

BALTIMORE METROPOLITAN PLANNING ORGANIZATION

**BALTIMORE REGIONAL TRANSPORTATION BOARD
RESOLUTION #23-5**

**ADOPTING THE CMAQ PERFORMANCE PLANS FOR
THE BALTIMORE AND ABERDEEN URBANIZED AREAS**

WHEREAS, the Baltimore Regional Transportation Board (BRTB) is the designated metropolitan planning organization (MPO) for the Baltimore region, encompassing the Baltimore and Aberdeen Urbanized Areas, and includes official representatives of the cities of Annapolis and Baltimore, the counties of Anne Arundel, Baltimore, Carroll, Harford, Howard, and Queen Anne's, as well as representatives of the Maryland Department of Transportation, the Maryland Department of the Environment, the Maryland Department of Planning, the Maryland Transit Administration, and Annapolis Transit; and

WHEREAS, the BRTB, as the MPO for the Baltimore region, has the responsibility under the provisions of the Fixing America's Surface Transportation Act (FAST Act) for developing and carrying out a continuing, cooperative and comprehensive transportation planning process for the metropolitan area; and

WHEREAS, the FAST Act continued the implementation of performance-based planning and programming to achieve desired performance outcomes for the multimodal transportation system, including setting targets for future performance by states, providers of public transportation, and MPOs; and

WHEREAS, the Baltimore region is classified as marginal nonattainment for the 2015 Ozone National Ambient Air Quality Standard (NAAQS) and moderate nonattainment for the 2008 Ozone NAAQS, and must work to ensure the region maintains conformity with the state's air quality plan; and

WHEREAS, On April 13, 2022, EPA posted a proposed rule in the Federal Register proposing to determine the Baltimore region failed to attain the 2015 ozone standard by the attainment date of August 3, 2021, with a design value of 72 parts per billion (ppb). The effect of failing to attain by the attainment date is that the Baltimore region will be reclassified to "moderate" nonattainment upon the effective date of the final reclassification notice; and

WHEREAS, the Congestion Mitigation and Air Quality Improvement (CMAQ) program was created to provide funding for transportation programs and projects that reduce air pollution and mitigate congestion from the transportation system, and this funding is provided to state and local governments to assist them in reaching federal air quality requirements established by the Clean Air Act and its amendments; and

WHEREAS, the Federal Highway Administration (FHWA) issued a final rule establishing three transportation performance measures addressing the Congestion Mitigation and Air Quality Improvement (CMAQ) funding program: (1) Annual Hours of Peak Hour Excessive Delay (PHED) Per Capita; (2) Percent of Non-Single Occupancy Vehicle (SOV) Travel; and (3) Total On-Road Emissions Reduction; and

WHEREAS, MDOT has developed information and targets toward compliance with the law and regulations established for these performance targets.

WHEREAS, the BRTB adopted MDOT targets for the following performance measures: (1) Annual Hours of Peak Hour Excessive Delay (PHED) Per Capita; (2) Percent of Non-Single Occupancy Vehicle (SOV) Travel; and (3) Total On-Road Emissions Reduction; and

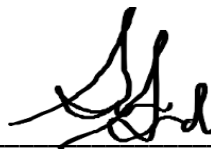
WHEREAS, 23 U.S.C 149(l) requires each MPO serving a transportation management area with a population over 1,000,000 that includes a nonattainment or maintenance area to develop a CMAQ Performance Plan. In the CMAQ Performance Plan and its biennial updates, the MPO reports their 2- and 4-year targets, describes how they plan to meet their targets, and details their progress toward achieving the targets over the course of the performance period.

NOW, THEREFORE BE IT RESOLVED that the Baltimore Regional Transportation Board as the Metropolitan Planning Organization for the Baltimore region adopts the BRTB CMAQ Full First Performance Period Progress Report and Baseline Second Period Performance Plan for 2022, as described in Attachments 1 and 2.

I HEREBY CERTIFY that the Baltimore Regional Transportation Board as the Metropolitan Planning Organization for the Baltimore region approved the aforementioned resolution at its August 23, 2022 meeting.

8-23-22

Date



Sam Snead, Chair
Baltimore Regional Transportation Board

Baltimore Regional Transportation Board First Performance Period 2018-2021 CMAQ Full Progress Report

MPO Name:	TMA and State(s):
<i>Baltimore Regional Transportation Board</i>	<i>Baltimore, MD</i>

Background

This report documents the Congestion Mitigation and Air Quality Improvement (CMAQ) Full Performance Period Progress Report for the Baltimore Regional Transportation Board (BRTB) for the first performance period, as required by federal regulation. CMAQ is a federal funding category for transportation projects and programs to help meet the requirements of the Clean Air Act. Funding is available to reduce congestion and improve air quality for areas that do not meet the National Ambient Air Quality Standards for ozone, carbon monoxide, or particulate matter (nonattainment areas) and for former nonattainment areas that are now in compliance (maintenance areas).

The BRTB is the federally designated metropolitan planning organization (MPO) for the Baltimore region. *23 CFR 490.107(c) and 23 USC 149(l)* require an MPO to develop a CMAQ Performance Plan, to be submitted as an attachment to the State DOT biennial performance reports for the Baseline, Mid Period and Full-Period of each 4-year performance period. On October 1, 2022, the Maryland DOT is required to submit their Full Performance Period Progress Report. The BRTB requests that this report, when final, be attached to the MDOT Full Performance Period Progress Report.

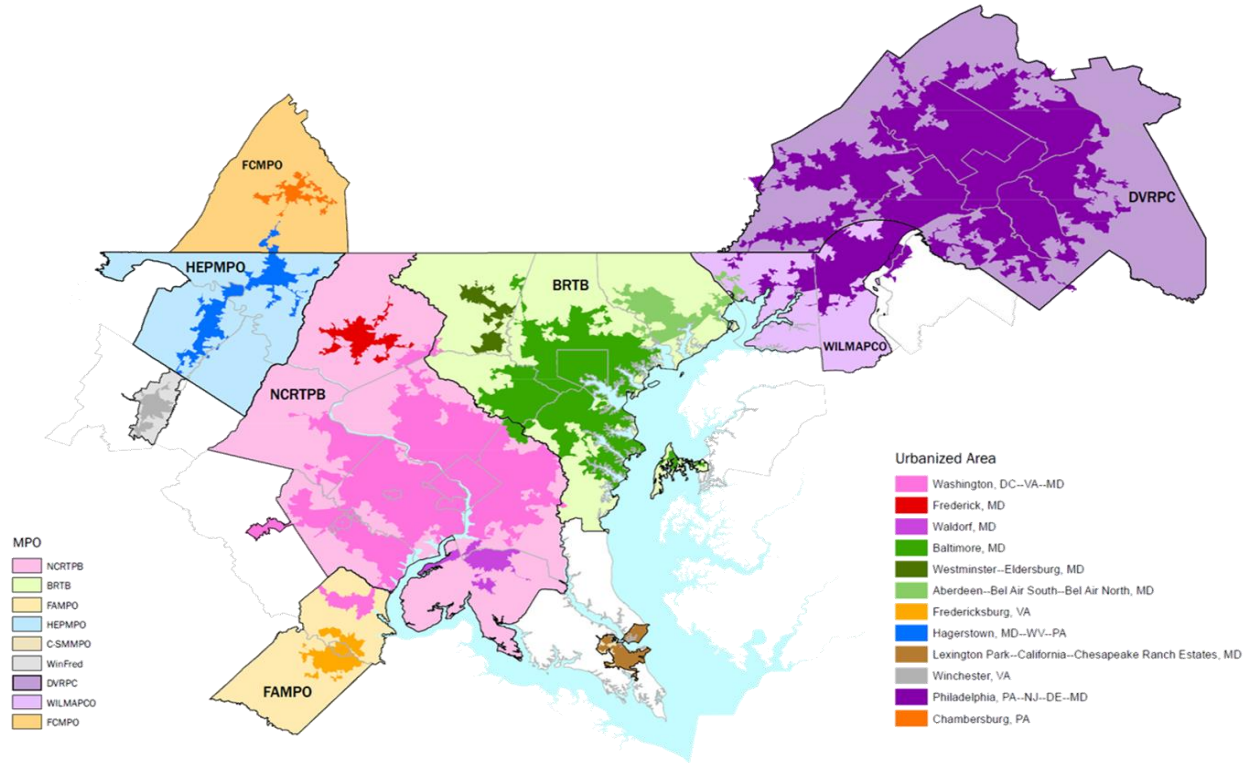
The Baltimore region is designated a “marginal” nonattainment area for the 2015 8-hour ozone standard, a “moderate” nonattainment area for the 2008 ozone standard, and a “serious” nonattainment area for the 1997 ozone standard. The newest 2015 ozone standard is 70 parts per billion (ppb), which is the strictest of the three above. On April 13, 2022, EPA posted a proposed rule in the Federal Register proposing to determine the Baltimore region failed to attain the 2015 ozone standard by the attainment date of August 3, 2021, with a design value of 72 ppb. The effect of failing to attain by the attainment date is that the Baltimore region will be reclassified to “moderate” nonattainment upon the effective date of the final reclassification notice.

The following report describes the progress made within the four years of the performance period for the MPO performance targets for three CMAQ-related performance measures:

- Peak hour excessive delay (PHED)
- Percent non-single occupancy vehicle (SOV) travel, and
- On-road mobile source emissions reductions from CMAQ-funded projects

The geographic area covered by the PHED and Non-SOV travel performance measures include the Baltimore urbanized area, shown in Figure 1. For the on-road mobile source emissions reduction measure, the area covered is the BRTB MPO planning area.

Figure 1. MPO Boundaries and Urbanized Areas in Maryland



At this time, the BRTB is required to report the progress made in the four years of the performance period for two traffic congestion measures, covering the Baltimore Urbanized Area, and one on-road mobile source emissions measure, covering the BRTB MPO planning area.

Traffic Congestion Measures: Peak Hour Excessive Delay (PHED)

Four-Year Condition/ Performance

Performance is being reported for the PHED traffic congestion measure, for the Baltimore urbanized area. Performance targets were developed previously for this measure. The four-year target is identical to the Maryland Department of Transportation (MDOT) target for the metropolitan area. A two-year target for PHED was not required, but the MPO has listed one in the table.

The PHED targets had been developed by using the baseline PHED, calculated through the RITIS¹ tool, and then projecting future delay. The increasing targets reflected the fact that delay was likely to increase into the near future, despite work the BRTB is planning to address it.

As shown in the table below, the Baltimore urbanized area PHED remains below the 2019 target of 21.8 and was also below the 2021 target of 22.6 hours. This shows that the region has been successful in controlling the increase in traffic delay.

	Peak Hour Excessive Delay (PHED), hours		
	Baseline	Performance Condition	Target
2017 Baseline	20.2		
2018 Performance		21.5	
2019 Performance		20.6	
2020 Performance		8.4	
2021 Performance		13.9	
2-year Target (2019)			<21.8
4-Year Target (2021)			<22.6

Traffic Congestion Measures: Percent Non-SOV Travel

Four-Year Condition/ Performance

Performance is being reported for the Percent Non-SOV travel traffic congestion measure, for the Baltimore urbanized area. Performance targets were developed previously for this measure. The targets are identical to the MDOT targets for the metropolitan area.

The 2- and 4-year targets were set at 24.8%. Since 2016, the non-SOV travel performance remained relatively constant outside of effects from the COVID-19 pandemic. Performance in 2018, 2019, 2020, and 2021 have exceeded the two and four-year targets.

Baltimore area initiatives that contributed to achievement of the targets include:

- In June 2017, the Maryland Department of Transportation Maryland Transit Administration (MDOT MTA) implemented BaltimoreLink, a complete restructuring of the bus network serving the Baltimore region. The program

¹ RITIS is the Regional Integrated Transportation Information System. It is a data-driven platform for transportation analysis, monitoring, and data visualization. For more information on RITIS, visit www.ritis.org

included implementation of a 5.5-mile network of dedicated lanes on high volume bus corridors. A 2019 before-and-after study shows that since the launch of BaltimoreLink, on-time performance (OTP) has dramatically increased, making transit more attractive.

- Commuter Choice Maryland, which encourages commuters to explore and use alternate means of transportation to and from work.
- Guaranteed Ride Home, a free program for commuters who use public and alternative modes of transportation within the Baltimore and Washington D.C. Metropolitan Areas. The program offers up to four free rides home per year when usual transportation options are limited.

	Percent Non-SOV		
	Baseline	Performance	Target
2016 Baseline ²	25.1%		
2018		25.2%	
2019		25.1%	
2020		27.1%	
2021		N/A ³	
2-year Target ⁴			24.8%
4-Year Target			24.8%

On-Road Mobile Source Emissions Measures:

Two- and Four-Year Condition/ Performance

MPOs with a population more than 1 million and with designated nonattainment and maintenance areas were required to develop both 2-year and 4-year quantifiable targets for emission benefits from CMAQ funded projects. This included the Baltimore region which has a population of greater than 1 million, and is nonattainment for the ground-level ozone National Ambient Air Quality Standard (NAAQS).

The targets were developed to address the on-road mobile source emissions measure for the Baltimore region. MDOT created the targets as part of their overall state emission

² In the BRTB CMAQ Performance Plan (2018), the 2017 baseline was included as 24.85%. Baseline information for Percent Non-SOV has been updated to reflect data provided in the MDOT reporting, which provides a baseline of 25.1% in 2016.

³ While calendar year 2021 is considered to be the baseline year, 2021 performance is based on ACS 2016-2020 5-year estimates and is therefore technically 2020 performance.

⁴ The 2-year and 4-year targets for Percent Non-SOV were adjusted slightly from 24.85% to 24.8% to match MDOT reporting on the same target.

reduction target. The BRTB approved a resolution in June 2018 to adopt the MDOT-developed targets for the Baltimore region.

Every year, MDOT is required to submit a report to the Federal Highway Administration (FHWA) that includes CMAQ project information and emissions benefits. These reports are made available through the FHWA Public Access System (PAS), accessible at (https://fhwaapps.fhwa.dot.gov/cmaq_pub/). This information, along with additional information shared by MDOT staff, was used by the BRTB to assess the progress made in reaching the performance targets for on-road mobile source emissions measures in the Baltimore region, for nitrogen oxides (NOx) and volatile organic compounds (VOC). These performance measures assess emissions reduced from CMAQ-funded projects (in kilograms per day).

The following two tables display information on CMAQ emission reductions for NOx and VOCs between 2018 and 2021, and compares it with the established targets.

	Reduction of NOx (kg/day)		
	Baseline	Performance	Target
4-year Baseline (2014-2017)	139.478		
2-year Target (2018-2019)		198.25	88.571
4-Year Target (2018-2021)		274.33	123.390

	Reduction of VOC (kg/day)		
	Baseline	Performance	Target
4-year Baseline (2014-2017)	12.825		
2-year Target (2018-2019)		118.38	6.589
4-Year Target (2018-2021)		126.39	7.874

Projects conducted in the Baltimore region with CMAQ funding have been successful at reducing ozone-forming pollutant emissions in the past two years. As shown in the table above, the funded projects have out-performed the 2- and 4-year targets.

Description of Projects

This CMAQ Full Performance Period Report is required to include a description of the projects utilizing CMAQ funding and how these projects have contributed to the achievement of the 2- and 4-year targets for traffic congestion and on-road mobile source emissions. The applicable emissions for the BRTB region include ozone precursors, VOCs and NOx. The attached table describes the projects funded with the CMAQ program in the years 2018, 2019, 2020, and 2021 along with their calculated emission benefits.

Description of Projects funded with CMAQ in the Baltimore Region (FY 2018, FY 2019, FY 2020, and FY 2021)

CMAQ Reporting Year	DOT	Project Type	Project and Description	Applicable Pollutant	VOC Benefit (KG/day)	NOx Benefit (KG/day)	PHED Benefit	Non-SOV % Benefit
FFY 2018	MDOT	Ride Sharing	LOTS State of MD Guaranteed Ride Home - Baltimore Area Guaranteed Ride Home program addresses barrier to using alternate modes of transportation and commuters' fears of being stranded without transportation in the case of an emergency.	Ozone	9.38	18.44	Yes – reduce trips and VMT	Yes – reduce SOV use
FFY 2018	MDOT	Transit Improvements	Metro Rail Car Overhaul Overhaul of rail cars at 10 plus years after the midlife, to ensure safe reliable operation of ~ 200 vehicles.	Ozone	0.24	0.36	Yes – reduce trips	Yes – reduce SOV use
FFY 2018	MDOT	Congestion Reduction and Traffic Flow Improvements	Adaptive "Smart" Signal Systemization - Baltimore Area Traffic Relief Plan - Smart traffic Signals - Phased statewide installation of traffic control devices that utilize the input of real-time area traffic conditions along with intelligent signal timing and synchronization of traffic flow along travel corridors.	Ozone	11.05	56.88	Yes – reduce delay	No
FFY 2018	MDOT	Congestion Reduction and Traffic Flow Improvements	Baltimore City Traffic Management Center	Ozone	87.85	42.07	Yes – reduce delay	No
FFY 2018	MDOT	Bicycle and Pedestrian Facilities and Programs	Baltimore City Bike Share Program	Ozone	0.044	0.066	Yes – reduce trips	Yes – reduce trips
FFY 2018	MDOT	Transit Improvement	Bus Replacement	Ozone	4.1	34.29	No	No

FFY 2019	MDOT	Transit Improvements	Baltimore Link Transit Signal Priority Design and implement a signal priority system to aid bus travel time as part of BaltimoreLink. Installation and testing on 83 buses; intersection equipment along Liberty Road and Belair Road; integrate with Baltimore Traffic Management Center project.	Ozone	Qualitative benefit	Qualitative benefit	Yes – reduce delay	No
FFY 2019	MDOT	Transit Improvements	Bus Replacement For the procurement of 42 additional Clean Diesel buses as part of a 2-year procurement, for core bus service, replacing 2005 and 2003 models.	Ozone	5.72	46.14	No	No
FFY 2020	MDOT	Ride Sharing	MD794 Wayson's Corner Park-and-Ride Improvements Resulting improvements include new transit amenities including a bus shelter and pull out area that will provide better access to transit service and increase utilization of the pnr lot.	Ozone	0.04	0.09	Yes – reduce trips and VMT	Yes – reduce SOV use
FFY 2020	MDOT	Ride Sharing	MD32 at Broken Land Pkwy West Lot (Park and Ride Lot Expansion) Resulting improvements include the addition of 47 new spaces for users. Park and ride will have 319 spaces total after improvements.	Ozone	0.05	0.01	Yes – reduce trips and VMT	Yes – reduce SOV use
FFY 2020	MDOT	Transit Improvements	Mobility Bus Replacement Replace 100 buses in MDOT MTA's complementary paratransit (shared-ride) program MobilityLink.	Ozone	0.84	1.39	No	No
FFY 2020	MDOT	Transit Improvements	Bus Replacement For the procurement of 93 Diesel Buses for core bus service.	Ozone	7.08	74.59	No	No

Baltimore Regional Transportation Board Second Performance Period 2022-2025 CMAQ Baseline Performance Plan

MPO Name:	TMA and State(s):
<i>Baltimore Regional Transportation Board</i>	<i>Baltimore, MD</i>
<i>Baltimore Regional Transportation Board</i>	<i>Aberdeen – Bel Air South- Bel Air North, MD</i>

Background

This report documents the Congestion Mitigation and Air Quality Improvement (CMAQ) Performance Plan for the Baltimore Regional Transportation Board (BRTB) for the first performance period, as required by federal regulation. CMAQ is a federal funding category for transportation projects and programs to help meet the requirements of the Clean Air Act. Funding is available to reduce congestion and improve air quality for areas that do not meet the National Ambient Air Quality Standards for ozone, carbon monoxide, or particulate matter (nonattainment areas) and for former nonattainment areas that are now in compliance (maintenance areas).

The BRTB is the federally designated metropolitan planning organization (MPO) for the Baltimore region. *23 CFR 490.107(c)* and *23 USC 149(l)* require an MPO to develop a CMAQ Performance Plan, to be submitted as an attachment to the Maryland Department of Transportation (MDOT) biennial performance reports for the Baseline, Mid-Period and Full-Period of each 4-year performance period. In fall 2022, MDOT is required to submit their Baseline Performance Period Report. The BRTB requests that this report, when final, be attached to the MDOT Baseline Performance Period Report.

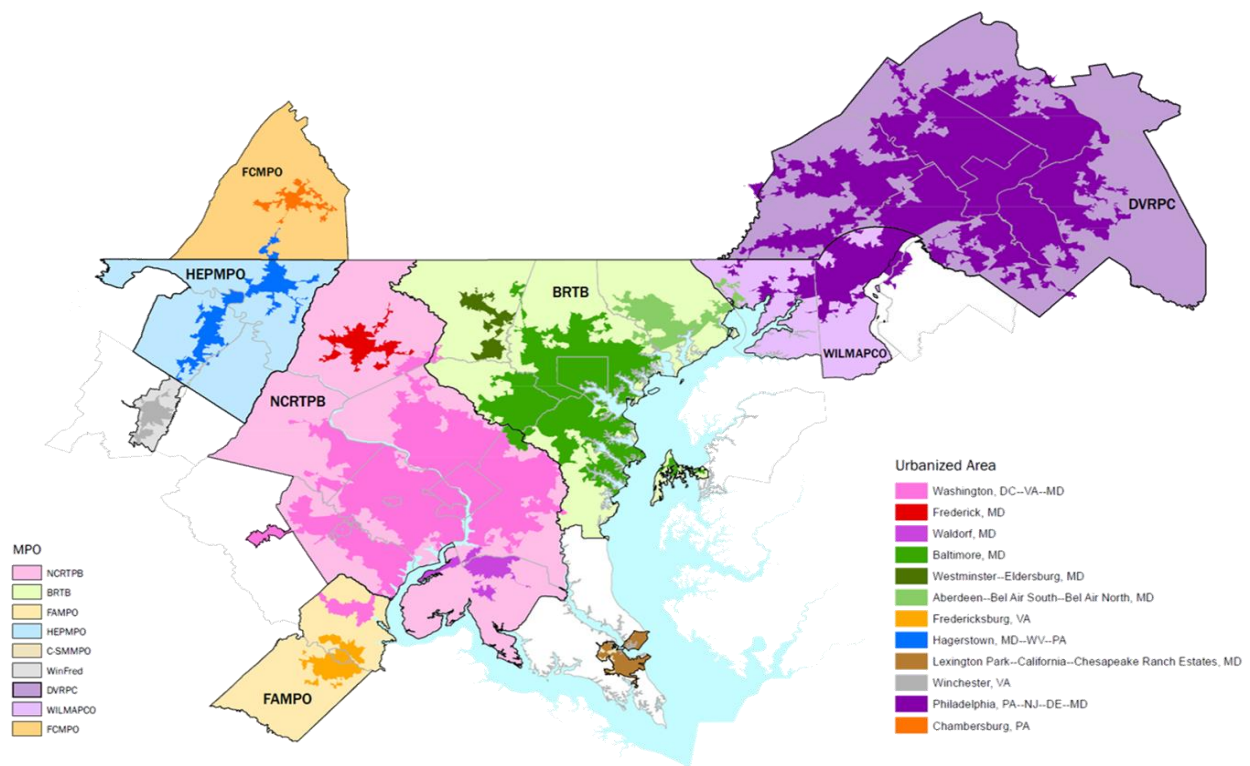
The Baltimore region is designated a “marginal” nonattainment area for the 2015 8-hour ozone standard, a “moderate” nonattainment area for the 2008 ozone standard, and a “serious” nonattainment area for the 1997 ozone standard. The newest 2015 ozone standard is 0.070 parts per million (ppm), which is the strictest of the three above. On April 13, 2022, the Environmental Protection Agency (EPA) posted a proposed rule in the Federal Register proposing to determine the Baltimore region failed to attain the 2015 ozone standard by the attainment date of August 3, 2021, with a design value of 72 ppb. The effect of failing to attain by the attainment date is that the Baltimore region will be reclassified to “moderate” nonattainment upon the effective date of the final reclassification notice.

The following report describes the baseline condition and MPO performance targets for three CMAQ-related performance measures:

- Peak hour excessive delay (PHED)
- Percent non-single occupancy vehicle (SOV) travel, and
- On-road mobile source emissions reductions from CMAQ-funded projects

The geographic areas covered by the PHED and Non-SOV travel performance measures include the Baltimore and Aberdeen urbanized areas, shown in Figure 1. For the on-road mobile source emissions reduction measure, the area covered is the BRTB planning area.

Figure 1. MPO Boundaries and Urbanized Areas in Maryland



Baseline Condition

At this time, the BRTB is required to report the baseline condition for two traffic congestion measures, covering the Baltimore and Aberdeen Urbanized Areas, and one on-road mobile source emissions measure, covering the BRTB planning area. Baseline conditions and the methodology for how they were developed are provided below.

Baseline Condition for Traffic Congestion Measures:

The MDOT, along with the BRTB, Wilmington Area Planning Council (WILMAPCO), and the National Capital Region Transportation Planning Board (TPB), coordinated in developing baseline conditions and targets for these traffic congestion measures. For

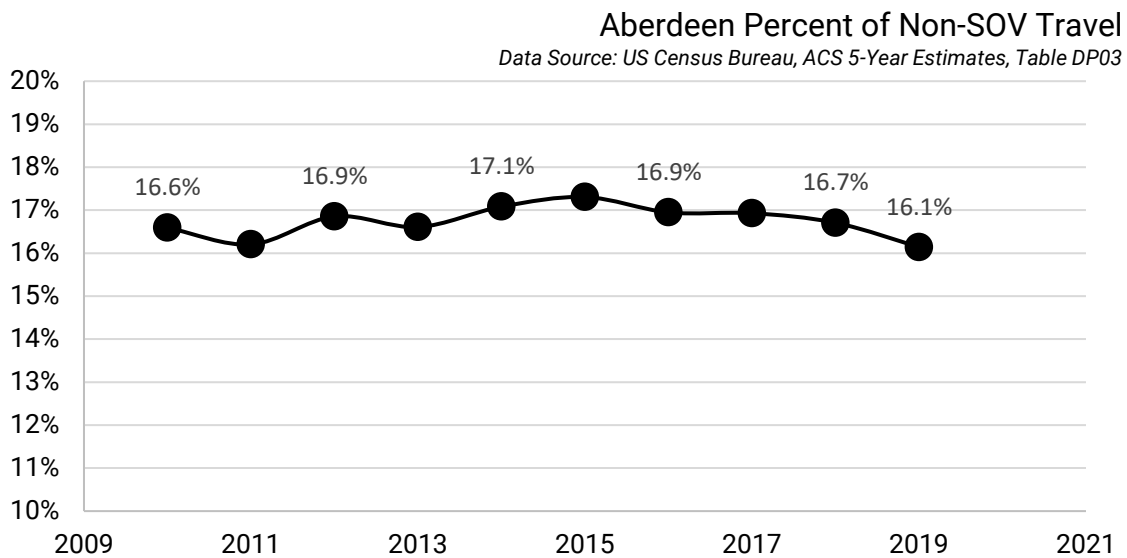
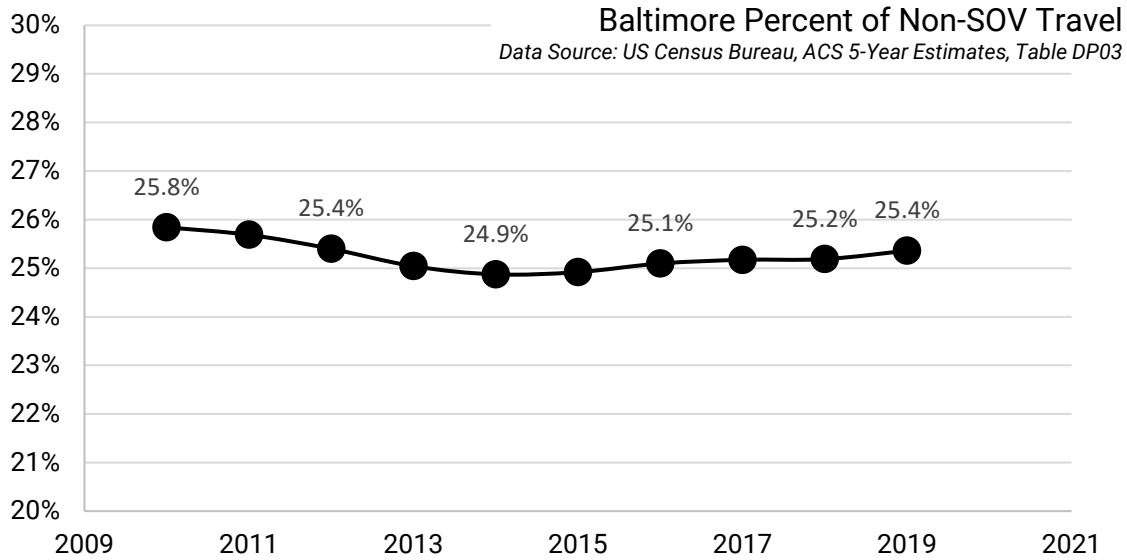
this second performance period, the requirement to develop and report these targets applies to urbanized areas of more than 200,000 people that are also in nonattainment or maintenance areas for ozone, carbon monoxide or particulate matter. States and MPOs with National Highway System (NHS) mileage within an applicable urbanized area must coordinate on a single, unified target. For these congestion measures, 2019 is utilized as the baseline in order to omit impacts from the COVID-19 pandemic.

The PHED measure is the annual hours of peak hour excessive delay per capita that occurs within an applicable urbanized area on the NHS. The PHED baseline level was determined by uploading posted speed limit data on segments of the NHS in the Baltimore and Aberdeen urbanized areas into a tool within the RITIS⁵ program. PHED was determined by adding together excessive delay experienced by highway users on all reporting segments during peak hours (3-7 PM). Excessive delay is a vehicle on the NHS going at a speed of 20 miles per hour (mph) or 60% of the posted speed limit, whichever is greater. PHED for the Baltimore urbanized area was calculated as 20.6 hours in calendar year 2019. PHED for the Aberdeen urbanized area was calculated as 7.8 hours in calendar year 2019.

Peak Hour Excessive Delay		
Year	Baltimore	Aberdeen
2017	19.7	9.6
2018	21.5	9.4
2019	20.6	7.8

The Percent of Non-SOV travel measure is the percentage of non-SOV vehicles traveling within an applicable urbanized area. U.S. Census/American Community Survey (ACS) 5-year data was used to calculate percent non-SOV travel and targets. Percent non-SOV travel since 2010 has remained steady at around 25% in the Baltimore urbanized area and 16.5% in the Aberdeen urbanized area. The non-SOV travel percentage for the Baltimore urbanized area in 2019 was 25.4%. The non-SOV travel percentage for the Aberdeen urbanized area in 2019 was 16.1%.

⁵ RITIS is the Regional Integrated Transportation Information System. It is a data-driven platform for transportation analysis, monitoring, and data visualization. For more information on RITIS, visit www.ritis.org.



Baseline Condition for On-Road Mobile Source Emissions Measures:

Every year, MDOT submits a report to the Federal Highway Administration (FHWA) that includes CMAQ project information and emissions benefits. These reports are made available through the FHWA Public Access System (PAS). The PAS, which can be accessed at (https://fhwaapps.fhwa.dot.gov/cmaq_pub/), was used to establish baseline emission reductions provided by CMAQ-funded projects in the Baltimore region. For this measure, the BRTB summed 2- and 4-year totals of emission reductions of nitrogen oxides (NOx) and volatile organic compounds (VOC) from CMAQ-funded projects (in kilograms per day) that were reported in the PAS between Federal fiscal years

2018 to 2021. CMAQ Emission Reductions for VOC between 2018 and 2021 were 154.74 kg/day, and for NOx were 412.91 kg/day.

FFY Year	Sum of Emissions Benefits (kg/Day)	
	VOC	NOX
2018	134.50	282.79
2019	11.03	53.02
2020	8.08	76.21
2021	1.13	0.89
Total (2018-2021)	154.74	412.91

2-year and 4-year Targets

Targets for Traffic Congestion Measures:

The following targets were developed for the traffic congestion measures, in the Baltimore urbanized area. These targets are identical to the MDOT targets for the metropolitan area. A 2-year target for PHED was not required, but is listed in the table.

For PHED, the targets were developed by using the existing PHED, calculated through the RITIS tool, and then projecting future delay. The year 2020 was omitted from these calculations to account for the atypical transportation patterns due to the COVID-19 pandemic. An assumption was made that pre-pandemic trends will continue from current performance level. For Baltimore, the increasing targets reflect the assumption that delay will likely increase into the near future, despite work the BRTB is planning to address it. For Aberdeen, the 2- and 4-year targets were kept the same to account for the downward trend prior to the pandemic but also to account for post-pandemic rebound.

For percent non-SOV travel, the targets were developed by using the existing non-SOV travel, calculated utilizing ACS 5-year data, and forecasting trend lines for the second performance period. Performance data for 2020 was omitted to account for the atypical transportation patterns due to the COVID-19 pandemic. For the Baltimore Urbanized Area, two trend lines were forecasted: (1) a long term trend based on data ranging from 2010 to 2019 and (2) a near term trend based on data ranging from 2015 to 2019. The average was then taken from the 2- and 4-year data points on these trend lines to develop the 2- and 4-year targets respectively. This was done because the near term and long term trends produced varying forecasts. For the 4-year target this average was adjusted to be 0.2% higher to reflect long term regional goals. For the Aberdeen Urbanized Area the 2- and 4-year targets were derived from only a long term

trend based on data ranging from 2010 to 2019 because the same variance seen for Baltimore was not found for Aberdeen.

Baltimore Congestion Targets		
	Peak Hour Excessive Delay (PHED), hours	Percent non-SOV
2-year Target	<14.8 (not required)	25.3%
4-year Target	<15.7	25.5%

Aberdeen Congestion Targets		
	Peak Hour Excessive Delay (PHED), hours	Percent non-SOV
2-year Target	<6.9 (not required)	16.8%
4-year Target	<6.9	16.8%

Targets for On-Road Mobile Source Emissions Measures:

MPOs with a population of more than 1 million and with designated nonattainment and maintenance areas must develop both 2-year and 4-year quantifiable mobile source emissions targets. The Baltimore region has a population of greater than 1 million, and is nonattainment for the ground-level ozone National Ambient Air Quality Standard (NAAQS).

The following targets were developed to address the on-road mobile source emissions measure for the Baltimore region. These targets were developed by MDOT as part of their overall state emission reduction target. The BRTB approved a resolution in August 2022 to adopt the MDOT-developed targets for the Baltimore region.

	Reduction of VOC (kg/day)	Reduction of NOx (kg/day)
2-year Target (2022-2023)	0.87	6.64
4-year Target (2022-2025)	13.63	43.27

These targets were calculated using a combined approach of historic project selection and anticipated CMAQ projects programmed over the next four years (FFY 2022 through 2025). The targets were established using historic emissions reductions in the FFYs 2014-2017 and 2018-2021 performance periods. The targets were adjusted to omit outlier projects that will not be replicated and accounted for programs where utilization is depressed due to altered commute patterns and COVID rebound. Targets incorporate

average emission rates of light-duty vehicles declining over time due to the federal vehicle and fuel standards; as well as Tier 3 along with the fleet turnover of older vehicles. MDOT and their consultant developed the appropriate calculations; the BRTB staff worked with MDOT and MDOT SHA staff throughout the process, and received information about the assumptions and methodology of calculation. Both the MAQONE model and the CMAQ online emission reduction calculator were used to assess the benefits of different projects.

Description of Projects

This CMAQ Performance Plan is required to include a description of the projects identified for CMAQ funding and how these projects will contribute to the achievement of the 2- and 4-year targets for traffic congestion and on-road mobile source emissions. The applicable emissions for the BRTB region include ozone precursors, volatile organic compounds (VOCs) and nitrogen oxides (NOx). The attached table describes the projects to be funded with the CMAQ program in the next four years.

Description of Projects to be Funded with CMAQ in the Baltimore Region (FY 2022 to FY 2025)

DOT	Project Category	Description of Project	Applicable Pollutant	Year Anticipated for CMAQ Obligation	VOC Benefit (kg/day)	NOx Benefit (kg/day)	Traffic Congestion Benefit PHED	Traffic Congestion Benefit Non-SOV
MDOT	Transit Improvements	Battery Electric Bus Charging Infrastructure	Ozone	2023	Qualitative Benefit	Qualitative Benefit	No	No
MDOT	Transit Improvements	Battery Electric Bus Procurement (Procurement of 7 Buses; Pilot)	Ozone	2023	0.07	3.03	No	No
MDOT	Ride Sharing	LOTS Ridesharing Program	Ozone	2025	4.21	5.38	Yes – reduce trips and VMT	Yes – reduce SOV use
MDOT	Ride Sharing	LOTS State of Maryland Guaranteed Ride Home – Baltimore Region	Ozone	2025	7.50	14.75	Yes – reduce trips and VMT	Yes – reduce SOV use
MDOT	Transit Improvements	Battery Electric Bus Procurement (Procurement of 70 Buses)	Ozone	2025	0.35	12.40	No	No