Congestion Mitigation and Air Quality

Interim Performance Plan (2018–2019)

SEPTEMBER 2020

DELAWARE VALLEY
dvrpc
REGIONAL
PLANNING COMMISSION

The Delaware Valley Regional Planning Commission is the federally designated Metropolitan Planning Organization for a diverse nine-county region in two states: Bucks, Chester, Delaware, Montgomery, and Philadelphia in Pennsylvania; and Burlington, Camden, Gloucester, and Mercer in New Jersey.

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

DVRPC's vision for the Greater Philadelphia Region is a prosperous, innovative, equitable, resilient, and sustainable region that increases mobility choices by investing in a safe and modern transportation system; that protects and preserves our natural resources while creating healthy communities; and that fosters greater opportunities for all.

DVRPC's mission is to achieve this vision by convening the widest array of partners to inform and facilitate data-driven decision-making. We are engaged across the region, and strive to be leaders and innovators, exploring new ideas and creating best practices.

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DVRPC is funded through a variety of funding sources including federal grants from the U.S. Department of Transportation's Federal Highway Administration (FHWA) and Federal Transit Administration (FTA), the Pennsylvania and New Jersey departments of transportation, as well as by DVRPC's state and local member governments. The authors, however, are solely responsible for the findings and conclusions herein, which may not represent the official views or policies of the funding agencies.

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CHAPTER 1:

Introduction

Purpose

Both the Moving Ahead for Progress in the 21st Century Act (MAP-21) and the Fixing America's Surface Transportation Act (FAST Act) have integrated performance measures into many Federal surface transportation programs and required the United States Department of Transportation (USDOT) to establish a set of national measures on which state DOTs must submit targets and report performance or condition. The Federal Highway Administration (FHWA) finalized three performance measures for the purpose of carrying out the Congestion Mitigation and Air Quality (CMAQ) Program. There are two CMAQ Congestion measures and one CMAQ Emissions measure.

The CMAQ Congestion measures are peak-hour excessive delay (PHED) and percent of Non-Single Occupant Vehicle (SOV) travel. The PHED measure is the annual hours of peak-hour excessive delay per capita that occurs within the applicable urbanized area (UZA). The percent of Non-SOV travel measure is the percentage of travel, in the UZA, conducted by means other than SOV. These measures only apply to the National Highway System (NHS) mileage in urbanized areas with a population over one million for the first performance period (2018–2021) and a population of 200,000 for the second and subsequent performance periods. The CMAQ Emissions measure is the cumulative estimated emissions reductions for all CMAQ-funded projects obligated during the first two-year and four-year performance period for each applicable criteria pollutant.

State DOTs, in coordination with Metropolitan Planning Organizations (MPOs), are required to provide FHWA with biennial progress reports for the three CMAQ performance measures. This is the first of those biennial progress reports for the Philadelphia Urbanized Area and the Delaware Valley Regional Planning Commission (DVRPC) planning area, demonstrating DVRPC progress toward the two-year CMAQ performance targets that were established in DVRPC's 2018 CMAQ Baseline Performance Plan (DVRPC Publication # TM19003).

Applicability

The DVRPC region is part of the Philadelphia PA-NJ-DE-MD UZA which has a population of 5,555,493 (2016 one-year ACS) and also includes a small portion of the New York-Newark NY-NJ-CT UZA in Mercer County, New Jersey. The New York-Newark UZA has a population of 18,954,313 (2016 one-year ACS). The DVRPC region includes a complex combination of nonattainment and maintenance areas for two of the National Ambient Air Quality Standards (NAAQS) (ozone and fine particulate matter [$PM_{2.5}$]).

The region's ozone nonattainment area encompasses the entire nine-county DVRPC region, while the $PM_{2.5}$ maintenance areas encompass various portions of the region. The region also includes former carbon monoxide (CO) maintenance areas in Pennsylvania and New Jersey and those areas have achieved their 20-year Maintenance Plans (New Jersey on July 10, 2016 and Pennsylvania on December 4, 2017). According to the CMAQ performance measure applicability tables published by FHWA in October 2019, the DVRPC region is no longer required to report on CO emissions reduction measures.[1]

[1] www.fhwa.dot.gov/environment/air_quality/cmaq/measures/cmaq_applicability/october_2019/#toc494364458

Performance Report Requirements

Federal performance measure regulations (23 CFR 490) require that MPOs serving over one million people, and representing ozone, $PM_{2.5}$, or CO nonattainment or maintenance areas must report progress on attaining the congestion and emissions reductions two-year targets set out in the MPO's baseline CMAQ Performance Plan.

The MPOs interim performance plan must include the PHED and Percent Non-SOV values for each UZA in the MPO planning area, for calendar years 2018 and 2019. All of the MPOs and states serving a common UZA must adopt common congestion targets and report a unified performance value for the UZA. The DVRPC planning area includes two UZAs with over one million people; the Philadelphia and New York-Newark, UZAs. DVRPC has coordinated with each MPO and state DOT that serve portions of these UZAs to adopt common performance measures and targets.

The performance report must also include the cumulative emissions reductions for CMAQ-funded projects in the MPO's service area for federal fiscal years 2018 and 2019 as they are reported in the FHWA CMAQ Public Access System (PAS). Targets and performance are reported for CMAQ-funded projects separately for each state served by the MPO. DVRPC coordinated with each state DOT to develop the emissions reduction targets and emissions reductions from CMAQ projects in the DVRPC region are included in each relevant state's performance plan and targets.

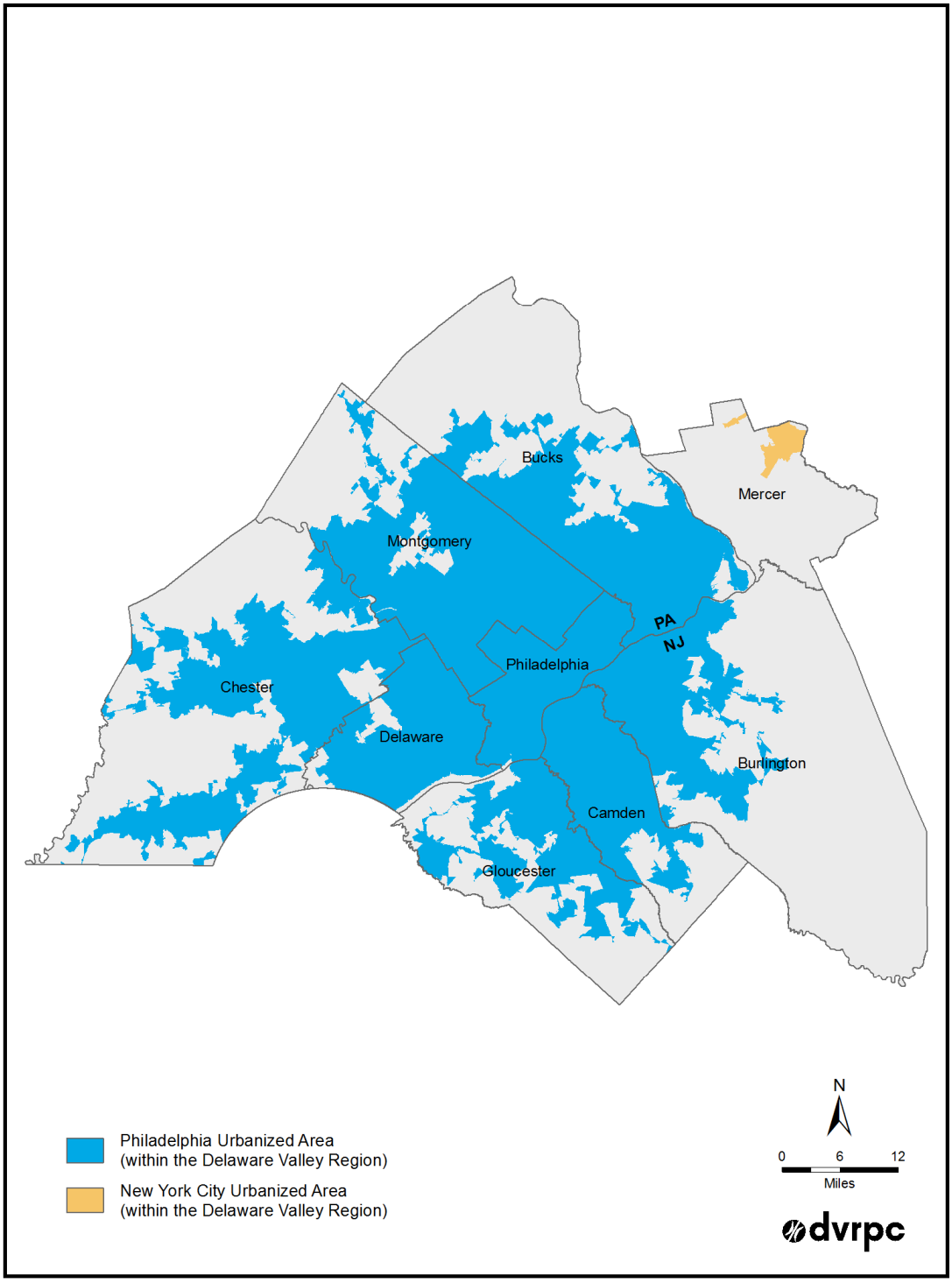
The interim performance plan must include lists of the MPO's CMAQ-funded projects with updated descriptions of how those projects will assist the MPO meet the established four-year targets for each of the performance measures. The report should also include updates to the project lists from the baseline report that identifies CMAQ-funded projects that were expected to contribute to the two-year targets, including additions, deletions, changes in scope, and emissions reductions estimates in kilograms/day (kg/d) for each of the applicable pollutants.

This performance report covers the following nonattainment and maintenance areas within the Philadelphia and New York-Newark UZAs within the DVRPC planning area:

- the DVRPC portion of the Philadelphia–Wilmington–Atlantic City Ozone Nonattainment Area;
- the DVRPC portion of the Philadelphia–Wilmington, Pennsylvania–New Jersey–Delaware (PA–NJ–DE) Annual $PM_{2.5}$ Maintenance Area;
- the DVRPC portion of the Philadelphia–Wilmington, PA–NJ–DE 24-Hour $PM_{2.5}$ Maintenance Area;
- the DVRPC portion of the New York–Northern New Jersey–Long Island, New York−New Jersey−Connecticut (NY–NJ–CT) Annual $PM_{2.5}$ Maintenance Area;
- the DVRPC portion of the New York–Northern New Jersey–Long Island, (NY–NJ–CT) 24-Hour $PM_{2.5}$ Maintenance Area; and
- the Delaware County, PA Annual $PM_{2.5}$ Maintenance Area.

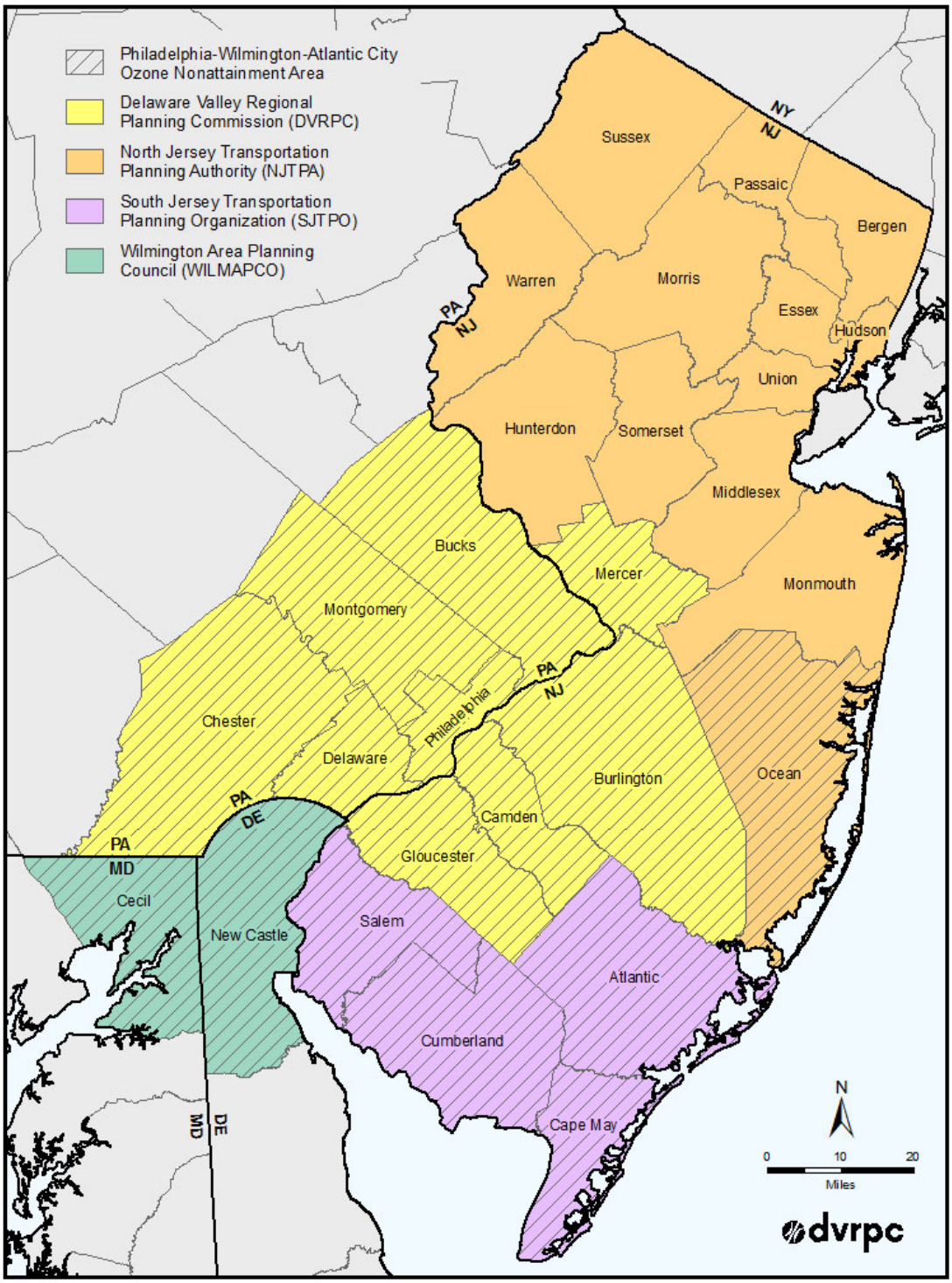
Figure 1 demonstrates the Philadelphia and New York-Newark UZA boundaries within the DVRPC planning area. Figures 2, and 3 show the relevant nonattainment and maintenance areas in the region.

Figure 1: Urbanized Areas Boundaries Within the DVRPC Planning Area



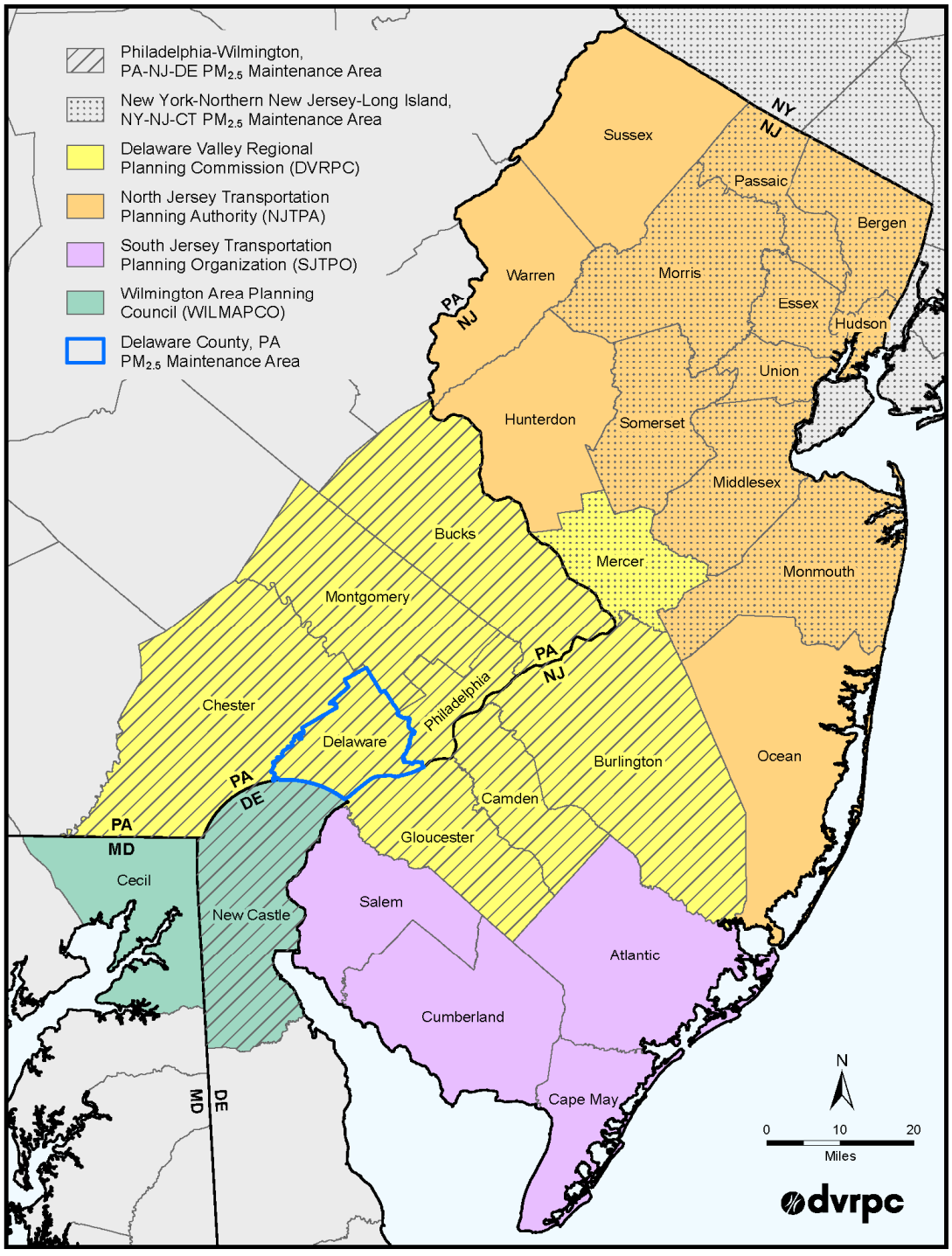
Source: US Census 2010

Figure 2: Philadelphia-Wilmington-Atlantic City 8-Hour Ozone Nonattainment Area



Source: DVRPC 2018

Figure 3: $PM_{2.5}$ Maintenance Areas in the DVRPC Region



Source: DVRPC 2020

CHAPTER 2:

Two-Year Performance and Targets

Congestion Measures – Philadelphia UZA

MPOs and DOTs that share a UZA are charged with developing common congestion measures for the UZA. In the case of the Philadelphia PA-NJ-DE-MD UZA, this means that DVRPC, Lancaster County Transportation Coordinating Committee, North Jersey Transportation Planning Authority (NJTPA), South Jersey Transportation Planning Organization (SJTPO), Wilmington Area Planning Council, Pennsylvania Department of Transportation (PennDOT), New Jersey Department of Transportation (NJDOT), Delaware Department of Transportation, and Maryland Department of Transportation must adopt a common congestion measure baseline, performance measurements, and targets for the Philadelphia UZA.

The consensus on common congestion performance measure baselines and targets, in the Philadelphia UZA, was accomplished through a series of four coordination meetings where the target-setting procedures, methodologies, and data sources were determined. The consensus two- and four-year congestion measure targets for the Philadelphia UZA were agreed upon by all partnering agencies and submitted to FHWA by the respective state DOTs in May 2018.

For the interim performance plan, two meetings were held between the MPOs and state DOTs that contain portions of the Philadelphia UZA in order to review the UZA's performance for the interim performance review for the CMAQ congestion measures and to discuss whether the four-year targets should be adjusted based on the UZAs performance. On June 11, 2020, the relevant MPOs and State DOTs agreed that the four-year congestion targets would not be revised. These values will be reported to state DOTs by October 1, 2020.

Peak-Hour Excessive Delay

The annual hours of PHED per capita baseline measure for the initial performance report was calculated using the RITIS Probe Data Analytics (PDA) Suite on May 7, 2018, which was the "pencils down" date for the final calculation of measures and establishing targets. The PHED baseline year (2017) value was 16.8 annual hours per capita and the partners agreed on a four-year (2021) target of 17.2 annual hours per capita.

The annual hours of PHED per capita for the interim performance plan was calculated using the RITIS PDA Suite on June 11, 2020, which was the "pencils down" date for the final measure calculations to be used to potentially adjust the four-year target. The PHED two-year interim measurement value was 14.6. A linear trend line was created for the measured years (2016, 2017, 2018, and 2019) that resulted in a four-year target of 14.5 for 2021, which was lower than the previously adopted four-year target set in 2018 of 17.2 (a difference of 2.7), and exceeded target expectations. Although the difference of 2.7 is fairly significant and may have justified potentially adjusting the four-year target lower, there was consensus among the partners to not adjust the target due to some uncertainty with the RITIS PDA-Suite measured data, calculations, and NPMRDS road coverage, and uncertainty in travel patterns in the foreseeable future due to the COVID-19 pandemic.

Table 1 presents the Performance Measure baseline, two-year performance, and Target Values for the Annual Hours of PHED Per Capita Measure for the Philadelphia UZA.

Table 1: Baseline, Two-Year Target and Performance, and Four-Year Target for PHED Measures (Annual Hours per Capita) for the Philadelphia PA-NJ-DE-MD Urbanized Area

Measure	Baseline (Annual Hours per Capita)	Optional Two-Year Target (Annual Hours per Capita)	Two-Year PHED Performance (Annual Hours per Capita)	Four-Year Target (Annual Hours per Capita)
PHED	16.8	17.0	14.6	17.2

Source: DVRPC 2020

Notes:

- The UZA and associated 5-year estimated population were from the U.S. Census.
- Reporting segments and travel times (in 15-minute intervals) were derived from the National Performance Management Research Data Set (NPMRDS)
- Hourly traffic volumes and annual vehicle classifications for buses, trucks, and cars were derived from AADT reported to the HPMS.
- Annual Vehicle Occupancy (AVO) for cars, buses, and trucks was provided by FHWA.
- A two-year target was not required for PHED.
- Travel models in the Philadelphia UZA indicate potential increases in VMT and delay.
- The combination of partner input, travel model forecasts, VMT, vehicle registration trends, and economic forecasts was considered in establishing a 0.6 percent annual increase in delay per capita in the Philadelphia UZA.

Percent Non-Single Occupant Vehicle Travel

The Percent Non-SOV Travel measure was calculated for the 2018 baseline report using the U.S. Census American Community Survey (ACS) five-year estimates for the urbanized area. The 2017 base line value (five-year ACS 2012-2016) was 27.9 percent and the partners agreed on two-year and four-year targets of 28.0 percent and 28.1 percent, respectively.

The Percent Non-SOV Travel measure was calculated for the interim performance period using the most recent U.S. Census ACS five-year estimates (2014-2018) with a result of 28.2 percent. The four-year linear trend value was based on the most recent non-overlapping five-year ACS estimates (2009-2013 and 2014-2018), that resulted in 28.5 percent, which was higher than the previously adopted four-year target set in 2018 of 28.1 percent (a difference of 0.4 percent), and exceeded target expectations. Since the four-year target and trend value were fairly close (0.4 percent), and because of the uncertainty in travel patterns in the foreseeable future due to the COVID-19 pandemic, there was consensus among the partners to not adjust the target.

Table 2: Baseline, Two-Year Target and Performance, and Four-Year Target for Percent Non-SOV Travel Measures for the Philadelphia PA-NJ-DE-MD Urbanized Area

Measure	Baseline	Two-Year Target	Two-Year Performance	Four-Year Target
Percent Non-Single Occupant Vehicle Travel	27.9%	28.0%	28.2%	28.1%

Source: DVRPC 2020

Notes:

- Travel trends show slight increases in Percent Non-SOV travel from five-year ACS (2009–2013) to five-year ACS (2014–2018). A linear trend was used to help decide whether to adjust the four-year target.
- The 2017 baseline refers to five-year ACS (2012–2016) values.
- There is a two-year lag in the availability of ACS data.

Congestion Measures – New York-Newark UZA

Since there is a portion of the New York-Newark NY-NJ-CT UZA in Mercer County, New Jersey, within the DVRPC region, DVRPC has coordinated with the NJTPA, the New York Metropolitan Transportation Council, NJDOT, the New York Department of Transportation, and others to adopt a common congestion measure baseline and target for that UZA.

DVRPC participated in a series of coordination meetings to determine the congestion measure performance targets and measures for the baseline report in the New York-Newark UZA and adopted those targets in May 2018.

A series of similar meetings were conducted for the interim performance plan for the New York-Newark UZA in 2020 to report on progress towards the established targets. The committee agreed upon the following measurements and agreed to not adjust the four-year congestion measurement targets for the UZA.

The PHED and Percent Non-SOV Travel targets and measurements for the New York-Newark UZA are presented in Tables 3 and 4.

Peak-Hour Excessive Delay

The PHED baseline year (2017) value was 20.0 annual hours per capita and the partners agreed on a four-year (2021) target of 22.0 annual hours per capita. The PHED two-year interim performance measurement value was 22.2 hours of delay per capita. A two-year target was not required for this measure.

Table 3: Baseline, Two-Year Target and Performance, and Four-Year Target for PHED Measures (Annual Hours per Capita) for the New York-Newark NY-NJ-CT Urbanized Area

Measure	Baseline (Annual Hours per Capita)	Optional Two-Year Target Annual Hours per Capita)	Two-Year Performance Annual Hours per Capita)	Four-Year Target Annual Hours per Capita)
PHED	20.0	N/A	22.2	22.0

Source: NJDOT 2020

Notes:

- The UZA and associated 5-year estimated population were from the U.S. Census.
- Reporting segments and travel times (in 15-minute intervals) were derived from the National Performance Management Research Data Set (NPMRDS)
- Hourly traffic volumes and annual vehicle classifications for buses, trucks, and cars were derived from AADT reported to the HPMS.
- Annual Vehicle Occupancy (AVO) for cars, buses, and trucks was provided by FHWA.
- A two-year target was not required for PHED.

Percent Non-Single Occupant Vehicle Travel

The 2017 percent Non-SOV Travel base line value (five-year ACS 2012–2016) was 51.6 percent and the partners agreed on two-year (2019) and four-year (2021) targets of 51.6 percent and 51.7 percent, respectively. The two-year Percent Non-SOV travel value was 51.7 percent which exceeds the two-year target and meets the four-year target. Due to a reporting lag in the U.S. Census data, Percent Non-SOV data is not yet available for calendar year 2019 and the two-year target for this measurement was established for calendar year 2018.

Table 4: Baseline, Two-Year Target and Performance, and Four-Year Target for Percent Non-SOV Travel Measures for the New York-Newark NY-NJ-CT Urbanized Area

Measure	Baseline	Two-Year Target	Two-Year Performance	Four-Year Target
Percent Non-Single Occupant Vehicle Travel	51.6%	51.6%	51.7%	51.7%

Source: NJDOT 2020

On-Road Mobile Emissions Measures

Baseline

Each year DVRPC receives a local CMAQ allocation from both PennDOT and NJDOT to apply to projects that improve congestion and reduce on-road mobile source emissions in the region's ozone and $PM_{2.5}$ nonattainment area and maintenance areas.

Every year, each state DOT submits an annual report to FHWA that includes the emissions reductions from CMAQ-funded projects in the state. That data from these reports is entered into the FHWA PAS[2], where the public can view the emissions reductions attributable to CMAQ-funded projects. This system also serves as the official storehouse of project emissions reduction data from CMAQ funded projects.

23 CFR 490 requires that DVRPC provide a baseline report of the emissions benefits from CMAQ-funded projects during the performance period 2014–2017. DVRPC is required to report values that were entered into the FHWA PAS when calculating the baseline and performance for the emissions reduction targets.

In each state, the baseline values reported in this section were extracted from the FHWA PAS. In the development of the emissions targets, adjustments have been made to those baselines to count only the "new" projects funded during those years because it was the intent of the FHWA PAS to differentiate between continuing or on-going CMAQ projects and projects that are newly funded. Only newly funded projects' emissions benefits will be counted towards the performance targets moving forward. Both the raw baseline data that includes all of the emissions reductions reported in the FHWA PAS for the period 2014–2017, and an adjusted baseline that only includes emissions reductions from newly funded CMAQ projects are presented in this section.

Pennsylvania

Table 5 identifies the emissions reductions from CMAQ-funded projects in the Pennsylvania portion of the DVRPC region. Both baseline scenarios (all of the projects added into the PAS and the adjusted baseline with just the newly funded projects) are presented but the adjusted baseline was the value that was utilized to develop the emissions reductions targets.

Table 5: Baseline Emissions Reductions Values from CMAQ-Funded Projects in the Pennsylvania Portion of the DVRPC Region (2014–2017)

Pollutant	Emissions Reduction (Kg/day)	
	Unedited Values from FHWA CMAQ PAS (includes continuing projects)	Adjusted Values from FHWA CMAQ PAS (includes new funded projects only)
VOC Emissions	1,281.86	112.08
NO_x Emissions	1,498.94	72.93
$PM_{2.5}$ Emissions	31.69	2.7
CO Emissions	8,895.29	565.47

Source: PennDOT 2018

[2] (https://fhwaapps.fhwa.dot.gov/cmaq_pub/)

New Jersey

Table 6 identifies the emissions reductions from CMAQ-funded projects in the New Jersey portion of the DVRPC region. Both baseline scenarios (all of the projects added into the PAS and the adjusted baseline with just the newly funded projects) are presented but the adjusted baseline was the value that was utilized to develop the emissions reductions targets.

Table 6: Baseline Emissions Reductions Values from CMAQ-Funded Projects in the New Jersey Portion of the DVRPC Region (2014–2017)

Pollutant	Emissions Reduction (Kg/day)	
	Unedited Values from FHWA CMAQ Database (includes continuing projects)	Adjusted Values from FHWA CMAQ Database (includes new funded projects only)
VOC Emissions	29.3	3.09
NO_x Emissions	319.85	15.084
$PM_{2.5}$ Emissions	14.531	5.26
CO Emissions	N/A	N/A

Source: NJDOT 2018

Targets and Performance

DVRPC has coordinated emissions reduction target-setting with both PennDOT and NJDOT to establish emissions reduction targets from CMAQ-funded projects in the relevant portions of the DVRPC planning area. Each state has developed state-level emissions reductions targets that account for emissions reductions at the MPO level.

DVRPC has adopted the MPO regional targets that were used to develop the statewide targets that were submitted to FHWA in May 2018. The DVRPC-supported emissions reductions targets are presented in the following sections.

MPOs that serve UZAs with a population of over one million people are also required to submit an interim performance plan that provides the progress towards meeting the two- and four-year on-road emissions reductions from CMAQ-funded projects for the applicable pollutants. In the DVRPC region the applicable pollutants are Ozone and $PM_{2.5}$. In September 2019, FHWA published a revised applicability table that indicated the DVRPC region is no longer required to report data on the CO reductions from CMAQ-funded projects because all of the CO Maintenance areas in the region are beyond their 20-year Maintenance Plans.

Pennsylvania

DVRPC coordinated efforts to develop the On-Road Mobile Source Emissions targets in collaboration with PennDOT. The coordination procedures are detailed in PennDOT's submission letter titled *State DOT Targets for the PM3 Performance Measures* submitted to FHWA in May 2018 and is attached as Appendix A to this report. DVRPC supported the PennDOT on-road mobile emissions reductions targets for CMAQ-funded projects.

The two-year progress towards meeting these targets in the Pennsylvania portion of the DVRPC planning area were extracted directly from the FHWA CMAQ PAS as required by 23 CFR 490. The two-year performance and two- and four-year targets are presented in Table 7.

Table 7: On-Road Emissions Reductions Targets for the DVRPC Planning Area in Pennsylvania

Pollutant	Emissions Reduction (Kg/day)		
	FY2018 – FY2019 Two-year Target	FY2018 – FY2019 Two-year Performance	FY2018 – FY2021 Four-year Target
VOC Emissions	37.61	**142.8**	69.31
NO_x Emissions	23.42	**652.4**	42.50
$PM_{2.5}$ Emissions	1.08	**24.21**	2.06

Source: PennDOT 2020

In order to establish the performance targets, the four-year (2014–2017) historical benefits for new (non-recurring) CMAQ projects in the DVRPC region were averaged. The historical average of the CMAQ project emissions benefits were then adjusted to reflect the anticipated emissions rates of cleaner vehicles that are expected to be operational during the next performance period. This adjustment resulted in conservative emissions reductions targets for the MPO region and the state.

The two-year emissions reductions were considerably higher than the two- and four-year targets. This was partially due to the addition of emissions reductions from the transit flex program that were included in the FHWA CMAQ PAS for the first time in 2018.

DVRPC's transportation demand management (TDM) programs underwent significant revisions during this performance period and the calculations from the new and revised TDM programs were included in the PAS reporting, which accounts for another significant portion of the actual performance outperforming the two- and four-year targets. At the time of DVRPC's baseline report, the TDM programs were considered continuing projects and the emissions benefits were not anticipated to be included in the PAS. Projects that were not anticipated in the accounting for the two-year targets are noted in Table 9, CMAQ-funded projects in the Pennsylvania DVRPC region from the PAS.

New Jersey

DVRPC coordinated efforts to develop the On-Road Mobile Source Emissions targets with NJDOT and the other MPOs in New Jersey. The coordination procedures are detailed in NJDOT's submission of the New Jersey State DOT Targets for the PM3 Performance Measures submitted to FHWA in May 2018 and is attached as Appendix B of this report. DVRPC has adopted the MPO regional targets that were used to develop the NJDOT on-road mobile emissions reductions targets for CMAQ-funded projects in the DVRPC planning area in New Jersey. The emissions reductions targets and performance are presented in Table 8.

Table 8: On-Road Emissions Reductions Targets for the DVRPC Planning Area in New Jersey

Pollutant	Emissions Reduction (Kg/day)		
	FY2018 – FY2019 Two-year Target	FY2018 – FY2019 Two-year Performance	FY2018 – FY2021 Four-year Target
VOC Emissions	1.45	**70.13**	2.864
NO_x Emissions	7.453	**668.79**	14.861
$PM_{2.5}$ Emissions	2.627	**108.52**	5.253

Source: NJDOT 2020

In order to establish the performance targets, the four-year (2014–2017) historical benefits for new (non-recurring) CMAQ projects in the DVRPC region were averaged. Adjustments were made to the baseline emissions reductions to discount reported emission reductions that were reported for recurring CMAQ-funded projects. The targets were developed using an adjusted baseline that accounts only for new CMAQ-funded projects during the performance period 2014–2017.

The historical average of the CMAQ project emissions benefits were also adjusted to reflect the anticipated emissions rates of cleaner vehicles that are expected to be operational during the next performance period. These adjustments have resulted in conservative emissions reductions targets for the MPO region and NJDOT. The targets were also adjusted to account for CMAQ-funded statewide projects. Emissions targets and benefits from statewide projects are allotted to the MPOs by the MPO's share of statewide VMT. This adjustment allots the DVRPC region 20.5 percent of the emissions benefits from statewide CMAQ-funded projects.

DVRPC has outperformed the CMAQ two- and four-year emissions reduction targets for the applicable pollutants in the New Jersey portion of the DVRPC planning area. At the time of the baseline report, the Ozone Action education and outreach program was considered an on-going project and its benefits were not included in the projected targets. This project's benefits were subsequently included in the PAS for 2018 and was considered an ongoing project in 2019. The Regional Signal Retiming Project was new to the program in 2018 and the project's benefits were not quantified in the baseline determination. Significant benefits were also allotted to the DVRPC from the statewide Traffic Signal Optimization project. These benefits were also not anticipated in the baseline report.

These results were reviewed and agreed upon in coordination with NJDOT and the New Jersey MPOs in May 2020.

Adjusting the Four-Year Targets

The interim performance plan offers an opportunity for the MPOs and state DOTs to review and revise the four-year targets for each of the CMAQ Performance Measures. The MPOs and state DOTs serving the Philadelphia and New York-Newark UZAs have agreed to not adjust the congestion targets for the respective UZAs.

PennDOT, DVRPC, and the Southwestern Pennsylvania Commission (SPC) held a meeting in August 2020 to discuss the interim performance plan and the need to adjust the four-year emissions targets for the MPO areas and the state. SPC is the only other MPO in the state required to report progress on CMAQ emissions targets for this reporting period. The group agreed that DVRPC is no longer required to report CO targets and performance, and DVRPC will not include CO in this or subsequent performance reports. It was agreed that DVRPC will not adjust the MPO level targets for the remaining applicable pollutants. PennDOT and SPC agreed that there will be adjustments to the statewide level four-year targets and DVRPC will support these changes to the statewide four-year targets. The revised targets are detailed in PennDOT's September 2020 CMAQ Target Revision memo attached as Appendix C to this report.

NJDOT and the MPOs serving New Jersey met in May 2020 to discuss adjusting the MPO and Statewide four-year emissions targets. Due to uncertainties associated with forecasting the implementation of CMAQ-funded projects in the upcoming two years due to the economic downturn and COVID-19 Pandemic, DVRPC, in coordination with NJDOT, has agreed to not adjust the four-year emissions reduction targets in the New Jersey portion of the DVRPC region. NJ DOT has also decided to not adjust the statewide CMAQ emissions targets. NJDOT's memo agreeing to adopt the original four-year performance targets is attached as Appendix D to this report.

CHAPTER 3:

Achieving the Targets

According to FHWA Guidance for preparing the MPO CMAQ performance report, MPOs must present a description of projects identified for funding during the performance period (Federal Fiscal Years 2018-2019, and 2018-2021). Included with the project descriptions should be a further description of how the projects will help the MPO meet the two- and four-year targets for traffic congestion and on-road mobile source emissions.

The requirements for preparation of the interim performance plan further require that a description should be given to explain projects that contributed to the two-year targets, and explain additions, deletions, and revisions to projects included in the MPOs Baseline Performance Plan.

DVRPC has decided to meet this requirement through a series of three tables for the region in both Pennsylvania and New Jersey. The tables include CMAQ-funded projects from the relevant Transportation Improvement Programs (TIPs) for each state organized by the state project identification number (known as MPMS number in Pennsylvania and DB Number in New Jersey).

Tables 9 (Pennsylvania) and 12 (New Jersey) identify all the projects that were reported in the FHWA CMAQ PAS in Fiscal Years 2018 and 2019 along with the emissions reductions associated with that project and notes detailing whether that project was planned or new for the two-year performance period.

Tables 10 (Pennsylvania) and 13 (New Jersey) detail the status of the projects that were listed in the DVRPC CMAQ Baseline Report for years 2018 and 2019, along with a status update on the project and an indication whether that project contributed to the two-year emissions performance calculations and a narrative description of how the project would contribute towards attaining the congestion measure goals.

Tables 11 (Pennsylvania) and 14 (New Jersey) are lists of projects that are planned for the second performance period (2020 and 2021) including the expected funding year and a narrative description of how the project would contribute towards attaining the congestion measure goals. The tables of planned projects identify on-going projects and new projects. According to FHWA guidance, only the emissions benefits from new projects will count toward the established targets.

The DVRPC region has met the two-year Percent Non-SOV Travel and optional PHED UZA targets, and the two- and four-year CMAQ emissions reductions targets that were established in the 2018 CMAQ Performance Measure Baseline Report. DVRPC will continue to collaborate with PennDOT and NJDOT to program CMAQ-funded projects that improve congestion and reduce on-road mobile emissions in a cost-effective manner.

Table 9: CMAQ-Funded Projects in the Pennsylvania Portion of the DVRPC Region (2018–2019) Contributing to the Emissions Reduction Target

MPMS Num.	Project Title	Project Description	Project Type	FHWA Public Access System Report Year	Emissions Benefit (Kg/d)			Notes
					NO_x	VOC	$PM_{2.5}$	
17928	Air Quality Partnership	This project funds education and outreach activities and materials to encourage the reduction of emissions from transportation sources that contribute to ozone and $PM_{2.5}$ pollution. This project will promote dissemination of air quality forecasts and educate about steps the public can take to reduce transportation related emissions and improve air quality.	Education / Outreach	2018	12.52	15.99	0.43	Noted as a continuing project in the 2018 Baseline Performance Plan.
17791	West Bank Pedestrian and Bikeway Improvement	Westbank Ped/Bikeway Improvement will rebuild the existing sidewalk as a pedestrian path/bikeway; widen Spring Garden St. bridge sidewalk; construct ramp for pedestrians and bicyclists to connect the Spring Garden St. bridge to West River Drive in the City of Philadelphia.	Bike / Pedestrian Improve-ment	2018	0.18	0.45	0.01	New project to the 2018 PAS report and not accounted for on the 2018 Baseline Performance Plan.
61885	Schuylkill River Trail (Mont Clare Bridge) (Q42)	Construction of a multi-use path within the right-of-way of the SR 29 bridge between the Schuylkill Canal Tow Path in Mont Clare - Upper Providence Township, Montgomery County and Ashland Street in Phoenixville Borough, Chester County. The project will modify the Mont Clare Bridge to turn the current five-foot-wide sidewalk on the bridge into a ten-foot-wide multi-use path to be consistent with the rest of the trail.	Bike / Pedestrian Improve-ment	2019	0.19	0.15	0.01	Included in the 2018 Baseline Performance Plan.
65109	SEPTA Bus Purchase Program	Assist SEPTA to purchase new buses.	Transit	2018	50.28	1.58	0.1	Transit flex included in PAS for the first time in 2018 and not accounted for on the 2018 Baseline Performance Plan.

MPMS Num.	Project Title	Project Description	Project Type	FHWA Public Access System Report Year	Emissions Benefit (Kg/d)			Notes
					NO_x	VOC	$PM_{2.5}$	
65109	SEPTA Bus Purchase Program	Assist SEPTA to purchase new buses.	Transit	2019	50.28	1.99	0.1	Transit flex included in PAS for first time in 2018 and not accounted for on the 2018 Baseline Performance Plan. Recurring projects with new benefits each year.
90482	East Coast Greenway: Allegheny to Lewis	This project is a continuation of the East Coast Greenway This TIGER-funded connecting segments of the trail will begin at Allegheny and continue towards Lewis Street near the Betsy Ross Bridge. This trail network is intended for transportation purposes and will ultimately connect to Center City and South Philadelphia via the Schuylkill River Trail as well as suburban communities to the North via the East Coast Greenway. It will allow users to access work, school, shops, medical facilities, and other services throughout Philadelphia and in outlying suburban communities to provide an extensive trail network through the region.	Bike / Pedestrian Improve-ment	2018	0.04	0.09	0.01	New project to the PAS and not accounted for on the 2018 Baseline Performance Plan.
96218	Fayette St. Signal Interconnect	Fayette Street Signal Interconnection Traffic Signal Improvements - an interconnected traffic signal system along Fayette Street from Elm Street to 11th Avenue.	Signal / ITS	2018	1.93	.19	0.1	New project to the PAS and not accounted for on the 2018 Baseline Performance Plan.
102274	Schuylkill River Swing Bridge (TIGER)	This project will provide a bicycle and pedestrian connection between the Kingsessing and Grays Ferry neighborhoods of Philadelphia across the Schuylkill River, allowing users to access destinations and services throughout South and Southwest Philadelphia and Center City.	Bike / Pedestrian Improve-ment	2018	0.5	0.3	0.02	Included in the 2018 Baseline Performance Plan.

MPMS Num.	Project Title	Project Description	Project Type	FHWA Public Access System Report Year	Emissions Benefit (Kg/d)			Notes
					NO_x	VOC	$PM_{2.5}$	
106265	US 30 ITS	Advanced Intelligent Transportation Systems (ITS) assets will be provided for the US 30 corridor including US 30 Bypass and Business as well as surrounding arterial roads (PA 113, US 322, PA 340, Reeceville Rd., PA 82, Airport Rd., PA 10). Advanced ITS will include CCTV cameras, dynamic message signs, EZ Pass tag readers, RTMS incident detectors, fiber communications systems, and expressway service patrol.	Signal / ITS	2018	82.9	5.8	4.6	Included in the 2018 Baseline Performance Plan.
107630	Paoli Pike Trail Segment D-E	Construction of 8-10' wide, 0.5-mile multi-use trail along Paoli Pike in E. Goshen Township between Boot Road and N. Chester Road. Trail will connect Goshen Shopping Center, Goshen Corporate Park, municipal complex, and park and recreation facilities. Sections D and E of Paoli Pike Trail.	Bike / Pedestrian Improve-ment	2019	0.08	0.07	0.01	Included in the 2018 Baseline Performance Plan.
107639	Installation of Adaptive Signal Control Along Route 3	Installation of adaptive signal system along West Chester Pike for 1.5 miles in Haverford Township between Glen Gary Dr. and Commercial Dr. beyond Gilmore Rd. Project will provide tie-in to adaptive systems in Haverford Township	Signal / ITS	2019	2.16	1.8	0.09	Included in the 2018 Baseline Performance Plan.
107640	Route 463 Traffic Signal System Project	Automated signal system at 11 intersections on PA Route 463 in Hatfield Township from Clemens Road to Cowpath Road and Broad Street to Line Street. The system will connect with PennDOT TMS at PA 63.	Signal / ITS	2019	2.5	1.04	.12	Included in the 2018 Baseline Performance Plan.
107644	Fayette Street Signal Improvements-Phase 2	Installation of adaptive traffic signal system along 7 intersections in Conshohocken Borough from Fayette and 11th to Elm and Oak St. This is Phase II of a previously awarded CMAQ project. The system will connect with PennDOT TMS.	Signal / ITS	2018	1.93	0.19	0.1	Included in the 2018 Baseline Performance Plan.

MPMS Num.	Project Title	Project Description	Project Type	FHWA Public Access System Report Year	Emissions Benefit (Kg/d)			Notes
					NO_x	VOC	$PM_{2.5}$	
107646	West Main Street Traffic Signal Improvements	Upgrade 5 signalized intersections along Main St., Norristown Borough, to allow for actuated signal timing from Forrest to Haws Ave.	Signal / ITS	2019	1.2	1.0	0.05	Included in the 2018 Baseline Performance Plan.
111424	Transportation Management Associations (TMA)	Transportation Management Associations (TMA's) help address demand for the region's transportation system. They are public-private partnerships that provide a forum to resolve transportation issues in their service areas. Services include a range of transportation improvement options, including task forces, employer and construction project shuttles, advocacy, and congestion reduction assistance to employers along corridors and in municipalities.	Education / Outreach	2018	161.4	40.1	6.6	Noted as a continuing project in the 2018 Baseline Performance Plan.
110429	Mobility Alternatives Program (MAP)/Share A Ride Program	Geared to employers, MAP is an outreach and education program overseen by DVRPC to provide information to employers and commuters about options to the single occupant auto for commuting to work.	Education / Outreach	2018	194.5	48.3	7.9	Noted as a continuing project in the 2018 Baseline Performance Plan.
110460	Commuter Services	This project is a work program project that allows for staff to coordinate alternative commute education and outreach programs among MAP and TMA contractors.	Education / Outreach	2018	80.4	20.2	3.3	Noted as a continuing project in the 2018 Baseline Performance Plan.
111005	Conshohocken Garage (I-76 ICM)	This project will provide flex funds to be transferred to SEPTA for a new "smart" parking garage at SEPTA's Conshohocken Station which will increase parking availability by approximately 500 spaces.	Transit	2019	0.01	0.01	0.01	Included in the 2018 Baseline Performance Plan.
112977	TMA Competitive Grant Program	TMA Competitive Grant Program Supplemental Work Activities for the Partnership, Delaware County and Greater Valley Forge TMAs.	Travel Demand Manage-ment	2018	9.4	3.23	0.43	New project to the PAS and not accounted for on the 2018 Baseline Performance Plan.

Source DVRPC 2020

Table 10: Interim Performance Period Status CMAQ-Funded Projects in the Pennsylvania Portion of the DVRPC Region (2018–2019)

MPMS Num.	Project Title	Project Description	Project Type	Relevant Pollutant	TIP Program Year	Emissions Benefit	Traffic Congestion Benefit (PHED)	Traffic Congestion Benefit (% Non-SOV Travel)	Project Status
64791	PA 420, Kedron Avenue	Modernization of signals, road widening, and channelization.	Intersection Improve-ment	Ozone, $PM_{2.5.}$	FY 2018	This project reduces congestion and improves air quality by optimizing operations through improving intersection geometry and channelization.	This project will reduce congestion by improving traffic operations.	N/A	Funding moved to FY 2021.
102274	Schuylkill River Swing Bridge (TIGER)	This project will provide a bicycle and pedestrian connection between the Kingsessing and Grays Ferry neighborhoods of Philadelphia across the Schuylkill River, allowing users to access destinations and services throughout South and Southwest Philadelphia and Center City.	Bike / Pedestrian Improve-ment	Ozone, $PM_{2.5.}$	FY 2018	Multi-use trail connection will help reduce emissions by providing a walking and bike link to employment and shopping centers.	This connection reduces congestion by providing alternatives to SOV travel.	This connection reduces SOV travel by providing an alternative transportation option to driving.	Included in 2018 PAS report.
107644	Fayette Street Signal Improvements-Phase 2	Installation of adaptive traffic signal system along 7 intersections in Conshohocken Borough from Fayette and 11th to Elm and Oak St. This is Phase II of a previously awarded CMAQ project. The system will connect with PennDOT TMS.	Signal / ITS	Ozone, $PM_{2.5.}$	FY 2018	This project reduces congestion and improves air quality by optimizing progression on signalized routes.	This project will reduce congestion by improving traffic operations.	N/A	Included in 2019 PAS report.

MPMS Num.	Project Title	Project Description	Project Type	Relevant Pollutant	TIP Program Year	Emissions Benefit	Traffic Congestion Benefit (PHED)	Traffic Congestion Benefit (% Non-SOV Travel)	Project Status
61885	Schuylkill River Trail (Mont Clare Bridge) (Q42)	Construction of a multi-use path within the right-of-way of the SR 29 bridge between the Schuylkill Canal Tow Path in Mont Clare - Upper Providence Township, Montgomery County and Ashland Street in Phoenixville Borough, Chester County. The project will modify the Mont Clare Bridge to turn the current five-foot-wide sidewalk on the bridge into a ten-foot-wide multi-use path to be consistent with the rest of the trail.	Bike / Pedestrian Improve-ment	Ozone, $PM_{2.5.}$	FY 2019	Multi-use trail will help reduce emissions by providing a walking and bike link to employment and shopping centers.	Trail reduces congestion by providing alternatives to SOV travel.	Trail reduces SOV travel by providing an alternative transportation option to driving.	Included in 2019 PAS report.
71198	Park Road Trail (TE)	This project is for the continuation of a multi-use trail from the turnpike bridge to Marsh Creek State Park (approx. ½ mile). There currently is no sidewalk or trail and pedestrians and bicyclists must use the roadway. The existing roadway consists of two 11' lanes with no shoulders. The proposed trail will be 6' wide and be within existing ROW.	Bike / Pedestrian Improve-ment	Ozone, $PM_{2.5.}$	FY 2019	Multi-use trail will help reduce emissions by providing a walking and bike link to employment and shopping centers.	Trail reduces congestion by providing alternatives to SOV travel.	Trail reduces SOV travel by providing an alternative transportation option to driving.	Authoriz-ation expected in 2020.

MPMS Num.	Project Title	Project Description	Project Type	Relevant Pollutant	TIP Program Year	Emissions Benefit	Traffic Congestion Benefit (PHED)	Traffic Congestion Benefit (% Non-SOV Travel)	Project Status
106265	US 30 ITS	Advanced Intelligent Transportation Systems (ITS) assets will be provided for the US 30 corridor including US 30 Bypass and Business as well as surrounding arterial roads (PA 113, US 322, PA 340, Reeceville Rd., PA 82, Airport Rd., PA 10). Advanced ITS will include CCTV cameras, dynamic message signs, EZ Pass tag readers, RTMS incident detectors, fiber communications systems, and expressway service patrol.	Signal / ITS	Ozone, $PM_{2.5.}$	FY 2019	This project reduces congestion and improves air quality by optimizing operations through signal timing, incident management, and advanced ITS techniques.	This project will reduce congestion by improving traffic operations.	N/A	Included in 2018 PAS report.
107630	Paoli Pike Trail Segment D-E	Construction of 8-10' wide, 0.5-mile multi-use trail along Paoli Pike in E. Goshen Township between Boot Road and N. Chester Road. Trail will connect Goshen Shopping Center, Goshen Corporate Park, municipal complex, and park and recreation facilities. Sections D and E of Paoli Pike Trail.	Bike / Pedestrian Improve-ment	Ozone, $PM_{2.5.}$	FY 2019	Multi-use trail will help reduce emissions by providing a walking and bike link to employment and shopping centers.	Trail reduces congestion by providing alternatives to SOV travel.	Trail reduces SOV travel by providing an alternative transportation option to driving.	Included in 2019 PAS report.
107631	Navy Yard Contra Flow Loop Shuttle	Increase shuttle service between Navy Yard and NRG Station to 11 min. headways by adding second loop shuttle for service throughout the day.	Transit	Ozone, $PM_{2.5.}$	FY 2019	Improved transit service will reduce emissions by providing alternatives to SOV travel.	Improved transit service will reduce congestion by providing alternatives to SOV travel.	Improved transit service will reduce SOV travel by providing transportation options.	Funding moved to 2021.

MPMS Num.	Project Title	Project Description	Project Type	Relevant Pollutant	TIP Program Year	Emissions Benefit	Traffic Congestion Benefit (PHED)	Traffic Congestion Benefit (% Non-SOV Travel)	Project Status
107637	Ramping up to Rapid Transit on Roosevelt Blvd.	Construction of ten bus stations on Roosevelt Blvd. to support enhanced express bus service between Frankford Transportation Center and Neshaminy Mall. Stations are the first step in introducing enhanced express service on Roosevelt Blvd. There are no bus shelters in 8 of the 10 proposed locations.	Transit	Ozone, $PM_{2.5.}$	FY 2019	Improved transit service will reduce emissions by providing alternatives to SOV travel.	Improved transit service will reduce congestion by providing alternatives to SOV travel.	Improved transit service will reduce SOV travel by providing transportation options.	Authoriz-ation expected after 2021 and removed from perform-ance report.
107639	Installation of Adaptive Signal Control Along Route 3	Installation of adaptive signal system along West Chester Pike for 1.5 miles in Haverford Township between Glen Gary Dr. and Commercial Dr. beyond Gilmore Rd. Project will provide tie-in to adaptive systems in Haverford Township.	Signal / ITS	Ozone, $PM_{2.5.}$	FY 2019	This project reduces congestion and improves air quality by optimizing progression on signalized routes.	This project will reduce congestion by improving traffic operations.	N/A	Included in 2019 PAS report.
107640	Route 463 Traffic Signal System Project	Automated signal system at 11 intersections on PA Route 463 in Hatfield Township from Clemens Road to Cowpath Road and Broad Street to Line Street. The system will connect with PennDOT TMS at PA 63.	Signal / ITS	Ozone, $PM_{2.5.}$	FY 2019	This project reduces congestion and improves air quality by optimizing progression on signalized routes.	This project will reduce congestion by improving traffic operations.	N/A	Included in 2019 PAS report.

MPMS Num.	Project Title	Project Description	Project Type	Relevant Pollutant	TIP Program Year	Emissions Benefit	Traffic Congestion Benefit (PHED)	Traffic Congestion Benefit (% Non-SOV Travel)	Project Status
107642	Smithbridge Road Corridor Improvement	Construction of 8 ft. multi-use trail along Smithbridge Rd. connecting residential neighborhoods and Garnet Valley School District campuses. Project includes intersection improvements at district campuses.	Bike / Pedestrian Improve-ment	Ozone, $PM_{2.5.}$	FY 2019	Multi-use trail will help reduce emissions by providing a walking and bike link to employment and schools.	Trail reduces congestion by providing alternatives to SOV travel.	Trail reduces SOV travel by providing an alternative transportation option to driving.	Funding moved to 2021.
107646	West Main Street Traffic Signal Improvements	Upgrade 5 signalized intersections along Main St., Norristown Borough, to allow for actuated signal timing from Forrest to Haws Ave.	Signal / ITS	Ozone, $PM_{2.5.}$	FY 2019	This project reduces congestion and improves air quality by optimizing progression on signalized routes.	This project will reduce congestion by improving traffic operations.	N/A	Included in 2019 PAS report.
107650	Easton Road Traffic Signal System Project	Upgrade of 9 signalized intersections (coordinated) along Easton Rd. in Abington Township from Hamilton Ave. to Mt. Carmel Ave.	Signal / ITS	Ozone, $PM_{2.5.}$	FY 2019	This project reduces congestion and improves air quality by optimizing progression on signalized routes.	This project will reduce congestion by improving traffic operations.	N/A	Authoriz-ation expected after 2021 and removed from perform-ance report.
107654	Advancing CNG in Philadelphia	Purchase of 25 CNG waste haulers.	Diesel Replace-ment	Ozone, $PM_{2.5.}$	FY 2019	Emissions will be reduced by replacing pre-MY 2007 diesel trash trucks with CNG vehicles.	N/A	N/A	Authoriz-ation expected in 2021.

MPMS Num.	Project Title	Project Description	Project Type	Relevant Pollutant	TIP Program Year	Emissions Benefit	Traffic Congestion Benefit (PHED)	Traffic Congestion Benefit (% Non-SOV Travel)	Project Status
111005	Conshohocken Garage (I-76 ICM)	This project will provide flex funds to be transferred to SEPTA for a new "smart" parking garage at SEPTA's Conshohocken Station which will increase parking availability by approximately 500 spaces.	Transit	Ozone, $PM_{2.5.}$	FY 2019	This project will improve air quality by encouraging transit use by increasing parking and parking management at a popular regional rail station.	This project will reduce congestion by encouraging transit use by increasing parking and parking management at a popular regional rail station.	This project will reduce SOV use by encouraging transit use by increasing parking and parking management at a popular regional rail station.	Included in 2019 PAS report.
59434	Schuylkill River Trail (Q20)	Construction of a 9.8-mile trail from Township Line Rd. in East Pikeland Township to US 422 over the Schuylkill River in North Coventry Township. The trail will be located within existing railroad and PECO Energy corridors, railroad and utility rights-of-way, existing bridges, canal towpaths, and public and private open space. This project will connect several parks and open space preserves and will provide a safe route for bicyclists and pedestrians traveling along the US 422 and Schuylkill River corridor.	Bike / Pedestrian Improve-ment	Ozone, $PM_{2.5.}$	FY 2020	Multi-use trail will help reduce emissions by providing a walking and bike link to employment and shopping centers.	Trail reduces congestion by providing alternatives to SOV travel.	Trail reduces SOV travel by providing an alternative transportation option to driving.	Authoriz-ation expected in 2021.

MPMS Num.	Project Title	Project Description	Project Type	Relevant Pollutant	TIP Program Year	Emissions Benefit	Traffic Congestion Benefit (PHED)	Traffic Congestion Benefit (% Non-SOV Travel)	Project Status
107634	Pedestrian Enhancements for Media Borough	Complete gaps in sidewalk network throughout the borough.	Bike / Pedestrian Improve-ment	Ozone, $PM_{2.5.}$	FY 2020	Improved sidewalk connections will help reduce emissions by providing walking and bike links to employment and shopping centers.	Complete sidewalks reduce congestion by providing an alternative transportation option to driving.	Complete sidewalks reduce SOV travel by providing an alternative transportation option to driving.	Authoriz-ation expected in 2021.
107636	Neshaminy Greenway Trail	10 ft., 1.5-mile multi-use trail in Doylestown Township (Central Park to Neshaminy Manor). Connects into existing Neshaminy Greenway and SEPTA Rt. 55 bus service.	Bike / Pedestrian Improve-ment	Ozone, $PM_{2.5.}$	FY 2020	Multi-use trail will help reduce emissions by providing a walking and bike link to transit and government service buildings.	Trail reduces congestion by providing alternatives to SOV travel.	Trail reduces SOV travel by providing an alternative transportation option to driving.	Authoriz-ation expected after 2021 and removed from perform-ance report.
107649	Connecting Wallingford to Mass Transit	Sidewalk for 850 ft. from N. Providence Rd. along E. Possum Rd. to Wallingford Train Station.	Bike / Pedestrian Improve-ment	Ozone, $PM_{2.5.}$	FY 2020	Sidewalk connection will help reduce emissions by providing a walking and bike link to transit.	The sidewalk reduces congestion by providing alternatives to SOV travel.	The sidewalk reduces SOV travel by providing an alternative transportation option to driving.	Authoriz-ation expected in 2020.
107632	Fox Chase Lorimer Trail	0.5-mile multi-use trail system connecting Fox Chase SEPTA station and 16-mile trail system in Montgomery County and Philadelphia along old rail ROW.	Bike / Pedestrian Improve-ment	Ozone, $PM_{2.5.}$	FY 2021	Multi-use trail will help reduce emissions by providing a walking and bike link to employment and shopping centers.	Trail reduces congestion by providing alternatives to SOV travel.	Trail reduces SOV travel by providing an alternative transportation option to driving.	Authoriz-ation expected after 2021 and removed from perform-ance report.
107648	Reformatting North 5th Street as a Complete Street	Signal upgrades, fiber interconnection, and traffic calming for a 0.4-mile corridor along N. 5th St. from Luzerne to Cayuga St. in Philadelphia.	Traffic Operations	Ozone, $PM_{2.5.}$	FY 2021	This project reduces congestion and improves air quality by optimizing progression on signalized routes.	This project will reduce congestion by improving traffic operations.	N/A	Authoriz-ation expected after 2021 and removed from perform-ance report.

MPMS Num.	Project Title	Project Description	Project Type	Relevant Pollutant	TIP Program Year	Emissions Benefit	Traffic Congestion Benefit (PHED)	Traffic Congestion Benefit (% Non-SOV Travel)	Project Status
110494	RTMC General Contract	Regional Traffic Management Center (RTMC) planning, designing, and building/commissioning of a facility to optimize the performance of the surface transportation network by expanding the current function of the freeway management systems to include active traffic management of dynamic junction control, flex lanes, part time shoulder use, ramp metering, multimodal coordination, and proactive management of traffic signals along major regional arterial corridors.	Signal / ITS	Ozone, $PM_{2.5.}$	FY 2021	This project reduces congestion and improves air quality by optimizing operations through signal timing, incident management, and advanced ITS techniques.	This project will reduce congestion by improving traffic operations.	N/A	Authoriz-ation expected after 2021 and removed from perform-ance report.
17928	Air Quality Partnership	This project funds education and outreach activities and materials to encourage the reduction of emissions from transportation sources that contribute to ozone and $PM_{2.5}$ pollution. This project will promote dissemination of air quality forecasts and educate about steps the public can take to reduce transportation related emissions and improve air quality.	Education / Outreach	Ozone, $PM_{2.5.}$	Continuing	Emissions are reduced by encouraging alternative commuting patterns and increased transit use resulting in a reduction in SOV travel during episodic air pollution events.	Congestion is reduced by encouraging alternative commuting patterns and increased transit use resulting in a reduction in SOV travel during episodic air pollution events.	SOV travel is reduced by encouraging alternative commuting patterns and increased transit use during episodic air pollution events.	Continuing project included in FY21 TIP. Also included in 2018 PAS report.

MPMS Num.	Project Title	Project Description	Project Type	Relevant Pollutant	TIP Program Year	Emissions Benefit	Traffic Congestion Benefit (PHED)	Traffic Congestion Benefit (% Non-SOV Travel)	Project Status
63406	Retrofit for Bike Lanes and Shoulders	The purpose of this project is to maintain existing and future bicycle facilities, including installation, maintenance, and replacement of striping and damaged and missing signs.	Bike / Pedestrian Improve-ment	Ozone, $PM_{2.5.}$	Continuing	Maintaining safe bike linkages will help reduce emissions by promoting bike travel to employment and shopping centers.	Maintaining safe bike linkages will help reduce congestion by promoting bike travel to employment and shopping centers.	Maintaining safe bike linkages will help reduce SOV travel by promoting bike travel to employment and shopping centers.	Continuing project included in FY21 TIP.
72738	Intelligent Transportation Systems (ITS)	DVRPC's Intelligent Transportation Systems (ITS) program encompasses a wide range of activities including the ITS Technical Task Force, incident management programs, ITS architecture development, training programs for ITS operators and emergency response personnel, and technical assistance to agencies.	Signal / ITS	Ozone, $PM_{2.5.}$	Continuing	This project reduces congestion and improves air quality by coordinating regional ITS efforts.	This project reduces congestion and improves air quality by coordinating regional ITS efforts.	N/A	Project revised and tasks are now included in MPMS 114967.
80093	I-76, Regional Travel Information	This project will implement a Variable Speed Limit System and a Queue Detection System along I-76 from I-276 to US 1.	Signal / ITS	Ozone, $PM_{2.5.}$	Continuing	This project reduces congestion and improves air quality through incident management and ITS techniques.	This project reduces congestion and improves air quality through incident management and ITS techniques.	N/A	Project not included in FY21 TIP.

MPMS Num.	Project Title	Project Description	Project Type	Relevant Pollutant	TIP Program Year	Emissions Benefit	Traffic Congestion Benefit (PHED)	Traffic Congestion Benefit (% Non-SOV Travel)	Project Status
84457	Signal Retiming Program	This signal retiming program provides for the evaluation of existing signals along an identified corridor, with the goal of improving traffic operations along said corridor through revised signal timing plans.	Signal / ITS	Ozone, $PM_{2.5.}$	Continuing	This project reduces congestion and improves air quality by optimizing progression on signalized routes.	This project will reduce congestion by improving traffic operations.	N/A	Continuing project included in FY21 TIP.
96223	Philadelphia Signal Retiming	This project is a congestion reduction and traffic flow improvement program.	Signal / ITS	Ozone, $PM_{2.5.}$	Continuing	This project reduces congestion and improves air quality by optimizing progression on signalized routes.	This project will reduce congestion by improving traffic operations.	N/A	Project not included in FY21 TIP and removed from the performance plan.
110429	Mobility Alternatives Program (MAP)/Share A Ride Program	Geared to employers, MAP is an outreach and education program overseen by DVRPC to provide information to employers and commuters about options to the single occupant auto for commuting to work.	Education / Outreach	Ozone, $PM_{2.5.}$	Continuing	This program improves air quality by encouraging employers to utilize alternative commute programs and reduce SOV travel by their employees.	This program reduces congestion by encouraging employers to utilize alternative commute programs and reduce SOV travel by their employees.	This program reduces SOV travel by educating employers about alternative commute programs for their employees.	Continuing project included in FY21 TIP. Included in 2018 PAS report.

MPMS Num.	Project Title	Project Description	Project Type	Relevant Pollutant	TIP Program Year	Emissions Benefit	Traffic Congestion Benefit (PHED)	Traffic Congestion Benefit (% Non-SOV Travel)	Project Status
110460	Commuter Services	This project is a work program project that allows for staff to coordinate alternative commute education and outreach programs among MAP and TMA contractors.	Education / Outreach	Ozone, $PM_{2.5.}$	Continuing	Commuter Services helps to reduce emissions through a variety of activities including promoting alternative commute options and assisting with outreach to promote non-SOV travel.	Commuter Services helps to reduce congestion through a variety of activities including promoting alternative commute options and assisting with outreach to promote non-SOV travel.	Commuter Services helps to reduce SOV travel through a variety of activities including promoting alternative commute options and assisting with outreach to promote non-SOV travel.	Continuing project included in FY21 TIP. Included in 2018 PAS report.
111424	Transportation Management Associations (TMA)	Transportation Management Associations (TMA's) help address demand for the region's transportation system. They are public-private partnerships that provide a forum to resolve transportation issues in their service areas. Services include a range of transportation improvement options, including task forces, employer and construction project shuttles, advocacy, and congestion reduction assistance to employers along corridors and in municipalities.	Education / Outreach	Ozone, $PM_{2.5.}$	Continuing	TMAs help to reduce emissions through a variety of activities including promoting alternative commute options, sponsoring last mile shuttles, and assisting with outreach to promote non-SOV travel.	TMAs help to reduce congestion through a variety of activities including promoting alternative commute options, sponsoring last mile shuttles, and assisting with outreach to promote non-SOV travel.	TMAs help to reduce SOV travel through a variety of activities including promoting alternative commute options, sponsoring last mile shuttles, and assisting with outreach to promote non-SOV travel.	Continuing project included in FY21 TIP. Included in 2018 PAS report.

Source: DVRPC 2020

Table 11: New and Continuing Projects for CMAQ Funding for FY 2020-2021 in Pennsylvania

MPMS Num.	Project Title	Project Description	Project Type	Relevant Pollutant	TIP Program Year	Emissions Benefit	Traffic Congestion Benefit (PHED)	Traffic Congestion Benefit (% Non-SOV Travel)
16705	Chester Valley Trail Extension	This project includes the development of a 3.5-mile extension through Upper Merion, Bridgeport, and Norristown of the current paved Chester Valley Trail connecting from Exton to King of Prussia.	Bike / Pedestrian Improve-ment	Ozone, $PM_{2.5}$.	FY 2021	Multi-use trail connection will help reduce emissions by providing a walking and bike link to employment and shopping centers.	This connection reduces congestion by providing alternatives to SOV travel.	This connection reduces SOV travel by providing an alternative transportation option to driving.
110415	Schuylkill Banks Christian to Crescent Trail	This section of the Schuylkill River Trail (SRT) will close a trail gap that exists between the Trail's current terminus at Christian Street to the beginning of the next Trail segment at 34th Street, known as the Grays Ferry Crescent.	Bike / Pedestrian Improve-ment	Ozone, $PM_{2.5}$.	FY 2021	Multi-use trail connection will help reduce emissions by providing a walking and bike link to employment and shopping centers.	This connection reduces congestion by providing alternatives to SOV travel.	This connection reduces SOV travel by providing an alternative transportation option to driving.

MPMS Num.	Project Title	Project Description	Project Type	Relevant Pollutant	TIP Program Year	Emissions Benefit	Traffic Congestion Benefit (PHED)	Traffic Congestion Benefit (% Non-SOV Travel)
114939	Regional TDM Program	Transportation Demand Management (TDM) focuses on the many options available to residents to travel to and from work, as well as to get around our region, in a coordinated, cost-effective, and environmentally-positive way. It centers on the strategies that more efficiently distribute travel demand across all modes, and especially reduce single-occupant vehicle (SOV) travel. An important element of TDM is providing public education and outreach tocommuters, employers, residents and visitors within our region about available travel options, and providing a mix of incentives to encourage behavior change toward more efficient use of the regional transportation system.	Education / Outreach	Ozone, $PM_{2.5.}$	FY 2021	Emissions are reduced by encouraging alternative commuting patterns and increased transit use resulting in a reduction in SOV travel.	Congestion is reduced by encouraging alternative commuting patterns and increased transit use resulting in a reduction in SOV travel.	SOV travel is reduced by encouraging alternative commuting patterns and increased transit use.

MPMS Num.	Project Title	Project Description	Project Type	Relevant Pollutant	TIP Program Year	Emissions Benefit	Traffic Congestion Benefit (PHED)	Traffic Congestion Benefit (% Non-SOV Travel)
114967	Transportation Operations	The Transportation Operations Program incorporates Transportation Systems Management and Operations (TSMO) strategies to help proactively manage the transportation system by addressing recurring and non-recurring congestion which results in trip reliability, emissions reductions, improved safety, and efficiency.	Education / Outreach	Ozone, $PM_{2.5.}$	FY 2021	This project reduces congestion and improves air quality by coordinating regional ITS efforts.	This project reduces congestion and improves air quality by coordinating regional ITS efforts.	N/A
17928	Air Quality Partnership	This project funds education and outreach activities and materials to encourage the reduction of emissions from transportation sources that contribute to ozone and $PM_{2.5}$ pollution. This project will promote dissemination of air quality forecasts and educate about steps the public can take to reduce transportation related emissions and improve air quality.	Education / Outreach	Ozone, $PM_{2.5.}$	Continuing	Emissions are reduced by encouraging alternative commuting patterns and increased transit use resulting in a reduction in SOV travel during episodic air pollution events.	Congestion is reduced by encouraging alternative commuting patterns and increased transit use resulting in a reduction in SOV travel during episodic air pollution events.	SOV travel is reduced by encouraging alternative commuting patterns and increased transit use during episodic air pollution events.
63406	Retrofit for Bike Lanes and Shoulders	The purpose of this project is to maintain existing and future bicycle facilities, including installation, maintenance, and replacement of striping and damaged and missing signs.	Bike / Pedestrian Improve-ment	Ozone, $PM_{2.5.}$	Continuing	Maintaining safe bike linkages will help reduce emissions by promoting bike travel to employment and shopping centers.	Maintaining safe bike linkages will help reduce congestion by promoting bike travel to employment and shopping centers.	Maintaining safe bike linkages will help reduce SOV travel by promoting bike travel to employment and shopping centers.

MPMS Num.	Project Title	Project Description	Project Type	Relevant Pollutant	TIP Program Year	Emissions Benefit	Traffic Congestion Benefit (PHED)	Traffic Congestion Benefit (% Non-SOV Travel)
84457	Signal Retiming Program	This signal re-timing program provides for the evaluation of existing signals along an identified corridor, with the goal of improving traffic operations along said corridor through revised signal timing plans.	Signal / ITS	Ozone, $PM_{2.5.}$	Continuing	This project reduces congestion and improves air quality by optimizing progression on signalized routes.	This project will reduce congestion by improving traffic operations.	N/A
102665	Signal Upgrade Line Item	Signal Upgrade Line Item will be used to help address signal retiming hardware and communication related issues that are identified during the installation and implementation of traffic signal retiming (MPMS# 84457) on Critical Corridors in the region.	Signal / ITS	Ozone, $PM_{2.5.}$	Continuing	This project reduces congestion and improves air quality by optimizing progression on signalized routes.	This project will reduce congestion by improving traffic operations.	N/A
110429	Mobility Alternatives Program (MAP)/Share A Ride Program	Geared to employers, MAP is an outreach and education program overseen by DVRPC to provide information to employers and commuters about options to the single occupant auto for commuting to work.	Education / Outreach	Ozone, $PM_{2.5.}$	Continuing	This program improves air quality by encouraging employers to utilize alternative commute programs and reduce SOV travel by their employees.	This program reduces congestion by encouraging employers to utilize alternative commute programs and reduce SOV travel by their employees.	This program reduces SOV travel by educating employers about alternative commute programs for their employees.

MPMS Num.	Project Title	Project Description	Project Type	Relevant Pollutant	TIP Program Year	Emissions Benefit	Traffic Congestion Benefit (PHED)	Traffic Congestion Benefit (% Non-SOV Travel)
110460	Commuter Services	This project is a work program project that allows for staff to coordinate alternative commute education and outreach programs among MAP and TMA contractors.	Education / Outreach	Ozone, $PM_{2.5.}$	Continuing	Commuter Services helps to reduce emissions through a variety of activities including promoting alternative commute options and assisting with outreach to promote non-SOV travel.	Commuter Services helps to reduce congestion through a variety of activities including promoting alternative commute options and assisting with outreach to promote non-SOV travel.	Commuter Services helps to reduce SOV travel through a variety of activities including promoting alternative commute options and assisting with outreach to promote non-SOV travel.
111424	Transportation Management Associations (TMA)	Transportation Management Associations (TMA's) help address demand for the region's transportation system. They are public-private partnerships that provide a forum to resolve transportation issues in their service areas. Services include a range of transportation improvement options, including task forces, employer and construction project shuttles, advocacy, and congestion reduction assistance to employers along corridors and in municipalities.	Education / Outreach	Ozone, $PM_{2.5.}$	Continuing	TMAs help to reduce emissions through a variety of activities including promoting alternative commute options, sponsoring last mile shuttles, and assisting with outreach to promote non-SOV travel.	TMAs help to reduce congestion through a variety of activities including promoting alternative commute options, sponsoring last mile shuttles, and assisting with outreach to promote non-SOV travel.	TMAs help to reduce SOV travel through a variety of activities including promoting alternative commute options, sponsoring last mile shuttles, and assisting with outreach to promote non-SOV travel.

Source: DVRPC 2020

Table 12: CMAQ-Funded Projects in the New Jersey Portion of the DVRPC Region (2018–2019) Contributing to the Emissions Reduction Target

DB Num.	Project Title	Project Description	Project Type	FHWA Public Access System Report Year	Emissions Benefit (Kg/d)			Notes
					NO_x	VOC	$PM_{2.5}$	
D0407	Air Quality (Ozone) Action Program in NJ	Ozone Action strives to improve the region's air quality by warning individuals in advance of "Air Quality Action Days" and encouraging the use of mobility alternatives that will reduce congestion and air pollution.	Education / Outreach	2018	6.49	1.78	66.3	Noted as a continuing project in the 2018 Baseline Performance Plan.
D0406	RideECO Mass Marketing Efforts	This program expands outreach to the general public about the benefits of using transit and the RideECO Program.	Education / Outreach	2018	2.74	0.77	0.14	Noted as a continuing project in the 2018 Baseline Performance Plan.
D1601	NJ Regional Signal Retiming Initiative	This project reduces congestion and improves air quality by optimizing progression on signalized 500 and 600 routes in DVRPC's New Jersey counties.	Signal / ITS	2019	445.09	44.99	28.29	Included in the 2018 Baseline Performance Plan.
15343*	Traffic Signal Optimization Support Services	This program will seek to improve mobility on New Jersey's arterial highways. Arterials contribute almost 70% of total congestion that occurs in New Jersey. This program will focus on dynamically managing NJ's arterials from NJDOT's Arterial Management Center. Existing traffic signals will be strategically, systematically, and programmatically upgraded from stand-alone signals to highly sophisticated, coordinated, real time traffic response traffic signals. This upgrade will consist of installing new controllers, intelligent software and algorithms, robust detection, and communication. This is a plan to upgrade most of the signals on NJDOT owned highways only.	Signal / ITS	2018	212.95	21.78	13.6	NJDOT allocates 20.5 percent of the emissions benefits of this statewide CMAQ project to the MPO based on VMT share. These values represent the emissions benefits allocated to the DVRPC region.

DB Num.	Project Title	Project Description	Project Type	FHWA Public Access System Report Year	Emissions Benefit (Kg/d)			Notes
					NO_x	VOC	$PM_{2.5}$	
T112	Rail Rolling Stock Replacement	This program provides funds for the replacement of rail rolling stock, including engineering assistance and project management, to replace over-aged equipment including rail cars, revenue service locomotives, and expansion of NJ TRANSIT rolling stock fleet (cars and locomotives) to accommodate projected ridership growth and other system enhancements over the next ten years.	Transit	2018	1.04	0.80	0.12	Transit flex included in PAS for the first time in 2018 and not accounted for on the 2018 Baseline Performance Plan. NJ DOT allocates 20.5 percent of the emissions benefits of this statewide CMAQ project to the MPO based on VMT share. These values represent the emissions benefits allocated to the DVRPC region.
T112	Rail Rolling Stock Replacement	This program provides funds for the replacement of rail rolling stock, including engineering assistance and project management, to replace over-aged equipment including rail cars, revenue service locomotives, and expansion of NJ TRANSIT rolling stock fleet (cars and locomotives) to accommodate projected ridership growth and other system enhancements over the next ten years.	Transit	2019	6.38	3.13	0.87	Transit flex included in PAS for the first time in 2018 and not accounted for on the 2018 Baseline Performance Plan. Recurring projects with new benefits each year. NJ DOT allocates 20.5 percent of the emissions benefits of this statewide CMAQ project to the MPO based on VMT share. These values represent the emissions benefits allocated to the DVRPC region.

Source: DVRPC 2020

Table 13: Interim Performance Period Status CMAQ-Funded Projects in the New Jersey Portion of the DVRPC Region (2018–2019)

DB Num.	Project Title	Project Description	Project Type	Relevant Pollutant	TIP Program Year	Emissions Benefit	Traffic Congestion Benefit (PHED)	Traffic Congestion Benefit (% Non-SOV Travel)	Project Status
D1601	New Jersey Signal Timing Initiative	Optimize progression of signalized County 500 and 600 Routes in the DVRPC region.	Signal / ITS	Ozone, $PM_{2.5}$	FY 2018	This project reduces congestion and improves air quality by optimizing progression on signalized routes.	This project will reduce congestion by improving traffic operations.	N/A	Continuing project included in FY2020 TIP Also included in 2018 PAS report.
D1703	Princeton Bicycle Infra-structure	Develop bike rack and bike parking infrastructure at key transit and public locations in Princeton, Mercer County.	Bike / Pedestrian improve-ment	Ozone	FY 2018	Expanding bike share in Princeton will reduce emissions from SOV travel.	This project will reduce congestion by providing alternatives to SOV travel.	This project will provide an alternative to SOV travel for short trips.	Project Canceled and not counted in PAS.
T701	River Line Tier 4 Engine Retrofit	Repower River Line Light Rail locomotives to Tier 4 Engines.	Diesel Repower / Transit	Ozone, $PM_{2.5}$	FY 2018	Emissions will be reduced by repowering Tier 1 light rail diesel locomotives with Tier 4 engines.	Maintaining transit vehicles and supporting transit operations reduces congestion and SOV travel.	Maintaining transit vehicles and supporting transit operations reduces congestion and SOV travel.	Obligated in 2018. Benefits accounted for in previous PAS report.

DB Num.	Project Title	Project Description	Project Type	Relevant Pollutant	TIP Program Year	Emissions Benefit	Traffic Congestion Benefit (PHED)	Traffic Congestion Benefit (% Non-SOV Travel)	Project Status
D0406	RideEco Mass Marketing	This program expands outreach to the general public about the benefits of using transit and the RideECO Program.	Education / Outreach	Ozone	Continuing Project	Emissions are reduced by encouraging increased transit use resulting in a reduction in SOV travel.	This project reduces congestion by encouraging transit use through tax incentives provided by the RideEco program.	This project reduces SOV travel by encouraging transit use through tax incentives provided by the RideEco program.	Project included in 2018 PAS report. Project will not continue past FY2020.
D0407	Ozone Action Program in New Jersey	Ozone Action strives to improve the region's air quality by warning individuals in advance of "Air Quality Action Days" and encouraging the use of mobility alternatives that will reduce congestion and air pollution.	Education / Outreach	Ozone	Continuing Project	Emissions are reduced by encouraging alternative commuting patterns and increased transit use resulting in a reduction in SOV travel during episodic air pollution events.	Congestion is reduced by encouraging alternative commuting patterns and increased transit use resulting in a reduction in SOV travel during episodic air pollution events.	SOV travel is reduced by encouraging alternative commuting patterns and increased transit use during episodic air pollution events.	Continuing project included in FY20 TIP Also included in 2018 PAS report.

DB Num.	Project Title	Project Description	Project Type	Relevant Pollutant	TIP Program Year	Emissions Benefit	Traffic Congestion Benefit (PHED)	Traffic Congestion Benefit (% Non-SOV Travel)	Project Status
D0601	Camden County Bus Purchase	Purchase of new transit vehicles for combination of fixed route, subscription, and demand responsive transit services provided in Camden County	Transit	Ozone, $PM_{2.5}$	Continuing Project	New transit vehicles will reduce emissions of $PM_{2.5}$ and Ozone precursors through better fuel economy. Transit service reduces emissions from SOV travel.	Maintaining transit vehicles and supporting transit operations reduces congestion and SOV travel.	Maintaining transit vehicles and supporting transit operations reduces congestion and SOV travel.	Continuing project not included in FY20 TIP. Funds have been flexed to transit.
D9807	Gloucester County Bus Purchase	Purchase of new transit vehicles for combination of fixed route, subscription, and demand responsive transit services provided in Gloucester County.	Transit	Ozone, $PM_{2.5}$	Continuing Project	New transit vehicles will reduce emissions of $PM_{2.5}$ and Ozone precursors through better fuel economy. Transit service reduces emissions from SOV travel.	Maintaining transit vehicles and supporting transit operations reduces congestion and SOV travel.	Maintaining transit vehicles and supporting transit operations reduces congestion and SOV travel.	Continuing project not included in FY20 TIP. Funds have been flexed to transit.

DB Num.	Project Title	Project Description	Project Type	Relevant Pollutant	TIP Program Year	Emissions Benefit	Traffic Congestion Benefit (PHED)	Traffic Congestion Benefit (% Non-SOV Travel)	Project Status
D1101	Mercer County Bus Purchase	Purchase of new transit vehicles for combination of fixed route, subscription, and demand responsive transit services provided in Mercer County.	Transit	Ozone, $PM_{2.5}$	Continuing Project	New transit vehicles will reduce emissions of $PM_{2.5}$ and Ozone precursors through better fuel economy. Transit service reduces emissions from SOV travel.	Maintaining transit vehicles and supporting transit operations reduces congestion and SOV travel.	Maintaining transit vehicles and supporting transit operations reduces congestion and SOV travel.	Continuing project not included in FY20 TIP. Funds have been flexed to transit.
T112	Rail Rolling Stock Procurement	Funds for replacing rail rolling stock	Transit	Ozone, $PM_{2.5}$	Continuing Project	Supporting rail transit operations reduces emissions by reducing SOV travel.	Maintaining transit vehicles and supporting transit operations reduces congestion and SOV travel.	Maintaining transit vehicles and supporting transit operations reduces congestion and SOV travel.	Continuing project included in FY20 TIP Also included in 2018 and 2019 PAS reports.
T120	Small /Special Services Program	Funds efforts which initiate or promote transit solutions to reduce congestion, manage transportation demand, and improve air quality	Transit	Ozone	Continuing Project	Supporting transit operations reduces emissions by reducing SOV travel.	Maintaining transit vehicles and supporting transit operations reduces congestion and SOV travel.	Maintaining transit vehicles and supporting transit operations reduces congestion and SOV travel.	Continuing project included in FY20 TIP. Also included in 2018 PAS report.

DB Num.	Project Title	Project Description	Project Type	Relevant Pollutant	TIP Program Year	Emissions Benefit	Traffic Congestion Benefit (PHED)	Traffic Congestion Benefit (% Non-SOV Travel)	Project Status
15343	Traffic Signal Optimization Support Services	This program will seek to improve mobility on New Jersey's arterial highways. Arterials contribute almost 70% of total congestion that occurs in New Jersey. This program will focus on dynamically managing NJ's arterials from NJDOT's Arterial Management Center.	Signal / ITS	2018	Continuing Statewide Project	This project reduces congestion and improves air quality by optimizing progression on signalized routes.	This project will reduce congestion by improving traffic operations.	N/A	Continuing statewide project included in FY2020 TIP. Also included in 2018 PAS report.

Source: DVRPC 2020

Table 14: New and Continuing Projects for CMAQ Funding for FY 2020–2021 in New Jersey

DB Num.	Project Title	Project Description	Project Type	Relevant Pollutant	TIP Program Year	Emissions Benefit	Traffic Congestion Benefit (PHED)	Traffic Congestion Benefit (% Non-SOV Travel)
X065	Local CMAQ Initiatives – Hamilton Avenue Intersection Improvement	Improve the alignment and function of intersections at Hamilton Avenue (CR 606) and Kuser Road (CR 619)/Ward Avenue and Hamilton Avenue and Liberty Street.	Intersection Improve-ment	Ozone, $PM_{2.5}$,	FY 2020	This project reduces congestion and improves air quality by optimizing operations through improving intersection geometry and channelization.	This project will reduce congestion by improving traffic operations.	N/A
D1601	New Jersey Signal Timing Initiative	Optimize progression of signalized County 500 and 600 Routes in the DVRPC region.	Signal / ITS	Ozone, $PM_{2.5}$,	FY 2020	This project reduces congestion and improves air quality by optimizing progression on signalized routes.	This project will reduce congestion by improving traffic operations.	N/A

DB Num.	Project Title	Project Description	Project Type	Relevant Pollutant	TIP Program Year	Emissions Benefit	Traffic Congestion Benefit (PHED)	Traffic Congestion Benefit (% Non-SOV Travel)
D2005	Regional TDM Program	TDM focuses on the many options available to residents to travel to and from work, as well as to get around our region, in a coordinated, cost-effective, and environmentally-positive way. It centers on the strategies that more efficiently distribute travel demand across all modes, and especially reduce single-occupant vehicle (SOV) travel. An important element of TDM is providing public education and outreach to commuters, employers, residents and visitors within our region about available travel options, and providing a mix of incentives to encourage behavior change toward more efficient use of the regional transportation system.	Education / Outreach	Ozone, $PM_{2.5}$	FY 2021	Emissions are reduced by encouraging alternative commuting patterns and increased transit use resulting in a reduction in SOV travel.	Congestion is reduced by encouraging alternative commuting patterns and increased transit use resulting in a reduction in SOV travel.	SOV travel is reduced by encouraging alternative commuting patterns and increased transit use.
X065	Local CMAQ Initiatives – Gloucester Township Trail	Bicycle trail, from Oak Avenue to Evesham Road.	Bike / Pedestrian improve-ment	Ozone	FY 2021	Expanding bike share in Princeton will reduce emissions from SOV travel.	This project will reduce congestion by providing alternatives to SOV travel.	This project will provide an alternative to SOV travel for short trips.

DB Num.	Project Title	Project Description	Project Type	Relevant Pollutant	TIP Program Year	Emissions Benefit	Traffic Congestion Benefit (PHED)	Traffic Congestion Benefit (% Non-SOV Travel)
D0407	Ozone Action Program in New Jersey	Ozone Action strives to improve the region's air quality by warning individuals in advance of "Air Quality Action Days" and encouraging the use of mobility alternatives that will reduce congestion and air pollution.	Education / Outreach	Ozone	Continuing Project	Emissions are reduced by encouraging alternative commuting patterns and increased transit use resulting in a reduction in SOV travel during episodic air pollution events.	Congestion is reduced by encouraging alternative commuting patterns and increased transit use resulting in a reduction in SOV travel during episodic air pollution events.	SOV travel is reduced by encouraging alternative commuting patterns and increased transit use during episodic air pollution events.
T112	Rail Rolling Stock Procurement	Funds for replacing rail rolling stock	Transit	Ozone, $PM_{2.5}$	Continuing Project	Supporting rail transit operations reduces emissions by reducing SOV travel.	Maintaining transit vehicles and supporting transit operations reduces congestion and SOV travel.	Maintaining transit vehicles and supporting transit operations reduces congestion and SOV travel.
T120	Small/Special Services Program	Funding is provided for NJ TRANSIT efforts which initiate or promote transit solutions to reduce congestion, manage transportation demand, and improve air quality.	Transit	Ozone, $PM_{2.5}$	Continuing Project	Supporting rail transit operations reduces emissions by reducing SOV travel.	Maintaining transit vehicles and supporting transit operations reduces congestion and SOV travel.	Maintaining transit vehicles and supporting transit operations reduces congestion and SOV travel.

DB Num.	Project Title	Project Description	Project Type	Relevant Pollutant	TIP Program Year	Emissions Benefit	Traffic Congestion Benefit (PHED)	Traffic Congestion Benefit (% Non-SOV Travel)
T150	Section 5310 Program	This program provides funds for the purchase of small buses or van-type vehicles for agencies that serve the elderly and persons with disabilities.	Transit	Ozone, $PM_{2.5}$	Continuing Project	Supporting rail transit operations reduces emissions by reducing SOV travel.	Maintaining transit vehicles and supporting transit operations reduces congestion and SOV travel.	Maintaining transit vehicles and supporting transit operations reduces congestion and SOV travel.

Source: DVRPC 2020

Appendix A

Appendix A: Pennsylvania State PM3 Performance Measures

pennsylvania
DEPARTMENT OF TRANSPORTATION

National Performance Management Measures to Assess System Performance, Freight Movement, and the CMAQ Improvement Program

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SUBJECT: Establishment of State DOT Targets for PM-3 Performance Measures [23 CFR 490.105]

DESCRIPTION:

The Federal Highway Administration (FHWA) final rule for 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* was published in the Federal Register (82 FR 5970) on January 18, 2017 and became effective on May 20, 2017.

This final rule is the third in a series of three related rulemakings that together establishes a set of performance measures for State Departments of Transportation (State DOTs) and Metropolitan Planning Organizations (MPOs) to use as required by the Moving Ahead for Progress in the 21st Century Act (MAP–21) and the Fixing America's Surface Transportation (FAST) Act. The measures in this third final rule will be used by State DOTs and MPOs to assess the performance of the Interstate and non-Interstate National Highway System (NHS) for the purpose of carrying out the National Highway Performance Program (NHPP); to assess freight movement on the Interstate System; and to assess traffic congestion and on-road mobile source emissions for the purpose of carrying out the Congestion Mitigation and Air Quality Improvement (CMAQ) Program. These system performance measures are collectively referred to as the PM-3 measures.

State DOTs are required to establish targets in coordination with MPOs for all the measures in this rule by May 20, 2018. MPOs will have an additional 180 days beyond that date to either set their own targets or agree to the State DOT targets. In addition, State DOTs will need to report on performance at regular intervals. The first State DOT baseline performance period report is due October 1, 2018, for all measures in this rule.

DISCUSSION:

1. PM-3 System Performance Measures include:
    - Percent of Person-miles Traveled on the Interstate System that are Reliable
    - Percent of Person-miles Traveled on the Non-Interstate NHS that are Reliable
    - Interstate System Truck Travel Time Reliability Index
    - Annual Hours of Peak-Hour Excessive Delay (PHED) per Capita
    - Percent Non-Single Occupant Vehicle (SOV) Travel
    - On-Road Mobile Source Emissions Reduction for CMAQ-funded Projects
2. State DOT 2- and 4-year targets are due May 20, 2018 and will also be reported to FHWA in the 2017 baseline report due October 2018. To satisfy coordination requirements [23 CFR

490.105(e)(2)], PennDOT has coordinated with Planning Partners in the development of the measures and selection of targets to ensure consistency, to the maximum extent practicable.

3. For the three reliability measures, PennDOT has set statewide targets (sub-state targets are optional). MPO baseline reliability measures have been provided for information purposes only. For the first performance period, the annual peak hour excessive delay and non-SOV travel measures must be developed for the Pittsburgh and Philadelphia urbanized areas only. PennDOT has worked closely with SPC and DVRPC to develop these targets and to include the necessary multi-state coordination partners in the target-setting process. The mobile source emission measure targets are produced statewide and for each MPO that is in nonattainment or maintenance of the National Ambient Air Quality Standards.

4. PennDOT has worked to identify and evaluate the data and tools used to produce the baseline performance measures. The University of Maryland CATT Lab RITIS software platform is used to generate all the travel time based measures. Data from the American Community Survey (ACS) and FHWA's CMAQ annual reporting system are used for the non-SOV travel and mobile source emissions measures, respectively. Future revisions and modifications to these tools may impact the reported performance measures and established targets.

5. Due to potential tool enhancements, limited historic information, and the need for additional research understanding the variances and factors influencing each of the performance measures, PennDOT has established conservative targets. In some respects, these may be more appropriately referred to as benchmarks. PennDOT will track the measures over the next two years. States are permitted to adjust their 4-year targets at the midterm of the performance period, representing data through 2019 in a report due to FHWA by October 1, 2020. PennDOT will coordinate any updates to the performance measures with the Planning Partners. DVRPC and SPC will also track the annual PHED and Non-SOV travel measures and revisit the estimated established 4-year targets at the mid-term period.

COORDINATION MEETINGS:

1. A workshop was conducted on January 11th with PennDOT and FHWA Pennsylvania Division staff to identify future steps and requirements related to the Transportation Performance Management (TPM) rulemaking.

2. PennDOT conducted a performance measure workshop on February 26-27th with the Pittsburgh, Philadelphia and York MPO planning staff to evaluate baseline performance measure trends and methodologies for target setting.

3. PennDOT provided status updates on the development of performance measure data, tools and methodologies to the Planning Partners. On October 18, 2017, PennDOT provided an overview of the performance measures and general approaches for target setting at the Planning Partners fall conference in State College. On a March 20, 2018 conference call, PennDOT provided a status update on the development of baseline measures and targets.

4. PennDOT conducted a May 9th webinar to review the State DOT targets with the Planning Partners.

5. There were four Transportation Performance Measure meetings held for the Philadelphia PA-NJ-DE-MD urbanized area to coordinate, discuss and establish target setting for the PHED and Non-SOV travel measures. The meetings occurred on February 16th, March 19th, April 9th and April 30th 2018. Agency representation included PennDOT, NJDOT, DelDOT, MDOT, FHWA, DVRPC, NJTPA, SJTPO, WILMAPCO, LVPC, Berks and Lancaster County MPOs.

6. PennDOT has worked to develop the *Pennsylvania Department of Transportation MAP-21 and FAST Act Performance Management Road Map* to provide Planning Partners a resource on the performance measure requirements and calculations.

ESTABLISHMENT OF STATE DOT TARGETS:

Specific targets and informational resources are attached as follows:

Attachment 1 Targets	Baseline and target values for the travel time reliability and annual peak hour excessive delay measures
Attachment 2 Targets	Baseline and target values for the non-SOV travel measures
Attachment 3 Targets	Target values for the CMAQ emissions measures
Attachment 4	MPO baseline reliability measures <u>for informational purposes only</u>

ESTABLISHMENT OF MPO TARGETS:

1. The MPOs must establish targets no later than 180 days after the respective State DOT(s) establishes (or amends in future) their targets (by November 16, 2018). The MPOs must establish targets by either:

   - Agreeing to plan and program projects so that they contribute toward the accomplishment of the relevant State DOT target for that performance measure; or
   - Committing to a quantifiable target for that performance measure for their metropolitan planning area.

2. PennDOT will be formally contacting each MPO (similar to the safety measures) regarding the above MPO target setting options. If the MPOs establish their own performance measure targets, they should coordinate with PennDOT on the selection of the targets in accordance with 23 U.S.C. 134(h)(2)(B)(i)(II) to ensure consistency, to the maximum extent practicable.

3. The MPOs must report baseline condition/performance and progress toward the achievement of their targets in the system performance report in the metropolitan transportation plan.

Attachment 1: PM-3 Baseline and Target Values for Travel Time and Annual Peak Hour Excessive Delay Measures
(Estimated using RITIS Data Extract from May 8, 2018)

Measure	2017 Baseline	*2019* 2-year Target	*2021* 4-year Target
Interstate Reliability (*Statewide*)	**89.8 %**	**89.8 %**	**89.8 %**
Non-Interstate Reliability (*Statewide*)	**87.4 %**	*N/A*	**87.4 %**
Truck Reliability Index (*Statewide*)	**1.34**	**1.34**	**1.34**
Annual Peak Hour Excessive Delay Hours Per Capita (*Urbanized Area*)	*DVRPC* **16.8**	*N/A*	**17.3**
	SPC **11.1**	*N/A*	**11.8**

Attachment 2: PM-3 Baseline and Target Values for Non-SOV Travel Measure

Measure	2017 Baseline	*2019* 2-year Target	*2021* 4-year Target
Percent Non-Single Occupant Vehicle Travel (*Urbanized Area*)	*DVRPC* **27.9 %**	**28.0 %**	**28.1 %**
	SPC **24.8 %**	**24.6%**	**24.4 %**

Target Setting Notes:

Reliability Measures:
- Targets set equivalent to 2017 baseline values
- Limited historic data to understand trends of reliability measures.
- More research and data monitoring required to identify trends and project impacts on measure.
- Reassessment at mid-term period.

Delay Measure:
- Historical Vehicle Miles Travel (VMT) and INRIX GPS data suggest increasing delay trends.
- MPO travel models in each region indicate potential increases to VMT and delay.
- Combination of MPO staff input, travel model forecasts, VMT and vehicle registration trends, and forecast economy information used to establish higher delay targets at this time.
- DVRPC estimates 0.6% annual increase in delay/capita.
- SPC estimates 1.5% annual increase in delay/capita.
- Reassessment at mid-term period.

Non-SOV Travel Measure:
- Non-SOV Travel trends based on ACS survey data are relatively constant over the last 5 years.
- DVRPC trend indicates slightly increasing Non-SOV percentage.
- SPC trend indicates slightly decreasing Non-SOV percentage.
- Reassessment at midterm.

Attachment 3: PM-3 Baseline and Target Values for CMAQ Emission Measures

Applicable MPOs and Pollutants Determined from:
https://www.fhwa.dot.gov/environment/air_quality/cmaq/measures/cmaq_applicability/page03.cfm#toc494364458

Measure	MPO	Emissions (kg/day)	
		2019 2-year Target*	2021 4-year Target
VOC Emissions	*Statewide*	**109.460**	**201.730**
	DVRPC (PA only)	**37.610**	**69.310**
	SPC	**58.060**	**107.000**
	Lehigh Valley	*11.690*	**21.540**
	Lancaster	*1.950*	**3.600**
	Reading	*0.150*	**0.270**
	NEPA	*0.000*	**0.000**
NOx Emissions	*Statewide*	**337.700**	**612.820**
	DVRPC (PA only)	**23.420**	**42.500**
	SPC	**256.110**	**464.770**
	Lehigh Valley	*57.550*	**104.440**
	Lancaster	*0.570*	**1.030**
	Reading	*0.040*	**0.080**
	NEPA	*0.000*	**0.000**
$PM_{2.5}$ Emissions	*Statewide*	**10.760**	**20.490**
	DVRPC (PA only)	**1.080**	**2.060**
	SPC	**7.010**	**13.350**
	Lehigh Valley	*2.320*	**4.410**
	York	*0.060*	**0.110**
	Harrisburg	*0.050*	**0.100**
	Lancaster	*0.020*	**0.040**
	Lebanon	*0.050*	**0.090**
	Johnstown	*0.170*	**0.320**
PM_{10} Emissions	*Statewide*	**9.540**	**17.470**
	SPC	**9.540**	**17.470**
CO Emissions	*Statewide*	**567.700**	**1135.400**
	DVRPC (PA only)	**282.740**	**565.470**
	SPC	**284.970**	**569.930**

** 2-year emission targets are only applicable for SPC, DVRPC and Statewide targets (bold above). MPOs with populations <1 million are not required to report 2-year emission targets. The values were used to establish statewide 2-year targets.*

Target Setting Notes:

Emission Measures:

- Targets based on reported emissions in FHWA's CMAQ annual database.
- Targets are very difficult to anticipate as CMAQ-funded projects can produce a wide range of benefits.
- 4-year (2014-2017) historical benefits for new CMAQ projects averaged to support target setting.
- Many projects are expected to provide less emissions benefit in the future due to fleet turnover.
- Historical average CMAQ benefits by MPO adjusted to reflect cleaner fleet in future years.

Attachment 4: Supplemental Information for MPO Distribution
PM-3 Baseline Reliability Measure Values by MPO
(Extracted from RITIS on May 8, 2018)

MPO*	*2017 Baseline Travel Time Values*		
	Interstate Reliability	**Non-Interstate Reliability**	**Truck Reliability**
Statewide	**89.8%**	**87.4%**	**1.34**
Adams	*N/A*	87.9%	*N/A*
Altoona	100.0%	83.5%	1.20
Johnstown	*N/A*	95.1%	*N/A*
Centre	100.0%	92.6%	1.14
DVRPC**	74.4%	84.1%	1.83
Erie	100.0%	83.9%	1.25
Franklin	100.0%	94.0%	1.09
Harrisburg	90.9%	91.9%	1.37
Scranton-Wilkes-Barre	98.1%	87.5%	1.40
Lancaster	100.0%	94.1%	1.08
Lebanon	100.0%	93.0%	1.11
Lehigh Valley	100.0%	87.1%	1.34
NEPA	100.0%	92.1%	1.22
Reading	100.0%	93.4%	1.12
Shenango Valley	99.4%	94.9%	1.18
SPC	92.3%	87.0%	1.44
SEDA-COG	100.0%	95.5%	1.10
Williamsport	100.0%	98.3%	1.16
York	100.0%	89.5%	1.22

** The RITIS analysis platform currently does not directly produce MAP-21 measures for RPO areas*
*** DVRPC MPO values currently include areas outside of Pennsylvania that are within MPO boundaries*

Appendix B

Appendix B: New Jersey State PM3 Performance Measures

State of New Jersey

DEPARTMENT OF TRANSPORTATION
P.O. Box 600
Trenton, New Jersey 08625-0600

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

DIANE GUTIERREZ-SCACCETTI
Acting Commissioner

May 16, 2018

Robert Clark, Division Administrator
Federal Highway Administration, New Jersey Division
840 Bear Tavern Road, Suite 202
West Trenton, NJ 08628

Dear Mr. Clark:

As you know, the New Jersey Department of Transportation (NJDOT) is required to provide Safety (PM1), Infrastructure (PM2) and System Performance (PM3) targets to FHWA. In my April 27, 2018 letter to you, I provided the Safety targets. In a companion letter to this one, I will provide the Infrastructure targets. With this letter, I am pleased to provide New Jersey's 2018 System Performance Targets. The NJDOT intends to include these targets in New Jersey's Initial Performance Report due by October 1, 2018.

MAP-21, followed by the FAST Act, requires State DOTs and MPOs to implement a performance management process. For each performance area noted below (Subparts E, F, G and H), FHWA sets forth one or more performance measures. Each state must develop targets for each performance measure, and each MPO must either adopt the state target or their own regional target. All performance areas require single statewide targets, except for the two in Subpart G, where the requirements currently apply to urbanized areas with a population over 1 million. For those, there is a single target for each urbanized area, and all State DOTs and MPOs in that area must collaborate to develop and agree on a single target.

For performance areas in Subparts E, F, and G, the performance period is from January 1, 2018 to December 31, 2021. For this 4-year performance period, 2-year targets reflect the anticipated condition or performance level at the midpoint of the performance period (12/31/2019), and 4-year targets reflecting the anticipated condition or performance level at the end of the performance period (12/31/2021). For the On-Road Mobile Source Emissions Measure (Subpart H), the performance period is October 1, 2017 to September 30, 2021, based on the federal fiscal year. We will have the opportunity to adjust all 4-year targets at the mid-point of the performance period.

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The following narrative describes the basic requirements and proposed targets for each performance area.

Travel Time Reliability (Subpart E)
Travel time reliability does not mean eliminating traffic congestion, but reducing its extremes to keep it within reasonable limits. The Department is using the National Performance Management Research Data Set (NPMRDS) data from 2016 and 2017 as a basis to determine travel time reliability targets. With support from the CATT Lab of the University of Maryland, travel time data has been analyzed to determine which roadway segments are reliable, and which are unreliable. Then segment length, traffic volume and vehicle occupancy data are used to calculate total person-miles of travel for the reliable and unreliable categories. The statewide reliability targets below describe the percentage of overall travel on the NHS that we expect to be reliable. At this stage, we have no definitive basis to change the baseline values for the 2- and 4-year targets, but will use the mid-year performance report as an opportunity to adjust the 4-year target as needed.

Performance Measure	Units	Baseline	2-year Target	4-year Target
Travel Time Reliability, Interstate NHS	Percentage of person-miles traveled that are reliable	82.0%	82.0%	82.0%
Travel Time Reliability, Non-Interstate NHS	Percentage of person-miles traveled that are reliable	84.1%	Not required	84.1%

Freight Reliability (Subpart F)
The Freight Reliability target is based on the same NPMRDS data source. Truck travel reliability is calculated through the Truck Travel Time Reliability (TTTR) index, which compares congested truck travel time (95th percentile) to average truck travel time (50th percentile). The highest TTTR values for segments are combined and weighted by segment length, and the sum of all length-weighted segments are divided by the total length of Interstate roadways in the state. There is no threshold, and the target is required only for interstate highways on the NHS.

The Baseline value is the average of the most recent calendar year of data (2017), which is 1.81. Data trends show a very modest increase in TTR over the calendar years of 2016 and 2017. Therefore, the Department and the MPOs agreed on a 2-year target of 1.9. However, it is anticipated that over 4 years, the target would be slightly higher, so it is set to 1.95.

Performance Measure	Units	Baseline	2-year Target	4-year Target
Truck Travel Time Reliability (TTTR)	TTTR Index, Interstate NHS	1.81	1.9	1.95

Peak Hour Excessive Delay (PHED) (Subpart G) – Urbanized Area Target
The Peak Hour Excessive Delay (PHED) measure indicates the extra time spent traveling due to extreme congestion, expressed as the number of hours per year on a per capita basis. This target is required for urbanized areas of greater than 1 million population. For NJ, the applicable

urbanized areas are New York City and Philadelphia, and a single target is required for each multi-state urbanized area.

For the New York urbanized area, partner agencies agreed that the effects of expected economic growth, especially in New York City, would exceed the impacts of investments to reduce traffic congestion. The 2 percent per year increase was the result.

For the Philadelphia urbanized area, the PHED value was 16.8 for 2017. The Vehicle Miles of Travel (VMT) forecasts for the DVRPC region for 2015–2020, based on the travel demand model, indicated a growth of 0.7% per year. On that basis, the 0.6% per year value was deemed appropriate.

Performance Measure	Units	Urbanized Area	Baseline	2-year Target	4-year Target
Peak Hour Excessive Delay (PHED)	Annual Hours of PHED per capita on the NHS	New York City (NY-NJ-CT)	20.0	Not Required	22.0 (+2%/yr.)
Peak Hour Excessive Delay (PHED)	Annual Hours of PHED per capita on the NHS	Philadelphia (PA-NJ-DE-MD)	16.8	Not Required	17.2 (+0.6%/ yr.)

Non-SOV Travel (Subpart G) – Urbanized Area Target
The Non-SOV Travel measure indicates the amount of travel not by single occupant vehicle (SOV), including modes such as walk, bus, carpool, train, bicycle, taxi, rideshare, and work at home. As with the PHED measure, the Non-SOV measure applies to the New York and Philadelphia urbanized areas. Both areas used U.S. Census American Community Survey (ACS) data as a basis for the targets. Specifically, ACS 5-year (2012-2016) estimates for journey to work trips for residents within the urbanized area.

The New York-Newark, NY-NJ-CT urbanized area's 5-year average percentage was 51.6%. This reflects a 61.8% non-SOV value for residents within the New York portion of urbanized area, and a 31.7% value for residents of the New Jersey portion of urbanized area. Given the large volume of existing transit ridership in the region where transit facilities are at capacity, the lack of any major transit projects being completed in the 4-year period, and the overall difficulty of "moving the needle" for this measure, the group decided to propose no increase for the 2-year target, and a conservative 0.1% increase for the 4-year target.

The Philadelphia area partner agencies faced similar considerations, but saw slightly more opportunities for growth in alternative modes of travel. Therefore, 0.1% increases were proposed for each 2-year increment.

Performance Measure	Units	Urbanized Area	Baseline	2-year Target	4-year Target
Non-SOV Travel	Percent of Non-SOV Travel in urbanized area	New York City (NY-NJ-CT)	51.6%	51.6%	51.7%
Non-SOV Travel	Percent of Non-SOV Travel in urbanized area	Philadelphia (PA-NJ-DE-MD)	27.9%	28.0%	28.1%

On Road Mobile Source Emissions (Subpart H)

The On Road Mobile Source Emissions measure covers expected emission benefits by pollutant from all investments made through the federal Congestion Mitigation and Air Quality (CMAQ) program. Target values are based on emissions benefits recorded in the FHWA CMAQ Public Access Database for fiscal years 2014-2017. Targets are only required for areas that are in nonattainment or maintenance status for the pollutant.

In developing the targets in consultation with the MPOs and NJDEP, consideration was given to the fact that the vehicle fleet, on average, is becoming cleaner over time. For example, the emissions benefit obtained from driving 20 fewer miles in an average model year 2014 vehicle will be greater than that obtained from driving 20 fewer miles in an average model year 2021 vehicle.

It is important to note that these 2- and 4-year targets are cumulative. The 2-year target reflects expected emissions benefits based on projects authorized in federal fiscal years 2018 and 2019, and the 4-year target reflects federal fiscal years 2018 through 2021.

As noted above, by rule this target is required to include all investments made through the federal Congestion Mitigation and Air Quality (CMAQ) program, regardless of the implementer. The target values below reflect benefits from NJDOT projects, those resulting from MPO local CMAQ programs, and NJ TRANSIT projects.

Statewide CMAQ Emissions Targets (Sum of MPO Targets)				
	Total Emissions Benefits Projections (kg/day)			
Year	Volatile Organic Compounds (VOC)	Carbon Monoxide (CO)	Oxides of Nitrogen (NOx)	Fine Particulate Matter ($PM_{2.5}$)
2018	10.058	16.085	59.919	2.154
2019	7.624	15.842	54.482	2.137
2020	9.442	15.631	58.946	2.122
2021	9.200	15.452	58.504	2.108
Cumulative 2-yr Target ('18-19)	**17.682**	**31.927**	**114.401**	**4.290**
Cumulative 4-yr Target ('18-21)	**36.324**	**63.010**	**231.850**	**8.520**

Coordination
For each of the System Performance targets described above, the Department has engaged in a robust coordination process through the nationally recognized interagency Complete Team. Representatives from each of the three MPOs, along with NJ TRANSIT, the Port Authority of New York and New Jersey, CATT Lab of the University of Maryland, and TRANSCOM have worked closely with the Department to ensure that the target development process met technical requirements and adequately considered policy issues. In addition, for the two urbanized area measures, Department staff have participated in regular meetings & conference calls for the NY-NJ-CT and greater Philadelphia regions, led by NJTPA and the New York Metropolitan Transportation Council (NYMTC) for the former, and DVRPC for the latter. For the New York-New Jersey Urbanized area, NJDOT has worked closely with the New York State Department of Transportation, NJTPA, the (NYMTC), and other entities to coordinate identical targets for the two urbanized area measures. Similarly, NJDOT has worked closely with DVRPC, PennDOT, DelDOT, Maryland DOT, and other entities to coordinate identical targets in the greater Philadelphia urbanized area. In so doing, both regions have ensured that all key agencies have participated in and agreed upon the required targets.

If you have any questions, please contact my office.

Sincerely,

Diane Gutierrez-Scaccetti
Acting Commissioner

bc M. Ameen, Acting Executive Director, NJTPA
B. Seymour, Executive Director, DVRPC
J. Marandino, Executive Director, SJTPO

Appendix C

Appendix C: Pennsylvania State Four-Year Target Adjustment Memo

pennsylvania
DEPARTMENT OF TRANSPORTATION

National Performance Management Measures to Assess System Performance, Freight Movement, and the CMAQ Improvement Program

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SUBJECT: Mid Performance Period Progress Report and Adjusted 4-Year Targets (PM-3 Measures) [23 CFR 490.107]

BACKGROUND:

The Federal Highway Administration (FHWA) final rule for 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* was published in the Federal Register (82 FR 5970) on January 18, 2017 and became effective on May 20, 2017. This final rule is the third in a series of three related rulemakings that together establishes a set of performance measures for State Departments of Transportation (State DOTs) and Metropolitan Planning Organizations (MPOs) to use as required by the Moving Ahead for Progress in the 21st Century Act (MAP–21) and the Fixing America's Surface Transportation (FAST) Act. The measures in this third final rule are used by State DOTs and MPOs to assess the performance of the Interstate and non-Interstate National Highway System (NHS) for the purpose of carrying out the National Highway Performance Program (NHPP); to assess freight movement on the Interstate System; and to assess traffic congestion and on-road mobile source emissions for the purpose of carrying out the Congestion Mitigation and Air Quality Improvement (CMAQ) Program. These system performance measures are collectively referred to as the PM-3 measures.

In May 2018, PennDOT established 2-year and 4-year targets in coordination with Pennsylvania's Planning Partners. All MPO/RPOs agreed to support the PennDOT statewide and regional PM-3 targets established at that time. PennDOT is required to submit a Mid Performance Period Progress Report to FHWA by October 1, 2020. The Mid Performance Progress Report includes:

- The actual performance derived from the latest data collected through the midpoint of the performance period;
- A discussion of PennDOT's progress toward achieving each established 2-year target;
- A discussion on progress of PennDOT's efforts in addressing congestion at truck freight bottlenecks within the state;
- Adjustments to the 4-year targets for select performance measures with a discussion of the basis for the adjustment and how the revised targets support expectations in the long-range statewide transportation plan;
- MPO CMAQ performance plans for the SPC, DVRPC and Lancaster MPOs.

The FHWA makes a formal determination of significant progress in the achievement of 2- and 4-year targets. If significant progress is not made, states will be required to document actions to achieve targets in future performance periods.

PERFORMANCE MEASURES:

The PM-3 system performance measures include:

- Percent of Person-miles Traveled on the Interstate System that are Reliable
- Percent of Person-miles Traveled on the Non-Interstate NHS that are Reliable
- Interstate System Truck Travel Time Reliability Index (TTTR)
- Annual Hours of Peak-Hour Excessive Delay (PHED) per Capita
- Percent Non-Single Occupant Vehicle (SOV) Travel
- On-Road Mobile Source Emissions Reduction for CMAQ-funded Projects

ACTUAL 2-YEAR PERFORMANCE DATA & PROGRESS TOWARD ACHIEVING TARGETS:

The 2-year performance data related to the PM-3 measures is obtained from the University of Maryland CATT Lab RITIS software platform (for travel time measures), American Community Survey (for non-SOV travel modes) and FHWA's CMAQ annual reporting system (for mobile source emission reductions). The following tables and notes summarize progress towards achieving the targets.

Travel Time Reliability Measures:

Area (MPO/RPO)	Interstate Reliability			Non-Interstate Reliability			Truck Travel Time Reliability Index		
	2017 Baseline	2018	2019	*2017 Baseline*	2018	2019	*2017 Baseline*	2018	2019
Statewide Total	**89.8%**	**89.6%**	**89.9%**	**87.4%**	**88.2%**	**88.4%**	**1.34**	**1.39**	**1.36**
Statewide Target	**89.8%** *2 & 4-Year Target*			**87.4%** *4-Year Target*			**1.34** *2 & 4-Year Target*		
Targets only Apply to Statewide Total - MPO Numbers Provided for Information Purposes Only									
Adams	*Not Applicable*			86.2%	89.8%	93.4%	*Not Applicable*		
Altoona	100.0%	100.0%	100.0%	82.7%	83.9%	84.4%	1.21	1.25	1.18
Centre	100.0%	100.0%	100.0%	91.3%	93.2%	94.9%	1.13	1.33	1.15
DVRPC	65.5%	66.0%	66.6%	81.2%	82.6%	83.2%	2.01	2.04	1.99
Erie	100.0%	100.0%	100.0%	83.8%	86.7%	88.2%	1.25	1.23	1.29
Franklin	100.0%	100.0%	100.0%	93.8%	96.5%	94.6%	1.08	1.11	1.09
Harrisburg	91.3%	92.7%	92.4%	91.0%	92.4%	90.3%	1.32	1.33	1.31
Johnstown	*Not Applicable*			93.0%	94.5%	95.6%	*Not Applicable*		
Lancaster	100.0%	100.0%	100.0%	95.2%	95.3%	92.1%	1.09	1.12	1.17
Lebanon	100.0%	100.0%	100.0%	97.5%	97.7%	95.4%	1.12	1.14	1.15
Lehigh Valley	100.0%	100.0%	99.5%	86.4%	84.6%	85.4%	1.32	1.34	1.35
NEPA	100.0%	100.0%	99.9%	91.9%	90.9%	93.1%	1.26	1.25	1.28
North Central	100.0%	100.0%	100.0%	93.0%	95.7%	95.6%	1.10	1.11	1.50
Northern Tier	100.0%	100.0%	100.0%	98.8%	99.1%	94.7%	1.24	1.17	1.18
Northwest	100.0%	100.0%	100.0%	87.5%	91.5%	91.8%	1.18	1.32	1.17
Reading	100.0%	100.0%	100.0%	93.2%	94.2%	95.0%	1.12	1.38	1.19
S. Alleghenies	100.0%	100.0%	100.0%	95.9%	96.7%	94.2%	1.11	1.13	1.16
Scranton	98.3%	98.3%	98.2%	87.4%	90.3%	90.1%	1.39	1.28	1.35
SEDA-COG	100.0%	100.0%	100.0%	95.7%	96.4%	96.2%	1.11	1.11	1.12
SPC	92.9%	91.6%	92.1%	87.0%	87.7%	88.9%	1.42	1.49	1.46
SVTS	99.3%	99.2%	100.0%	95.1%	96.7%	95.9%	1.18	1.59	1.14
Wayne	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	1.11	1.12	1.17
Williamsport	100.0%	100.0%	100.0%	98.4%	98.3%	97.4%	1.16	1.18	1.19
York	100.0%	97.5%	94.9%	90.0%	89.6%	90.7%	1.22	1.32	1.28

Notes on Progress Towards Achieving Targets

- The 2- and 4-year reliability targets only apply statewide. MPO/RPO values are provided for informational purposes only.
- At the mid-performance period (2019), Pennsylvania met the established 2-year target for interstate reliability. The state did not meet the 2-year truck travel time reliability index target. Although a 2-year target is not applicable to the non-interstate reliability measure, the mid-performance period data exceeds the 4-year target.

- PennDOT reliability targets were originally developed based on 2017 baseline values. The goal was to maintain baseline reliability throughout the four-year performance period. MPO/RPO values indicate areas that maintained their regional baseline value (green) or worsened over the baseline (red).

Transportation Project Impacts on Reliability Measures

- The two-year interstate reliability target has been met. Over the two year period, projects which reached completion brought roadway segments into the reliable category. For example, the widening of I-81 on both sides of the Capital Beltway near Harrisburg significantly improved reliability. The completion of I-279 reconstruction near Pittsburgh didn't add capacity, but the removal of work zone traffic restrictions improved reliability.
- The TTTR trends show a reduction in freight reliability, which does not meet the 2-year target. PennDOT has observed the impact of construction work zones on freight reliability. For example, a bridge rehabilitation project along I-80 near DuBois significantly reduced freight reliability from 1.12 to 2.55. The completion of I-81 widening in Harrisburg near PA 114 improved reliability near this segment, but created a new bottleneck closer to the US 11 interchange.
- Comparing the 2017 baseline data to 2019 data shows significant improvement where construction activities were underway in 2017 and completed prior to 2019. However, these improvements are offset by other locations which were under construction in 2019 but not 2017. PennDOT must continue to improve pavement and bridge conditions along interstate highways, so the construction impacts cannot be eliminated. Implementation of alternative construction work zone strategies to mitigate freight reliability impacts will take several years and will not significantly affect reliability within this performance period.

Efforts to Better Understand Progress in Addressing Reliability

- PennDOT is working to better understand how reliability has changed on roads throughout the state. Ongoing work efforts include the mapping of reliability changes, completed transportation projects and construction activities for each year in the performance period. These mapping products will be shared with the Planning Partners when finalized to assist in regional reliability assessments.

CMAQ PHED and Non-SOV Measures:

Urbanized Area (MPO)	CMAQ Non-SOV Percentage		CMAQ PHED	
	2017 Baseline	2019	*2017 Baseline*	2019
Philadephia (DVRPC)	**27.9%**	**28.2%**	**16.8**	**14.6**
2-year Target	**28.0%**		***17.0 <Optional>***	
4-year Target	**28.1%**		**17.2**	
Pittsburgh (SPC)	**24.8%**	**25.5%**	**11.1**	**10.1**
2-year Target	**24.6%**		***N/A***	
4-year Target	**24.4%**		**11.8**	

Notes on Progress Towards Achieving Targets

- The CMAQ Non-SOV and PHED measures currently only apply to the Pittsburgh and Philadelphia urbanized areas. Targets were developed jointly by PennDOT, SPC and DVRPC (and other relevant stakeholders) for each respective region.
- The 2017 baseline PHED values are consistent with the original PennDOT baseline report submission (some values have changed in RITIS due to methodology and data corrections).

- Both the Pittsburgh and Philadelphia regions have had increases in the non-SOV regional travel percentage and meet the 2-year target. At this time both regions would also meet the 4-year target if trends continue over the next 2 years.
- Both the Pittsburgh and Philadelphia regions have seen reductions in the PHED measure and would meet the 4-year target if trends continue over the next 2 years.

Efforts to Better Understand Progress in Addressing CMAQ Congestion Measures

- PennDOT will continue to work with SPC and DVRPC to better understand how the transportation investments and land use changes have impacted the PHED and non-SOV measures. Future efforts will aim to better identify key roadway segments that contribute to the PHED measure.
- PennDOT will continue to support CMAQ congestion measure assessments and mapping. For future performance periods, these measures will apply to additional MPOs where urbanized area populations are greater than 200,000.

CMAQ Emission Measures:

Measure	MPO	Emissions (kg/day)		
		2019 2-year Target	2021 4-year Target	2019 2-year Actual Performance
VOC Emissions	*Statewide*	**109.46**	**201.73**	**231.03**
	DVRPC (PA only)	**37.61**	**69.31**	**142.79**
	SPC	**58.06**	**107.00**	**66.76**
	Lehigh Valley	*N/A*	**21.54**	*20.19*
	Lancaster	*N/A*	**3.60**	*0.25*
	Reading	*N/A*	**0.27**	*0.32*
	NEPA	*N/A*	**0.00**	*0.72*
NOx Emissions	*Statewide*	**337.70**	**612.82**	**936.29**
	DVRPC (PA only)	**23.42**	**42.50**	**652.4**
	SPC	**256.11**	**464.77**	**152.55**
	Lehigh Valley	*N/A*	**104.44**	*126.64*
	Lancaster	*N/A*	**1.03**	*1.16*
	Reading	*N/A*	**0.08**	*3.08*
	NEPA	*N/A*	**0.00**	*0.46*
$PM_{2.5}$ Emissions	*Statewide*	**10.76**	**20.49**	**37.87**
	DVRPC (PA only)	**1.08**	**2.06**	**24.21**
	SPC	**7.01**	**13.35**	**6.21**
	Lehigh Valley	*N/A*	**4.41**	*5.48*
	York	*N/A*	**0.11**	*1.41*
	Harrisburg	*N/A*	**0.10**	*0.41*
	Lancaster	*N/A*	**0.04**	*0.06*
	Lebanon	*N/A*	**0.09**	*0.06*
	Johnstown	*N/A*	**0.32**	*0.03*
PM_{10} Emissions	*Statewide*	**9.54**	**17.47**	**0.00**
	SPC	**9.54**	**17.47**	**0.00**
CO Emissions	*Statewide*	**567.70**	**1135.40**	**133.37**
	DVRPC (PA only)	**282.74**	**565.47**	*N/A*
	SPC	**284.97**	**569.93**	**133.37**

Notes on Progress Towards Achieving Targets

- Pollutant Definitions include VOC = Volatile Organic Compounds; NOx = Nitrogen Oxides; PM = Particulate Matter for specified size particles; and CO = Carbon Monoxide
- The 2-year targets for the CMAQ emissions measure only apply to the statewide totals and the nonattainment/maintenance areas in the SPC and DVRPC MPO regions. The 2-year actual performance does not meet the 2-year targets for the highlighted (red) cells in the table, which includes the SPC NOx, CO, PM_{10} and $PM_{2.5}$ pollutant categories. The statewide CO has also not met the target.
- DVRPC is now in attainment for CO and a CO target is no longer required for that region.

Efforts to Better Understand Progress in Addressing CMAQ Emission Measures

- PennDOT continues to work with relevant MPOs to better understand progress and to inform future target setting. In many areas, CMAQ fund investments are directed to projects that were initiated before the performance period. Additional efforts are underway to better track and identify CMAQ funding used for these "continuing" projects that do not count towards the performance target in that year.
- A CMAQ project selection process has been integrated to enhance coordination between MPO/RPOs and PennDOT District Offices in the identification and selection of CMAQ projects that provide the most benefit to air quality.
- Several targets including those for SPC need to be adjusted to reflect corrections to the methodology for accounting for emission credits (see section on 4-year Target Adjustments).

PROGRESS IN ADDRESSING CONGESTION AT FREIGHT BOTTLENECKS:

As per 23 CFR 490.107(b)(2)(ii)(D) and 23 CFR 490.107(b)(3)(ii)(D), States must provide in their mid and full performance period progress reports, a discussion on progress of the State DOT's efforts in addressing congestion at truck freight bottlenecks.

PennDOT's statewide long range transportation and freight plans are currently being updated and will include an enhanced evaluation of freight bottlenecks using NPMRDS truck travel times and other available data. Efforts are underway to develop bottleneck mapping and rankings for the interstate system based on road segments with high TTTR values and truck volumes. These efforts will continue as part of the statewide plan development process. In addition, work efforts will aim to identify the causes of bottlenecks, the impacts of construction activities and the benefits of completed transportation projects on those measures. PennDOT will work to verify those insights with MPO/RPOs throughout the state.

ADJUSTMENTS TO 4-YEAR PERFORMANCE TARGETS AND COORDINATION:

The mid period progress report offers an opportunity for PennDOT and its Planning Partners to review and revise the four-year targets for each of the PM-3 performance measures. The CMAQ congestion measure targets were developed with consensus of all relevant state DOT and MPO partners for each urbanized area (e.g. Philadelphia and Pittsburgh areas). All other reliability, freight and CMAQ emission targets were developed in coordination between PennDOT and Pennsylvania's MPO/RPOs.

The following table summarizes the target evaluation considerations and adjusted target values that are provided in PennDOT's mid performance period progress report to FHWA. All target adjustments were submitted to FHWA using the online Performance Management Form (PMF) by October 1, 2020.

Adjustments to 4-Year Targets:

Measure	Area	Original Target	Adjusted Target	Basis for Adjustment
Statewide Reliability Targets				
Interstate Reliability	Statewide	89.8%	**89.5%**	PennDOT's target was developed to maintain status quo for operations. Based on a review of the first three years of data, there are minor fluctuations within the statewide measure each year. PennDOT anticipates construction projects will cause performance drops before longer-term benefits of those projects are realized. The target adjustment reflects anticipated construction impacts which cannot be mitigated within the timeframe of the four-year target.
Non-Interstate Reliability		87.4%	**No Adjustment To Target**	
Truck Travel Time Reliability Index (TTTR)		1.34	**1.40**	The impacts of construction work zones on the freight reliability measure cannot be mitigated prior to the 2021 construction season. PennDOT will continue to monitor data to develop appropriate mitigation strategies to improve freight reliability in future performance periods. The 4-year target is intended to account for anticipated construction projects which will impact 2021 performance and unknown freight impacts due to the COVID-19 pandemic.
Philadelphia Urbanized Area Targets				
Peak Hour Excessive Delay (PEHD)	Philadelphia Urbanized Area	17.2	**No Adjustment To Target**	The existing 4-year targets remain reasonable, given existing trends, uncertainties in some of the PHED data, coverage and calculations, and unknown changes due to COVID.
Percent Non-SOV Travel		28.10%		
Pittsburgh Urbanized Area Targets				
Peak Hour Excessive Delay (PEHD)	Pittsburgh Urbanized Area	11.8	**No Adjustment To Target**	The existing 4-year targets remain reasonable, given existing trends, uncertainties in some of the PHED data, coverage and calculations, and unknown changes due to COVID.
Percent Non-SOV Travel		24.40%		
Statewide and MPO CMAQ Emission Targets in Kg/Day (only areas with adjusted values shown)				
VOC Emissions	Lancaster	3.60	**0.40**	Targets adjusted based on a review of "continuing" projects (that do not get counted in emission benefits) and anticipated new projects in the remaining 2-year TIP period. Methodology and emission factor changes to the emission calculation procedures are accounted for in the target adjustments.
NOX Emissions	SPC	464.77	**250.00**	
PM2.5 Emissions	SPC	13.35	**10.00**	
	Lebanon	0.09	**0.06**	
	Johnstown	0.32	**0.03**	
PM10 Emissions	Statewide	17.47	**0.00**	The original target was set assuming PM10 benefits of CMAQ projects across the entire SPC region. The target should only be for the actual nonattainment/maintenance area which just includes Liberty Clairton. No CMAQ projects are anticipated in this area over the 4-year performance period. The SPC and statewide targets will be adjusted to zero.
	SPC	17.47		
CO Emissions	Statewide	1135.40	**250.00**	The DVRPC region is now in attainment for CO and no longer requires a target. As such the MPO target can be removed and the statewide number is adjusted only to reflect the SPC area.
	DVRPC	565.47	**Remove Target**	
	SPC	569.93	**250.00**	The original target was set assuming CO benefits of CMAQ projects across the entire SPC region. The target should only be for the actual nonattainment/maintenance area which just includes the Pittsburgh central business district. MPO and statewide targets have been updated to reflect historic and future projects anticipated in that area.

MPO CMAQ PERFORMANCE PLANS:

As required in the federal rule, PennDOT includes the MPO CMAQ Performance Plans as part of the statewide mid performance progress report online submittal to FHWA. This includes performance plans for the following agencies: DVRPC, SPC and the Lancaster County MPO.

COORDINATION CONDUCTED FOR MID-PERFORMANCE REPORT:

- PennDOT provided a presentation on the PM-3 target adjustments at the September 16th Planning Partners call. The call included a discussion on the target setting process and requested comments on the proposed changes to target values. No MPO/RPOs indicated concerns regarding adjustments to the reliability, freight or CMAQ emission targets.

- PennDOT coordinated with both SPC and DVRPC in the review of their CMAQ PHED and Non-SOV percentage targets. The DVRPC coordination included all stakeholders for the Philadelphia PA-NJ-DE-MD urbanized area including PennDOT, NJDOT, DelDOT, MDOT, FHWA, DVRPC, NJTPA, SJTPO, WILMAPCO, LVPC, Berks and Lancaster County MPOs.

ESTABLISHMENT OF MPO TARGETS:

- The MPO/RPOs must establish targets no later than 180 days after PennDOT adjusts their targets (due October 1st, 2020). The MPO/RPOs must establish targets by either:
    - ⇨ Agreeing to plan and program projects so that they contribute toward the accomplishment of the relevant PennDOT target for that performance measure; or
    - ⇨ Committing to a quantifiable target for that performance measure for their metropolitan planning area.

- PennDOT will be formally contacting each MPO/RPO (similar to process conducted after May 2018 target establishment) regarding the above target setting options for the adjusted interstate freight reliability target. If the MPO/RPOs establish their own performance measure targets, they should coordinate with PennDOT on the selection of the targets in accordance with 23 U.S.C. 134(h)(2)(B)(i)(II) to ensure consistency, to the maximum extent practicable.

- The MPO/RPOs must report baseline condition/performance and progress toward the achievement of their targets in the system performance report in the metropolitan transportation plan.

Appendix D

Appendix D: New Jersey State Four-Year Target Adjustment Memo

Michael Baker
INTERNATIONAL

From: Robert d'Abadie, MBI

To: NJDOT Department of Statewide Planning
New Jersey Metropolitan Planning Organizations

Date: September 10, 2020

Subject: PM-3 Performance Measures for On-Road Mobile Source Emissions Reduction for CMAQ – Midterm Reporting

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Introduction

The Federal Highway Administration (FHWA) final rule for 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* was published in the Federal Register (82 FR 5970) on January 18, 2017 and became effective on May 20, 2017.

This final rule is the third in a series of three related rulemakings that together establishes a set of performance measures for State Departments of Transportation (State DOTs) and Metropolitan Planning Organizations (MPOs) to use as required by the Moving Ahead for Progress in the 21st Century Act (MAP–21) and the Fixing America's Surface Transportation (FAST) Act. The measures in this third final rule will be used by State DOTs and MPOs to assess the performance of the Interstate and non-Interstate National Highway System (NHS) for the purpose of carrying out the National Highway Performance Program (NHPP); to assess freight movement on the Interstate System; and to assess traffic congestion and on-road mobile source emissions for the purpose of carrying out the Congestion Mitigation and Air Quality Improvement (CMAQ) Program. These system performance measures are collectively referred to as the PM-3 measures.

By October 1, 2020, and every 4 years thereafter, State DOTs report their 2-year (midpoint performance period) progress to FHWA in their Mid Performance Period Progress Report. At that time, the 4-year targets may be updated based on insights from the midterm data.

This memorandum focuses solely on the last performance measure, the On-Road Mobile Source Emissions Reduction for CMAQ-funded Projects. The discussion begins with a summary of the process undertaken in New Jersey to develop the original targets, both for the Municipal Planning Organization (MPO) and Statewide. Next, the 2018 and 2019 emission benefits reported in FHWA's CMAQ Public Access System (CMAQ PAS) are adjusted using the same process employed when developing the original targets. Lastly, the progress to date is presented along with recommendation for the 4-year targets.

Review of Previous Target Setting Process

- To satisfy coordination requirements [23 CFR 490.105(e)(2)], NJDOT engaged with their Planning Partners in the development and selection of targets, including all three of the NJ MPOs and the

New Jersey Department of Environmental Protection (NJDEP.) This is covered in detail in the June 18th, 2020 memorandum to NJDOT found in **Attachment A**.

- In addition to informal consultation efforts, webinars where held with all planning partners on March 22nd and May 10th, 2018 to discuss the initial approach and final process/methodology, including all data assumptions.
- MPO technical staff were given the opportunity to review the base data, data modifications, the final calculations and final targets. Concurrence with the general target setting approach was requested and received via email with the understanding that each MPO would obtain the approval from their respective executive committees prior to the targets being official.
- A number of considerations went into the development of the 2-year and 4-year targets, including:
    - Development of the CMAQ emissions targets began by reviewing the reported emission benefits in FHWA's CMAQ PAS for fiscal years 2014-2017.
    - It was noted that going forward NJDOT will be updating the conventions used in entering data into the CMAQ PAS for greater uniformity, and these changes were reflected in the development of the targets. In particular, benefits of continuing projects were only considered in the first year the project received CMAQ funding as per FHWA recommendation.
    - Stakeholder staff reviewed the CMAQ PAS database, highlighting any analysis/data entry issues.
    - Benefits of NJ Transit projects receiving CMAQ funding are not recorded in the CMAQ PAS in New Jersey prior to 2018. NJ Transit provided the estimated emissions impacts for their 2014-2017 CMAQ projects, with the benefits of many of the NJ Transit project assigned to MPOs in which they were physically located.
    - Emission benefits of projects classified as *No MPO identified/State sponsored projects* (i.e. NJDOT and NJ Transit efforts not located within a specific MPO) were distributed using the ratio of the MPO Vehicle Miles of Travel (VMT) to the total VMT as reported in the 2016 Highway Performance Monitoring System (HPMS): DVRPC - 43,143,107 miles or 20.5%, NJTPA – 151,417,069 miles or 71.9%, SJTPO -16,075,432 miles or 7.6%.
    - Projects with entry errors/erroneously high values recorded in the CMAQ PAS were assumed to be qualitative for the purposes of targeting setting.
    - One-time "heavy hitter" projects were not considered when setting targets to avoid skewing them to unachievable levels. One example was the River Line diesel fleet re-engine/retrofit project. No project with a similar benefit were anticipated by DVRPC, so this project was not considered when setting the 2 and 4-year targets.
    - In developing the targets, a number of additional factors were considered in projecting the baseline 2014-2017 data into the future:
        - Adjustments we made to reflect the downward trend in average vehicle emission rates going forward. This was done by developing average emission rates for light duty vehicles for each analysis year using the EPA MOVES emission rates model and using these to factor the reported emission benefits into the future.
        - Projects involving the reduction of diesel vehicle emissions were not adjusted over time. Generally, these projects involve the one-for-one replacement or retrofit of specific older, more polluting vehicles/equipment built to specific standards, and as such their typical impact is unlikely to trend downwards in the next 4 years unlike the projects that reduce VMT.

- MPO targets were only developed for the pollutants for which area is classified as nonattainment or maintenance:
    1. NJTPA – Ozone (VOC + NOX), $PM_{2.5}$ and CO
    2. DVRPC – Ozone (VOC + NOX) and $PM_{2.5}$
    3. SJTPO – Ozone (VOC + NOX) only
- Additional assumptions were needed in developing the targets for the NJTPA region:
    - The entire $PM_{2.5}$ emissions benefit was included when setting targets. It was assumed that the majority of $PM_{2.5}$ benefits would occur within the boundaries of the $PM_{2.5}$ non-attainment area.
    - For the CO targets, the emission reductions were factored using the ratio of the 2016 HPMS VMT within Passaic, Essex, Bergen, Hudson and Union counties (the majority of the CO non-attainment area) to total VMT in the MPO - 39.26%
- For the SJTPO region it was noted that due to a backlog of projects, no new CMAQ funded projects were anticipated in FY2019. This was reflected when setting targets.

- The final MPO and Statewide targets are summarized in **Exhibit A.**

Exhibit A: PM-3 Target Values for CMAQ Emission Measures

Measure	MPO	Emissions (kg/day)	
		2019 2-year Target	2021 4-year Target
VOC Emissions	Statewide	17.682	36.324
	DVRPC (NJ only)	1.450	2.864
	NJTPA	14.026	27.318
	SJTPO	2.207	6.142
NO_X Emissions	Statewide	114.401	231.927
	DVRPC (NJ only)	7.453	14.861
	NJTPA	101.722	202.745
	SJTPO	5.226	14.245
$PM_{2.5}$ Emissions	Statewide	4.290	8.520
	DVRPC (NJ only)	2.627	5.253
	NJTPA	1.663	3.267
CO Emissions	Statewide	31.927	63.010
	NJTPA	31.927	63.010

Midterm Performance

- The data found in the CMAQ PAS was downloaded for fiscal years 2018 and 2019. A summary of the project data can be found in **Attachment B.**
- A spreadsheet was created to replicate the calculations used in developing the targets, specifically:
    - The emission benefit for projects classified as *No MPO identified/State sponsored projects* (NJDOT and NJ Transit) were distributed to the MPOs based on the fraction of statewide

HPMS VMT recorded within each MPO, the same values used during the target setting: DVRPC - 20.5%, NJTPA - 71.9%, SJTPO - 7.6%.

- The 2018 and 2019 NJ Transit projects were not location specific. These benefits were therefore distributed based on the HPMS VMT ratios above.
- To gauge performance, similar to what was used when developing targets:
  - Only the pollutants for which area is classified as nonattainment or maintenance were considered:
    - NJTPA – Ozone (VOC + NO_X), $PM_{2.5}$ and CO
    - FattainDVRPC – Ozone (VOC + NO_X) and $PM_{2.5}$
    - SJTPO – Ozone (VOC + NO_X) only
  - In the NJTPA, all of the $PM_{2.5}$ benefits and 39.26% of the CO benefits (based on the amount of VMT estimated within the CO maintenance area) were reported.
- **Exhibit B** lists the total reported 2018 and 2019 emissions reductions and compares them to the existing 2 and 4-year targets.
- The spreadsheet calculating these values is available on request. It has already been shared and reviewed by stakeholders and incorporates their comments.

Results and Recommendations

- Using the data in the CMAQ PAS and the process discussed above, all of the 2 and 4-year CMAQ emissions targets have already been achieved both for the individual MPOs and Statewide:
  - DVRPC was able to achieve its target goals both for the 2 and 4-year based solely on the benefits of projects initiated by the MPO directly.
  - NJTPA only had one project recorded during the first 2 years of reporting period, a 2018 project recorded as qualitative. While there are no quantified emission benefits attributed directly to the MPO so far, the MPO's assigned share of the benefits from the *No MPO identified/State sponsored projects* achieves both the 2 and 4-year target goals.
  - SJTPO has only continuing projects in the first two years of the reporting period. While there are no quantified emission benefits attributed directly to the MPO so far, the MPO's assigned share of the benefits from the *No MPO identified/State sponsored projects* achieves both the 2 and 4-year target goals.
  - Note that Statewide values shown are less than the totals in the CMAQ PAS as individual MPOs only take credit for individual pollutants of concern in their regions. Since the MPO and statewide targets must align, the Statewide reported values are the sum of the MPO values.
- The occurrence of the COVID-19 pandemic has resulted in immense uncertainty, both on the types of CMAQ projects that will be championed and the ability of the state and MPOs to fund them.
- Given the ongoing uncertainty, and the fact the 4-year targets have already been achieved, it was recommended by NJDOT to the MPOs that the 4-year targets not be changed. Concurrence with this recommendation was received via email from all three MPOs via emails. Copies of these emails are provided in **Attachment C**.

Exhibit B: Comparison of Report CMAQ Emissions Benefits to Previously Established 2 and 4-Year Targets

DVRPC

Year/ Targets	Total Emissions Benefits Projections (kg/day)							
	VOC		CO*		NO_X		$PM_{2.5}$ *	
	Target	Achieved	Target	Achieved	Target	Achieved	Target	Achieved
2018	0.73	24.50	-	-	3.73	222.39	1.31	80.09
2019	0.72	45.63	-	-	3.72	446.40	1.31	28.47
2-Year	**1.45**	**70.13**	-	-	**7.45**	**668.79**	**2.63**	**108.55**
4-Year	**2.86**	-	-	-	**14.86**	-	**5.25**	-

* No CO values reported as DVRPC in full attainment of the NAAQS for this pollutant.

NJTPA

Year/ Targets	Total Emissions Benefits Projections (kg/day)							
	VOC		CO*		NO_X		$PM_{2.5}$**	
	Target	Achieved	Target	Achieved	Target	Achieved	Target	Achieved
2018	7.12	76.99	16.08	112.75	50.96	747.63	0.84	47.76
2019	6.90	2.25	15.84	32.74	50.76	4.59	0.82	0.63
2-Year	**14.03**	**79.24**	**31.93**	**145.50**	**101.72**	**752.22**	**1.66**	**48.38**
4-Year	**27.32**	-	**63.01**	-	**202.74**	-	**3.27**	-

* Approximately 39.26% VMT in CO area, values factored accordingly.
** 100% of $PM_{2.5}$ benefit taken, assumed to occur in non-attainment area.

SJTPO

Year/ Targets	Total Emissions Benefits Projections (kg/day)							
	VOC		CO*		NO_X		$PM_{2.5}$*	
	Target	Achieved	Target	Achieved	Target	Achieved	Target	Achieved
2018	2.21	8.14	-	-	5.23	79.03	-	-
2019**	-	0.24	-	-	-	0.48	-	-
2-Year	**2.21**	**8.38**	-	-	**5.23**	**79.51**	-	-
4-Year	**6.14**	-	-	-	**14.25**	-	-	-

* No CO or $PM_{2.5}$ values reported as SJTPO is in full attainment of the NAAQS for these pollutants.
** STJTO anticipated completing backlog in FY2019 w/ no new project, reflected in original target setting.

Statewide

Year/ Targets	Total Emissions Benefits Projections (kg/day)*							
	VOC		CO*		NOX*		PM2.5*	
	Target	Achieved	Target	Achieved	Target	Achieved	Target	Achieved
2018	10.06	109.63	16.08	112.75	59.92	1049.05	2.15	47.76
2019	9.72	48.12	15.84	32.74	59.39	451.47	2.14	0.63
2-Year	**17.68**	**157.75**	**31.93**	**145.50**	**114.40**	**1500.52**	**4.29**	**156.94**
4-Year	**36.32**	-	**63.01**	-	**231.85**	-	**8.52**	-

* Statewide values are the sum of those for the MPOs, MPO and Statewide reported values must align.

Congestion Mitigation and Air Quality
Interim Performance Plan (2018–2019)

Publication Number: TM21003

Date Published: September 2020

Geographic Area Covered:

Portions of the Philadelphia and New York–Newark Urbanized Area that comprise the nine-county DVRPC planning area, which covers the counties of Bucks, Chester, Delaware, Montgomery, and Philadelphia in Pennsylvania and Burlington, Camden, Gloucester, and Mercer counties in New Jersey.

Key Words:

Congestion Mitigation and Air Quality, CMAQ, Performance Measures, Transportation Performance Management, Congestion, Peak Hour Excessive Delay, Percent Non-Single Occupant Vehicle Travel, On-road Mobile Emissions, PM3, State Performance Measure Targets, Nonattainment Area, Maintenance Area, Volatile Organic Compounds (VOCs), Nitrogen Oxides (NO_x), Fine Particulate Matter ($PM_{2.5}$)

Abstract:

Metropolitan Planning Organizations are required to adopt CMAQ Emissions and Congestion targets and develop a baseline performance plan as part of the federally mandated Transportation Performance Management process. This technical memo serves as the baseline performance report to FHWA for the period 2018–2019 for the congestion and on-road mobile emissions performance measures for the Philadelphia Urbanized Area and New York-Newark Urbanized Area and on-road mobile emissions performance measures in the DVRPC Planning Area.

Staff Contact:

Sean Greene
Manager of Air Quality Programs
215.238.2860
sgreene@dvrpc.org

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

190 N Independence Mall West
8th Floor
Philadelphia, PA 19106-1520
215.592.1800 | fax: 215.592.9125
www.dvrpc.org

190 N Independence Mall West
8th Floor
Philadelphia, PA 19106-1520
215.592.1800 | fax: 215.592.9125
www.dvrpc.org

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