

CONGESTION MITIGATION AND AIR QUALITY (CMAQ)

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Congestion Mitigation and Air Quality (CMAQ)

- Established in 1991 under the Intermodal Surface Transportation Efficiency Act (ISTEA) in 23 U.S.C. Section 149, and reauthorized in all subsequent federal transportation funding bills
- Provides funds to States for transportation projects designed to reduce traffic congestion and improve air quality, particularly in areas of the country that do not attain national air quality standards
- Supports investments that encourage alternatives to driving alone, improve traffic flow, and help urban areas meet air quality goals



CMAQ in the Washington Region

- DOTs select projects for CMAQ funding, calculate emissions benefits, and report annually to FHWA
- MPOs and DOTs coordinate for CMAQ-related Performance Based Planning and Programming (PBPP) requirements

CMAQ Funding

National CMAQ Funding*

| Fiscal year | 2016 | 2017 | 2018 | 2019 | 2020 |
|--------------------|-----------|-----------|-----------|-----------|-----------|
| Estimated funding* | \$2.309 B | \$2.360 B | \$2.405 B | \$2.449 B | \$2.499 B |

*From Fixing America's Surface Transportation Act or "FAST Act"

FY2020 Apportionment by State:

10,832,815 – DC

57,581,191 – MD

58,893,491 – VA

Source: <https://www.fhwa.dot.gov/fastact/comptables/table1p3-2.cfm>



CMAQ Project Requirements

Each CMAQ project must:

- Be a transportation project
- Generate emission reductions (which must be estimated quantitatively or qualitatively)
- Be located in or benefit a nonattainment or maintenance area
- Conform to CMAQ guidance (e.g. no SOV capacity increasing projects)



CMAQ Project Eligibility

Examples of CMAQ Eligible Projects and Programs:

- Diesel engine retrofits and other advanced truck technologies
- Idle reduction
- Congestion reduction and traffic flow improvements
- Freight and intermodal
- Transportation control measures
- Transit improvements
- Bicycle and pedestrian facilities and programs
- Travel demand management
- Public education and outreach activities
- Transportation management associations
- Carpooling and vanpooling
- Carsharing
- Extreme low temperature cold start program
- Training
- Inspection and maintenance programs
- Alternative fuels and vehicles
- Innovative projects



CMAQ Reporting Requirements

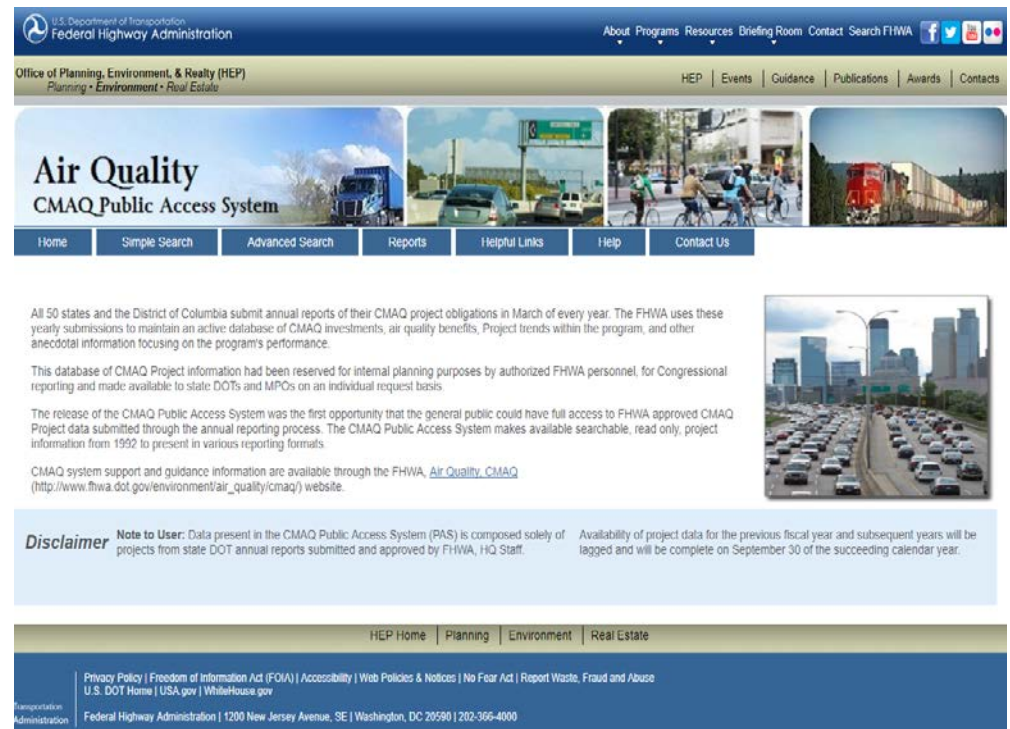
Each State must report to FHWA annually on CMAQ project obligations and its associated air quality benefits in March of every year.



CMAQ Public Access System (PAS)

CMAQ PAS is a national database listing each state's CMAQ projects

- Projects are not required to have a quantitative benefit analysis
- Projects with quantitative analysis list the project's benefits in the first year only
- No required or consistent method for conducting quantitative analyses, but FHWA is developing tools to help with consistency



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Air Quality CMAQ Public Access System

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All 50 states and the District of Columbia submit annual reports of their CMAQ project obligations in March of every year. The FHWA uses these yearly submissions to maintain an active database of CMAQ investments, air quality benefits, Project trends within the program, and other anecdotal information focusing on the program's performance.

This database of CMAQ Project information had been reserved for internal planning purposes by authorized FHWA personnel, for Congressional reporting and made available to state DOTs and MPOs on an individual request basis.

The release of the CMAQ Public Access System was the first opportunity that the general public could have full access to FHWA approved CMAQ Project data submitted through the annual reporting process. The CMAQ Public Access System makes available searchable, read only, project information from 1992 to present in various reporting formats.

CMAQ system support and guidance information are available through the FHWA, [Air Quality, CMAQ](http://www.fhwa.dot.gov/environment/air_quality/cmaq/) (http://www.fhwa.dot.gov/environment/air_quality/cmaq/) website.

Disclaimer Note to User: Data present in the CMAQ Public Access System (PAS) is composed solely of projects from state DOT annual reports submitted and approved by FHWA, HQ Staff. Availability of project data for the previous fiscal year and subsequent years will be lagged and will be complete on September 30 of the succeeding calendar year.

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Federal Highway Administration | 1200 New Jersey Avenue, SE | Washington, DC 20590 | 202-366-4000

https://fhwaapps.fhwa.dot.gov/cmaq_pub/



CMAQ Public Access System (PAS)

Sample Export from the PAS:

| CMAQ Performance Measure Project Listing Report for 2019 | | | | | | | | | | | |
|--|------|---------------------|--------------------------------|---|--|--------------|-------------|--------------|---------------|----------------|----------------------------------|
| Metropolitan Washington COG | | | | | | | | | | | |
| STATE | YEAR | CONTINUING PROJECT? | Is this an obligating project? | PROJECT TITLE | PROJECT DESCRIPTION | VOC (kg/day) | CO (kg/day) | NOx (kg/day) | PM10 (Kg/Day) | PM2.5 (Kg/Day) | Is congestion reduction project? |
| Virginia | 2019 | No | N | ROUTE 50 SIDEWALK FROM WESTCOTT STREET TO ANNANDALE ROAD | Facilities, Other--Description, Multi-use path | 0.031 | | 0.038 | | | N |
| Virginia | 2019 | No | N | #SMART18 WAXPOOL RD/LOUDOUN CTY PKWY INTER IMPROV | Congestion Reduction, Left-Turn / Managed lanes, Design | 0.443 | | 2.101 | | | N |
| Virginia | 2019 | No | N | Metro Station Bike & Pedestrian Improvements | Facilities, Other--Description, Sidewalk | 0.07 | | 0.01 | | | N |
| Virginia | 2019 | No | N | CONNECTOR BRIDGE CRYSTAL CITY TO WASHINGTON NATIONAL AIRPORT | Facilities, Other--Description, Pedestrian Bridge | QA | | QA | | | N |
| Virginia | 2019 | No | N | multi-use trail along Beauregard Street | Facilities, Other--Description, Multi-use path | 0.199 | | 0.129 | | | N |
| Virginia | 2019 | No | N | Signal Software Optimization | Intelligent Transportation Systems, Signalization Upgrades, Description, Traffic Signal Software | 1.52 | | 2.06 | | | N |
| Virginia | 2019 | No | N | Crystal City Metrorail Station East Entrance | Facilities, Passenger Facilities, Rail Station, Modified, | QA | | QA | | | N |
| Virginia | 2019 | No | N | VRE Admin.: King Street Station Pedestrian Tunnel | Facilities, Passenger Facilities, Rail Station, Modified, | QA | | QA | | | N |
| Virginia | 2019 | No | N | Alexandria Potomac Yard Station Improvements Southwest Entrance | Facilities, Passenger Facilities, Rail Station, Modified | QA | | QA | | | N |
| Virginia | 2019 | No | N | Fairfax County Innovation Center Metrorail Station | Facilities, Railway and Busway Infrastructure, Light Rail Track, New, | 0.167 | | 0.887 | | | N |



CMAQ Emissions Calculator Toolkit

FHWA tool to assist the estimation of emission benefits of CMAQ projects

- Provides a common set of methodologies using consistent assumptions, available data sources
- Provides analysis methodologies for most encountered CMAQ projects
- Allows project sponsors who may have limited technical and analytical capabilities to estimate emission benefits

https://www.fhwa.dot.gov/environment/air_quality/cmaq/toolkit/



CMAQ Emissions Calculator Toolkit

Available Tools:

- Managed Lanes Facilities and Conversion
- Bicycle and Pedestrian Improvements
- Intersection Improvements
- Traffic Signal Synchronization
- Diesel Idle Reduction Technologies
- Transit Bus Service and Fleet Expansion
- Transit Bus Retrofits and Replacement
- Carpooling and Vanpooling
- On-Road Alternative Fuel Vehicle Fleet Purchase
- Alternative Fuel Infrastructure
- Advanced Diesel Truck/Engine Technologies
- Dust Mitigation Practices



Performance Based Planning and Programming (PBPP)

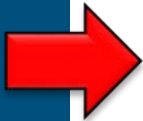
PBPP requires State DOTs and MPOs to establish targets and to use performance measures to track their progress toward meeting those targets in the following areas:

- Highway Safety
- Highway Assets: Pavement and Bridge Condition
- System Performance (Interstate and National Highway System, Freight Movement on the Interstate System, and the Congestion Mitigation and Air Quality Improvement Program)
- Transit Safety and Transit Asset Management



PBPP: CMAQ Emissions Reduction

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



CMAQ Emissions Reduction: Setting Targets

In 2018 the State DOTs set individual targets for their portion of the nonattainment area and the MPO set targets for the MPO portion of the nonattainment area.

- **MDOT Targets:** Used combined approach with historic trends and anticipated CMAQ projects programmed over the next four years
- **VDOT Targets:** Used anticipated CMAQ projects programmed over the next four years
- **DDOT Targets:** Used anticipated CMAQ projects programmed over the next four years
- **TPB Targets:** Summed MDOT, VDOT, and DDOT targets



CMAQ Emissions Reduction: Setting Targets

The TPB approved the following targets in July, 2018:

| Total Emissions Reductions for the TPB portion of the Washington DC-MD-VA nonattainment area | | FFY 2018 - 2019 Two Year Target | FFY 2018 - 2021 Four Year Target |
|--|-----------------------------------|------------------------------------|-------------------------------------|
| | Volatile Organic Compounds (VOCs) | 1.8376 Kg/Day | 2.1950 Kg/Day |
| Nitrogen Oxides (NOx) | 4.0194 Kg/Day | 4.7026 Kg/Day | |



Initial PBPP CMAQ Performance Reporting

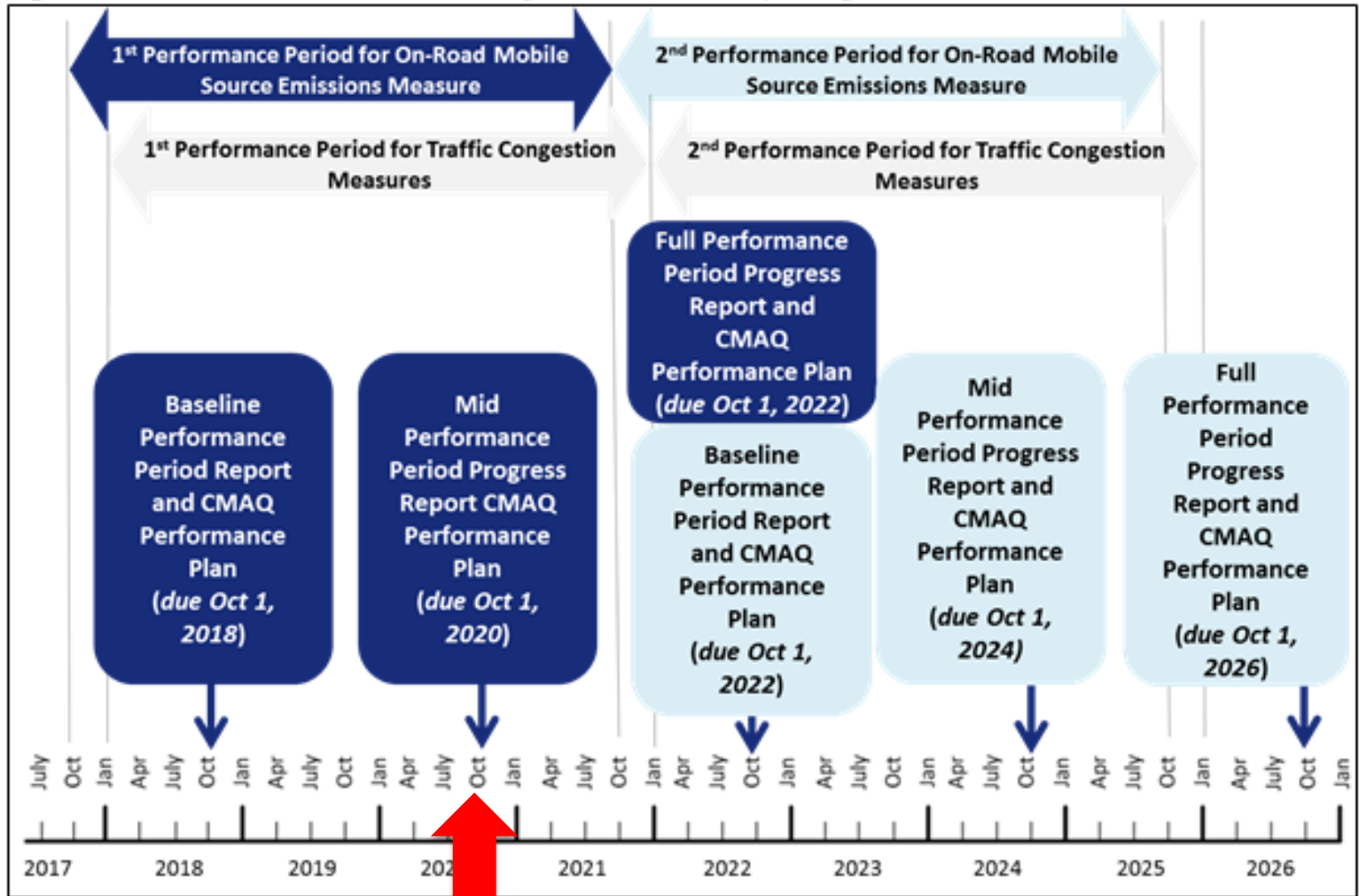
- In 2018 MPOs drafted Performance Reports showing 2-year and 4-year CMAQ emission reduction targets for the region
- By October 1, 2018 State DOTs sent the MPO Performance Reports along with State CMAQ emission reduction targets to FHWA

CONGESTION MITIGATION AND AIR QUALITY PROGRAM PERFORMANCE Performance-Based Planning and Programming

June 2018



CMAQ PBPP Reporting Timeline

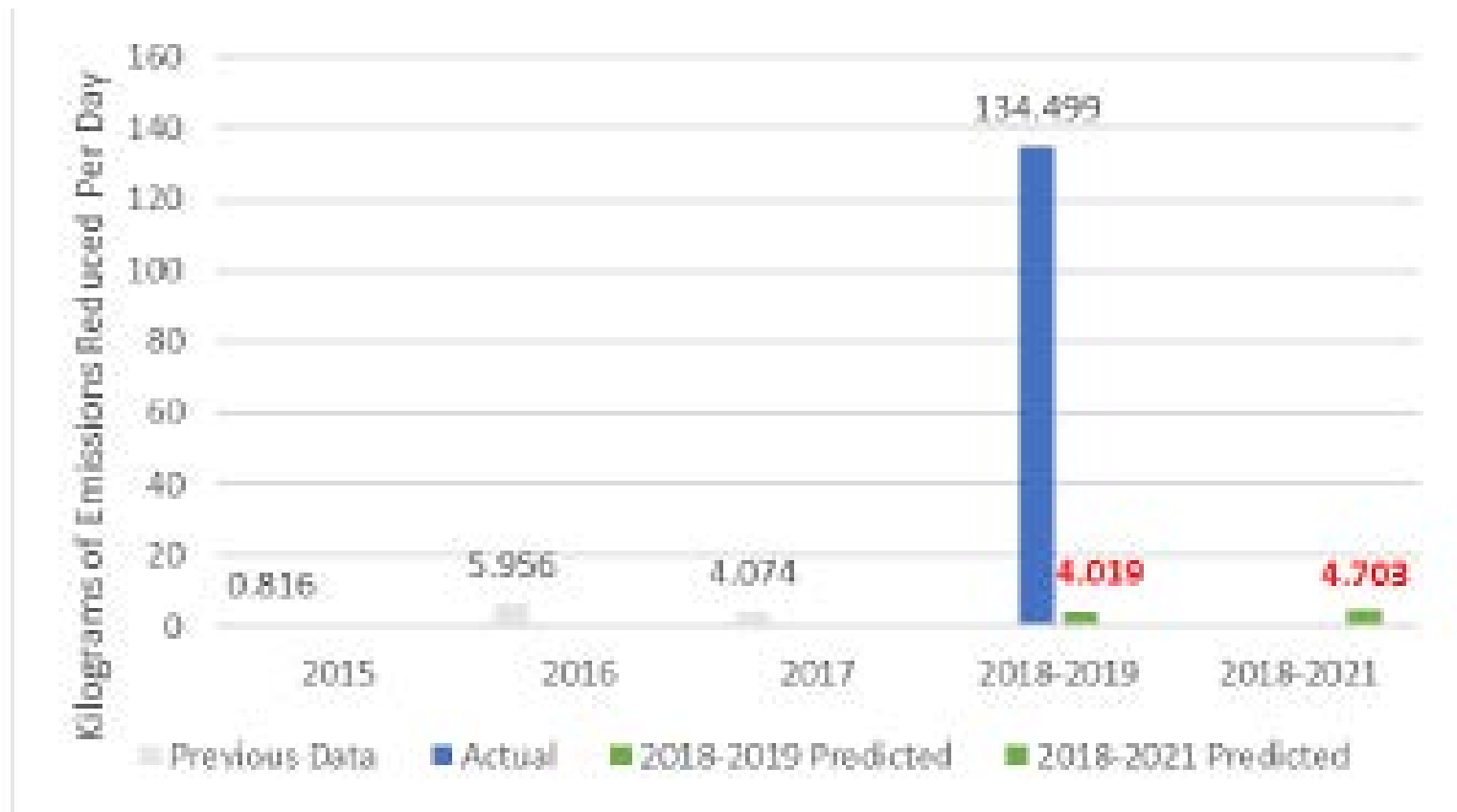


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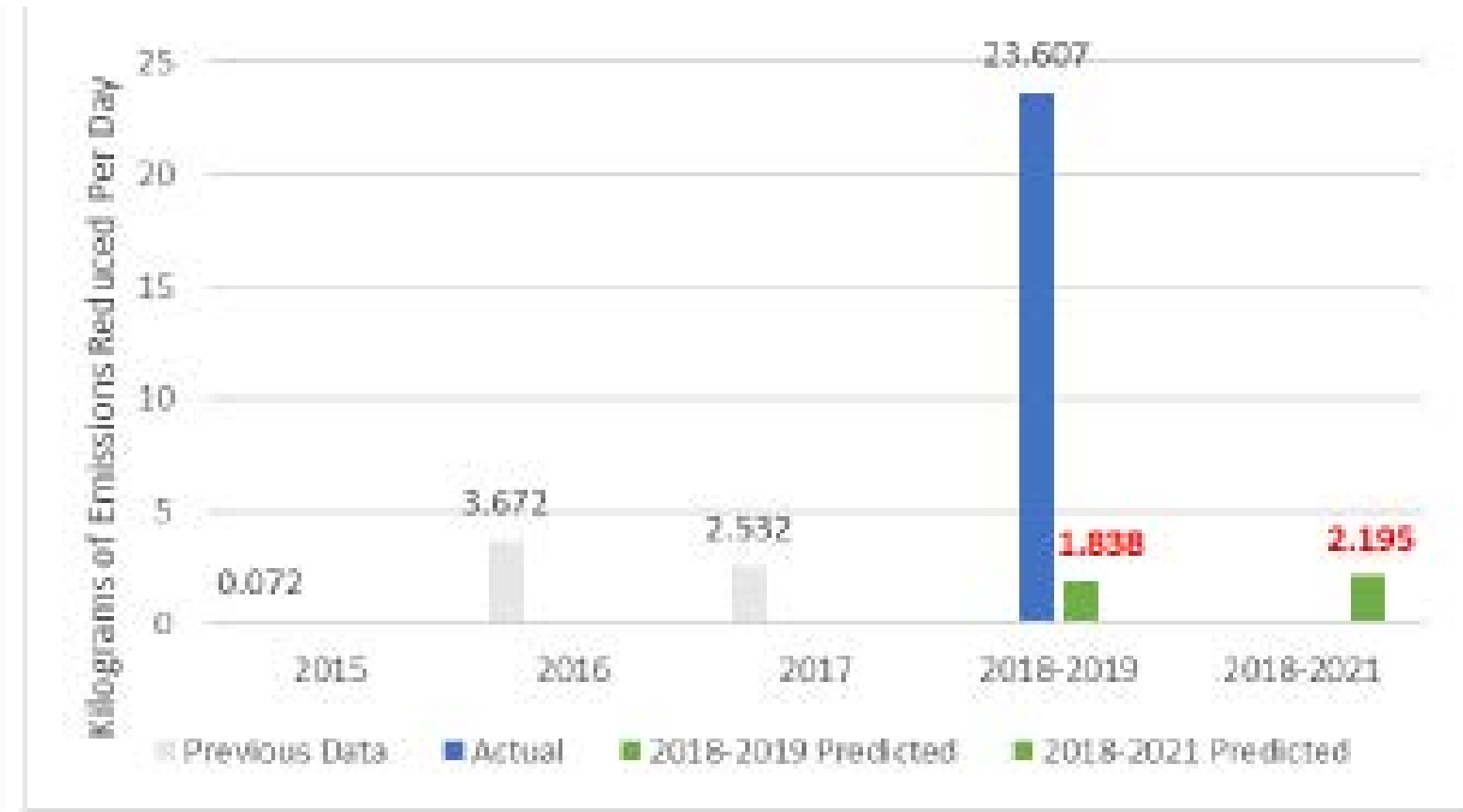
Mid-Performance: CMAQ NOx Reductions

CMAQ NOx Emissions Reductions for the Washington DC-MD-VA Ozone Nonattainment Area (kilograms/day)



Mid-Performance: CMAQ VOC Reductions

CMAQ VOC Emissions Reductions for the Washington DC-MD-VA Ozone Nonattainment Area (kilograms/day)



Mid Performance Reporting

- In 2020 the State DOTs shared CMAQ emissions reductions reported in the CMAQ PAS
- Although DOTs and MPOs could change their targets if desired, the Washington region did not change their targets
- The TPB drafted a Mid-Performance Report showing progress made towards the CMAQ emission reduction targets
- By October 1, 2020 State DOTs sent the MPO Mid-Performance Reports to the FHWA

CONGESTION MITIGATION AND AIR QUALITY PROGRAM PERFORMANCE PLAN

Final Report
September 2020



 National Capital Region
Transportation Planning Board

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