency Coordinating Committee (RJACC). Final approval is given by the Commonwealth Transportation Board (CTB). VDOT provides local matches for approved CMAQ projects, but only if the project utilizes the funds within an established timeline. Recipients have 24 months to obligate the funds and then 48 months to expend the funds. CMAQ projects are eligible for potential funding after an application submission, a Transportation Emissions Estimation Models (TEEM) worksheet submittal for air quality benefit calculation, and a resolution of support from the respective governing bodies. Moving forward, VDOT is encouraging the use of the FHWA CMAQ calculator tool kit for all applicable project types.

District of Columbia

Currently the District of Columbia department of transportation does not have any additional steps in determining CMAQ programming beyond the federal requirements. A majority of the CMAQ programs that have been selected for funding have involved bike lanes and TDM. In the future, the department

plans to add additional requirements, other than the federal minimum standards, in the programming of CMAQ projects.

TWO-YEAR AND FOUR-YEAR PERFORMANCE TARGET SETTING

To develop targets for the three CMAQ performance measures, TPB staff coordinated with the three state DOTs on forecasting methodologies for projecting future performance. Targets were then set based on the projected performance.

PHED AND MODE SHARE FORECASTING METHODOLOGY

In developing a method that could be utilized for the target setting of these two performance measures, TPB staff considered three techniques: use of the TPB Travel Demand Model, extrapolation of past performance, and an average of the two. The selected methodology for the PHED and Mode Share performance measures was the averaging of the travel demand model output and extrapolation of past performance.

- Travel Demand Model
 - In 2016 TPB produced a travel demand model which produced congestion/related outputs for modelled years 2016, 2020, 2025, etc. Forecasting utilized the output AM Peak Hour VMT estimates to project change in congestion, applying the percentage increases to measured performance.
 - Use of the travel demand model considers near-term predicted changes in population, employment and other factors that increase travel demand, as well as changes in the highway and transit network.
- Extrapolation of Measured Performance
 - For this approach, measured data for the previous years of 2014 through 2017 is extrapolated, via linear regression, through the year 2021. This approach generally used a fitted line, though a best fit curve was also considered.
 - The extrapolation method captures recent trends over time but depends upon consistent data.
- Averaging
 - Taking both the results from the Extrapolation of Measured Performance and the Travel Demand Model and averaging those methodologies.

The forecast for the two performance measures using the averaging technique through 2021 was then used to set the four-year targets for these measures for the urbanized area. Table 4 shows the adopted targets for these two performance measure targets.

Table 4: Two-Year and Four-Year Targets for PHED and Mode Share in the TPB Planning Area

Performance Measures for the Washington DC-MD-VA urbanized area	CY 2018 – 2019 Two Year Target	CY 2018 – 2021 Four Year Target
Peak Hour Excessive Delay (PHED)	Not Required	26.7 Hours
Mode Share (Non-SOV)	36.9%	37.2%

EMISSIONS REDUCTIONS FORECASTING METHODOLOGY

The Washington DC-MD-VA eight-hour ozone nonattainment area is shared by two states and the District of Columbia with unique internal processes for selection and programming of CMAQ projects. Each of these states also have different methodologies for the establishment of their state Emissions Reduction targets which are detailed below. In forecasting emissions reduction, several methodologies were considered by TPB staff, with the selected methodology being the summation of the projected emissions reductions from CMAQ projects. The calculated forecast was then the basis for setting two-year and four-year targets for the performance measures.

Maryland Methodology for Emissions Reductions

The target setting methodology utilizes a combined approach of historic trends and anticipated CMAQ projects programmed over the next four years. The targets were established using historic CMAQ trends, averaging emissions from FY2014 through FY2017 CMAQ projects, and the known FY2018 – FY2021 programmed projects. MDOT primarily uses two analysis tools for estimating emissions benefits of CMAQ projects. MAQONE, a Maryland specific tool for analyzing off-network projects that uses MD MOVES emission rates and it is populated with county-level defaults. Also, the FHWA Emissions Calculator Toolkit, which supports a number of project types developed by FHWA to analyze CMAQ projects

The targets were adjusted to represent the average emission rates of light-duty vehicles declining over time due to the federal vehicle and fuel standards, Tier 3 along with the fleet turnover of older vehicles. Adjustments were not applied to diesel vehicle replacements. For recommended MPO targets, the statewide target was allocated to the MPO based on project location as reported in the updated FHWA's PAS.

Targets reflect the anticipated cumulative emissions reduction to be reported in the CMAQ PAS for new projects over the next four years. The Maryland CMAQ projects are programmed through MDOT's Maryland Transit Administration (MTA) and State Highway Administration (SHA).

District of Columbia and Virginia Methodology for Emissions Reductions

Both the District of Columbia and the Virginia DOTs developed a similar methodology for target selection for the emissions reduction performance measure. Both state departments of transportation listed and calculated the total emissions reduction for CMAQ programmed projects for years 2018 to 2021.

TPB Methodology for Emissions Reductions

For this measure, Emissions Reduction, TPB staff developed a method that incorporated the states methodology for state targets, to create regional, Washington DC-MD-VA Emissions Reductions targets. In terms of developing a methodology that could be utilized for target setting, TPB staff considered four techniques. First, taking the average past years' data and setting targets reflective of those averages. Second, setting a trend line based on past years' data and setting targets based on those projections. Third, using the percentage of CMAQ funding in the TIP and the cost-effectiveness (kg/ton), created by a ratio, of quantified CMAQ projects in the CMAQ Public Access System to forecast future emissions and thereby creating targets. Fourth, list expected CMAQ projects for the next four years and sum the forecast emissions reduction benefits forecast by each state for CMAQ projects planned in the region. The combined emissions reduction is then used to set the two-year and four-year targets for the two applicable pollutants. This fourth method was suggested from FHWA presentations and webinars; however, it is not a requirement. The fourth method was utilized for target setting using information provided by the three state departments of transportation.

Based on the available quantified data and the information provided by the District of Columbia, Maryland, and Virginia departments of transportation, the TPB has summed the forecast emissions reduction benefits forecast by each state for CMAQ projects planned in the region. The combined emissions reduction was then used to set the two-year and four-year targets for the two applicable pollutants.

Table 5: Two-Year and Four-Year Targets for Emissions Reduction in the TPB Planning Area

		FFY 2018 - 2019	FFY 2018 - 2021
		Two Year Target	Four Year Target
Total Emissions Reductions for the TPB portion of the Washington DC -MD-VA nonattainment area	Volatile Organic Compounds (VOCs)	1.838 Kg/Day	2.195 Kg/Day
	Nitrogen Oxides (NOx)	4.019 Kg/Day	4.703 Kg/Day

APPENDIX

The CMAQ Performance Plan must include a description of the projects identified for CMAQ funding and how these particular projects will aid in the achievement of the set targets concerning traffic congestion and emissions reduction. On the following pages, Table A-1, illustrates the CMAQ projects projected to be completed within the next four years. With the completion of these listed projects, all provided from the state DOTs, it will ensure set targets are achieved. Table A-1 provides a description of the project, the anticipated year of CMAQ obligation, the benefits by pollutant and precursors, as well as the traffic congestion benefits. Additionally, those cells within Table A-1 that are blank, represent information that is not available.

Table A-1: Description of CMAQ Projects

DOT	Project Category	Description of Project	Applicable Pollutant	Year Anticipated for CMAQ Obligation	NOx Benefit (kg/day)	VOC Benefit (kg/day)	Traffic Congestion Benefit PHED	Traffic Congestion Benefit Non-SOV
DDOT	Outreach and Marketing	Encourage sustainable travel by District residents, workers and visitors primarily through goDCgo brand. Includes employer outreach, bikeshare and circulator marketing, special events	QA*	2018	-	-	-	Yes - Increase Non-SOV Travel
DDOT	Planning and Management Systems	Climate Change and Air Quality, Environmental Management System, Storage and Maintenance EA and Diesel Idle Reduction Program	QA*	2018	-	-	-	
DDOT	Outreach	The purpose of the Commuter Connections Program is to reduce mobile source emission through the reduction in the number of VMT, and support of other Transportation Control Measures. This project provides funding for Commuter Operations Center, Guaranteed Ride, Home, Marketing, Monitoring and Evaluation, Employer Outreach, and DC Kiosk.	QA*	2018	-	-	-	Yes - Increase Non-SOV Travel
DDOT	Bicycle and Pedestrian	The Metropolitan Branch Trail project will provide a 6.25-mile bicycle/pedestrian trail from Union Station north to the District Line along the railroad right-of-way. This trail will connect at the District line with a route continuing into Silver Spring MD. This project is intended to serve both recreational users and commuters to meet Transportation Control Measures (TCMs) and air quality objectives.	Ozone	2018	0.008	0.004	-	Yes - Increase Non-SOV Travel
DDOT	Bicycle and Pedestrian	Rehabilitate the paved trail in Rock Creek Park including selected widening, resurfacing, new connections, and a new bridge south of the Zoo tunnel. Retaining wall repair on Piney Branch.	Ozone	2018	0.005	0.003	-	Yes - Increase Non-SOV Travel
DDOT	Bicycle and Pedestrian	The goal of this project is to increase the safety and convenience of bicycle and pedestrian travel. It includes the widening of existing routes, curve realignment, grade reduction, and signage and lighting upgrades.	Ozone	2018	0.007	0.003	-	Yes - Increase Non-SOV Travel
DDOT	Bicycle and Pedestrian	Design and build a new trail along New York Avenue NE.	Ozone	2018	0.003	0.002	-	Yes - Increase Non-SOV Travel
DDOT	Outreach and Marketing	Encourage sustainable travel by District residents, workers and visitors primarily through goDCgo brand. Includes employer outreach, bikeshare and circulator marketing, special events	QA*	2019	-	-	-	Yes - Increase Non-SOV Travel
DDOT	Planning and Management Systems	Climate Change and Air Quality, Environmental Management System, Storage and Maintenance EA and Diesel Idle Reduction Program	QA*	2019	-	-	-	

*Qualitative Analysis

DOT	Project Category	Description of Project	Applicable Pollutant	Year Anticipated for CMAQ Obligation	NOx Benefit (kg/day)	VOC Benefit (kg/day)	Traffic Congestion Benefit PHED	Traffic Congestion Benefit Non-SOV
DDOT	Outreach	The purpose of the Commuter Connections Program is to reduce mobile source emission through the reduction in the number of VMT, and support of other Transportation Control Measures. This project provides funding for Commuter Operations Center, Guaranteed Ride, Home, Marketing, Monitoring and Evaluation, Employer Outreach, and DC Kiosk.	QA*	2019	-	-	-	Yes - Increase Non-SOV Travel
DDOT	Bicycle and Pedestrian	The goal of this project is to increase the safety and convenience of bicycle and pedestrian travel. It includes the widening of existing routes, curve realignment, grade reduction, and signage and lighting upgrades.	Ozone	2019	0.007	0.003	-	Yes - Increase Non-SOV Travel
DDOT	Bicycle and Pedestrian	Design and construct a paved bicycle and pedestrian trail along South Capitol Street based on the 2010 concept plan.	Ozone	2019	0.004	0.002	-	Yes - Increase Non-SOV Travel
DDOT	Outreach and Marketing	Encourage sustainable travel by District residents, workers and visitors primarily through goDCgo brand. Includes employer outreach, bikeshare and circulator marketing, special events	QA*	2020	-	-	-	Yes - Increase Non-SOV Travel
DDOT	Planning and Management Systems	Climate Change and Air Quality, Environmental Management System, Storage and Maintenance EA and Diesel Idle Reduction Program	QA*	2020	-	-	-	-
DDOT	Outreach	The purpose of the Commuter Connections Program is to reduce mobile source emission through the reduction in the number of VMT, and support of other Transportation Control Measures. This project provides funding for Commuter Operations Center, Guaranteed Ride, Home, Marketing, Monitoring and Evaluation, Employer Outreach, and DC Kiosk.	QA*	2020	-	-	-	Yes - Increase Non-SOV Travel
DDOT	Bicycle and Pedestrian	The goal of this project is to increase the safety and convenience of bicycle and pedestrian travel. It includes the widening of existing routes, curve realignment, grade reduction, and signage and lighting upgrades.	Ozone	2020	0.007	0.003	-	Yes - Increase Non-SOV Travel
DDOT	Outreach and Marketing	Encourage sustainable travel by District residents, workers and visitors primarily through goDCgo brand. Includes employer outreach, bikeshare and circulator marketing, special events	QA*	2021	-	-	-	Yes - Increase Non-SOV Travel

DOT	Project Category	Description of Project	Applicable Pollutant	Year Anticipated for CMAQ Obligation	NOx Benefit (kg/day)	VOC Benefit (kg/day)	Traffic Congestion Benefit PHED	Traffic Congestion Benefit Non-SOV
DDOT	Planning and Management Systems	Climate Change and Air Quality, Environmental Management System, Storage and Maintenance EA and Diesel Idle Reduction Program	QA*	2021	-	-	-	-
DDOT	Outreach	The purpose of the Commuter Connections Program is to reduce mobile source emission through the reduction in the number of VMT, and support of other Transportation Control Measures. This project provides funding for Commuter Operations Center, Guaranteed Ride, Home, Marketing, Monitoring and Evaluation, Employer Outreach, and DC Kiosk.	QA*	2021	-	-	-	Yes - Increase Non-SOV Travel
DDOT	Bicycle and Pedestrian	The Metropolitan Branch Trail project will provide a 6.25-mile bicycle/pedestrian trail from Union Station north to the District Line along the railroad right-of-way. This trail will connect at the District line with a route continuing into Silver Spring MD. This project is intended to serve both recreational users and commuters to meet Transportation Control Measures (TCMs) and air quality objectives.	Ozone	2021	-	-	-	Yes - Increase Non-SOV Travel
DDOT	Bicycle and Pedestrian	Rehabilitate the paved trail in Rock Creek Park including selected widening, resurfacing, new connections, and a new bridge south of the Zoo tunnel. Retaining wall repair on Piney Branch.	Ozone	2021	-	-	-	Yes - Increase Non-SOV Travel
DDOT	Bicycle and Pedestrian	The goal of this project is to increase the safety and convenience of bicycle and pedestrian travel. It includes the widening of existing routes, curve realignment, grade reduction, and signage and lighting upgrades.	Ozone	2021	-	-	-	Yes - Increase Non-SOV Travel
DDOT	Bicycle and Pedestrian	Design and construct a paved bicycle and pedestrian trail along South Capitol Street based on the 2010 concept plan.	Ozone	2021	-	-	-	Yes - Increase Non-SOV Travel
DDOT	Bicycle and Pedestrian	Design and build a new trail along New York Avenue NE.	Ozone	2021	-	-	-	Yes - Increase Non-SOV Travel

DOT	Project Category	Description of Project	Applicable Pollutant	Year Anticipated for CMAQ Obligation	NOx Benefit (kg/day)	VOC Benefit (kg/day)	Traffic Congestion Benefit PHED	Traffic Congestion Benefit Non-SOV
DDOT	Bicycle and Pedestrian	The project area includes a rehabilitation and pavement of the 0.65-mile section of the trails at Arizona Ave from Nebraska Avenue, NW to Galena Place, NW including missing sections of the trail and rehabilitation/reconstruction Substructure and Superstructure of approximately 110-foot long Pedestrian Bridge over Arizona Ave connecting both sides of Arizona Ave trails including pedestrian access ramp.	Ozone	2021	-	-	-	Yes - Increase Non-SOV Travel
MDOT	Congestion Management	Future SHA CMAQ projects are not officially programmed or are subject to change. Typical CMAQ projects in the TPB planning area include Park and Ride Lot and Traffic Flow Improvement projects. Over the last four calendar years (2013-2017), 94% of CMAQ funding in the TPB planning area was obligated to Park and Ride Lot Projects, with the remaining 6% being obligated to Traffic Flow Improvement Projects.	Ozone	2018	0.126	0.055	-	-
MDOT	Congestion Management	Future SHA CMAQ projects are not officially programmed or are subject to change. Typical CMAQ projects in the TPB planning area include Park and Ride Lot and Traffic Flow Improvement projects. Over the last four calendar years (2013-2017), 94% of CMAQ funding in the TPB planning area was obligated to Park and Ride Lot Projects, with the remaining 6% being obligated to Traffic Flow Improvement Projects.	Ozone	2019	0.111	0.049	-	-
MDOT	Congestion Management	Future SHA CMAQ projects are not officially programmed or are subject to change. Typical CMAQ projects in the TPB planning area include Park and Ride Lot and Traffic Flow Improvement projects. Over the last four calendar years (2013-2017), 94% of CMAQ funding in the TPB planning area was obligated to Park and Ride Lot Projects, with the remaining 6% being obligated to Traffic Flow Improvement Projects.	Ozone	2020	0.099	0.045	-	-
MDOT	Congestion Management	Future SHA CMAQ projects are not officially programmed or are subject to change. Typical CMAQ projects in the TPB planning area include Park and Ride Lot and Traffic Flow Improvement projects. Over the last four calendar years (2013-2017), 94% of CMAQ funding in the TPB planning area was obligated to Park and Ride Lot Projects, with the remaining 6% being obligated to Traffic Flow Improvement Projects.	Ozone	2021	0.091	0.042	-	-

DOT	Project Category	Description of Project	Applicable Pollutant	Year Anticipated for CMAQ Obligation	NOx Benefit (kg/day)	VOC Benefit (kg/day)	Traffic Congestion Benefit PHED	Traffic Congestion Benefit Non-SOV
VDOT	Bicycle and Pedestrian	This project would perform preliminary engineering to improve multimodal access and improve mobility options to the Braddock Road station by studying the feasibility of building a tunnel connection under the freight rail tracks from the Braddock Road station, and a pedestrian-bike connection and walking route to the northern gateway.	Ozone	2018	0.681	0.137	-	Yes - Increase Non-SOV Travel
VDOT	Bicycle and Pedestrian	Design the trail for later construction	Ozone	2019	0.080	0.169	-	Yes - Increase Non-SOV Travel
VDOT	Ride Sharing	Western Loudon Park and Ride Lot Lease	Ozone	2019	0.596	0.354	-	Yes - Increase Non-SOV Travel
VDOT	Ride Sharing	One Loudon development north of Russel Branch Parkway	Ozone	2019	2.388	1.061	-	Yes - Increase Non-SOV Travel
VDOT	Bicycle and Pedestrian	Town plans are to extend the Folly Lick/Spring Branch and the Sugarland Run pedestrian/bike trails in order to connect to the northside pedestrian entrance pavilion of the future Herndon Metrorail Station of the Dulles Silver Line. Phase I is to extend from the Folly Lick/Spring Branch Trail from Van Buren Street to Herndon's Metrorail Station, which is right-of-way acquired.	QA*	2020	QA*	QA*	-	Yes - Increase Non-SOV Travel
VDOT	Ride Sharing and Bicycle and Pedestrian	The project will improve pedestrian access and safety and expand the parking capacity of the VRE Quantico station located on the Marine Corps Base (MCB) Quantico in Prince William County.	Ozone	2020	0.391	0.151	-	Yes - Increase Non-SOV Travel
VDOT	Bicycle and Pedestrian	Design and construct missing sections of public sidewalk within 1-mile of the Vienna MetroRail stations to facilitate pedestrian access and encourage mass transit use.	Ozone	2020	0.095	0.114	-	Yes - Increase Non-SOV Travel

*Qualitative Analysis

DOT	Project Category	Description of Project	Applicable Pollutant	Year Anticipated for CMAQ Obligation	NOx Benefit (kg/day)	VOC Benefit (kg/day)	Traffic Congestion Benefit PHED	Traffic Congestion Benefit Non-SOV
VDOT	Traffic Flow Improvements	The Route 1 (Richmond Highway) Multimodal Alternatives Analysis recommends a series of roadway and transit- related improvements in the Richmond Highway corridor. The analysis also may include the implementation of transit amenities to support Bus Rapid Transit from the Huntington Metrorail Station to Fort Belvoir.	QA*	2021	QA*	QA*	TBD	Yes - Increase Non-SOV Travel