PERFORMANCE BASED PLANNING & PROGRAMMING

CMAQ Program Measures: Draft Targets for 2022–2025

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Transportation Planning Board
May 18, 2022

Agenda Item 10

National Capital Region
Transportation Planning Board

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- Congestion Mitigation and Air Quality (CMAQ) Program Performance Measures
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Performance Based Planning and Programming

- Federal surface transportation regulations require the implementation of performance based planning and programming (PBPP) by State DOTs, MPOs, and transit agencies

  "transition to a performance-driven, outcome-based program that provides for a greater level of transparency and accountability, improved project decision-making, and more efficient investment of federal transportation funds."

- State DOTs, MPOs, and providers of public transportation must link investment priorities to the achievement of performance targets in the TIP and the long-range transportation plan

Federal PBPP Performance Areas

- Federal PBPP process requires State DOTs, MPOs and providers of public transportation to set targets (annually or every two/four years) for 26 performance measures
  - Highway Safety – ***annual***
  - Highway Assets (Pavement and Bridge Condition) – ***2/4-year***
  - Highway System Performance (Reliability, Freight, CMAQ Program) – ***2/4-year***
  - Transit Assets – ***annual / with TIP***
  - Transit Safety – ***annual***

4-Year Target reporting and setting in 2022

- Next round of 4-year targets for the two areas of Highway Assets and Highway Systems Performance for the period 2022-2025 must be set by State DOTs by **October 1, 2022**
  - MPOs have up to 180 days afterwards to set targets

- The Visualize 2045 long range transportation plan must include an overall system performance report (Appendix D)
- The FY 2023-2026 TIP must discuss the impact of projects on performance

CMAQ Program Performance Measures

The three CMAQ Program targets are set regionally:

- ❖ Peak Hours of Excessive Delay (PHED)
- ❖ Mode Share (Non-SOV)

set for the Washington DC-MD-VA urban area

- ❖ Emissions Reductions: VOCs and NOx

set for the non-attainment area

- Due to the regional nature of the CMAQ Program targets, the TPB previously took the lead in developing the targets for these three measures and is doing so again this year
- TPB staff are coordinating with the State DOTs in developing the 2022-2025 CMAQ Program targets
  - Must be identical targets adopted by the three State DOTs
  - Due to urban area overlap, adjoining MPOs FAMPO and BRTB must also adopt identical targets for this region

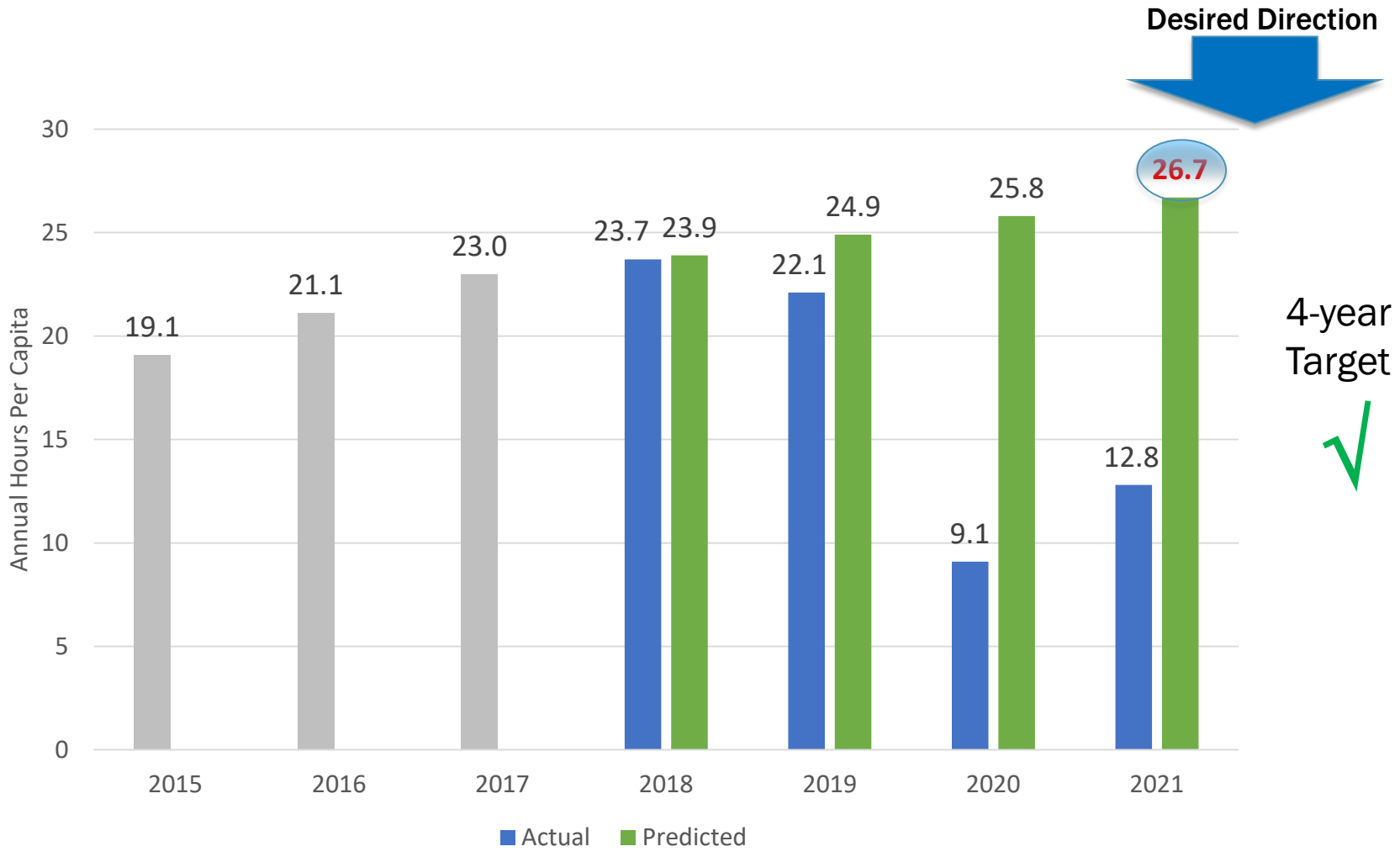
CMAQ Program: Traffic Congestion

	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)

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

Targets set by the TPB on June 20, 2018

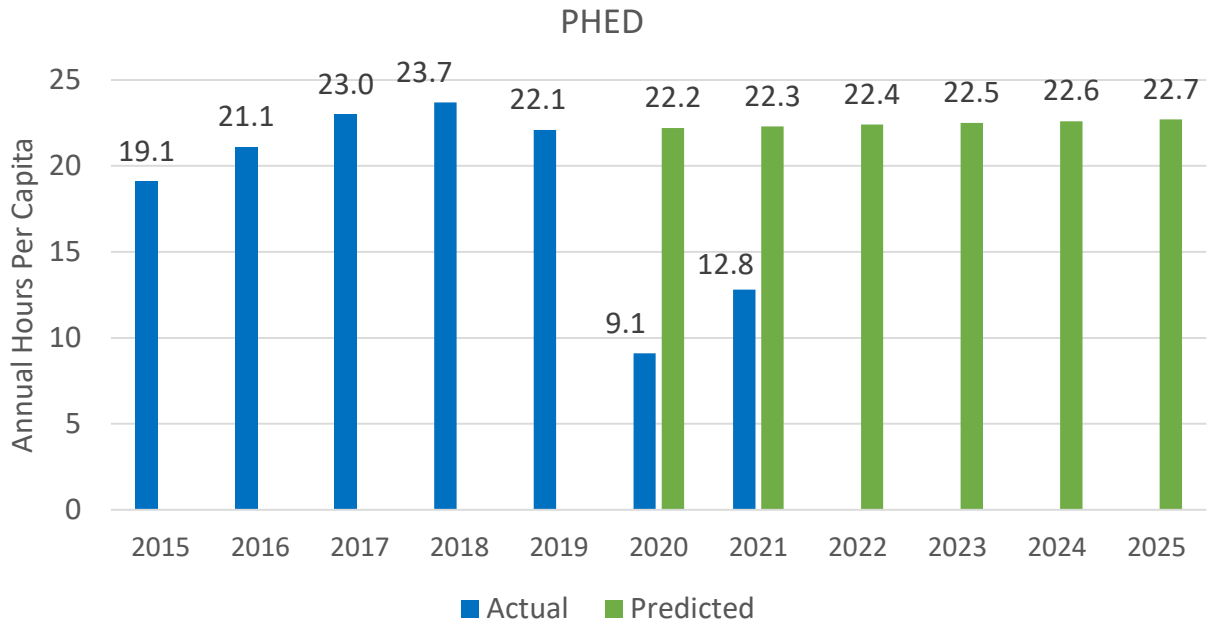
Traffic Congestion: PHED Performance vs. Target



2022-2025 Draft PHED Target Methodology

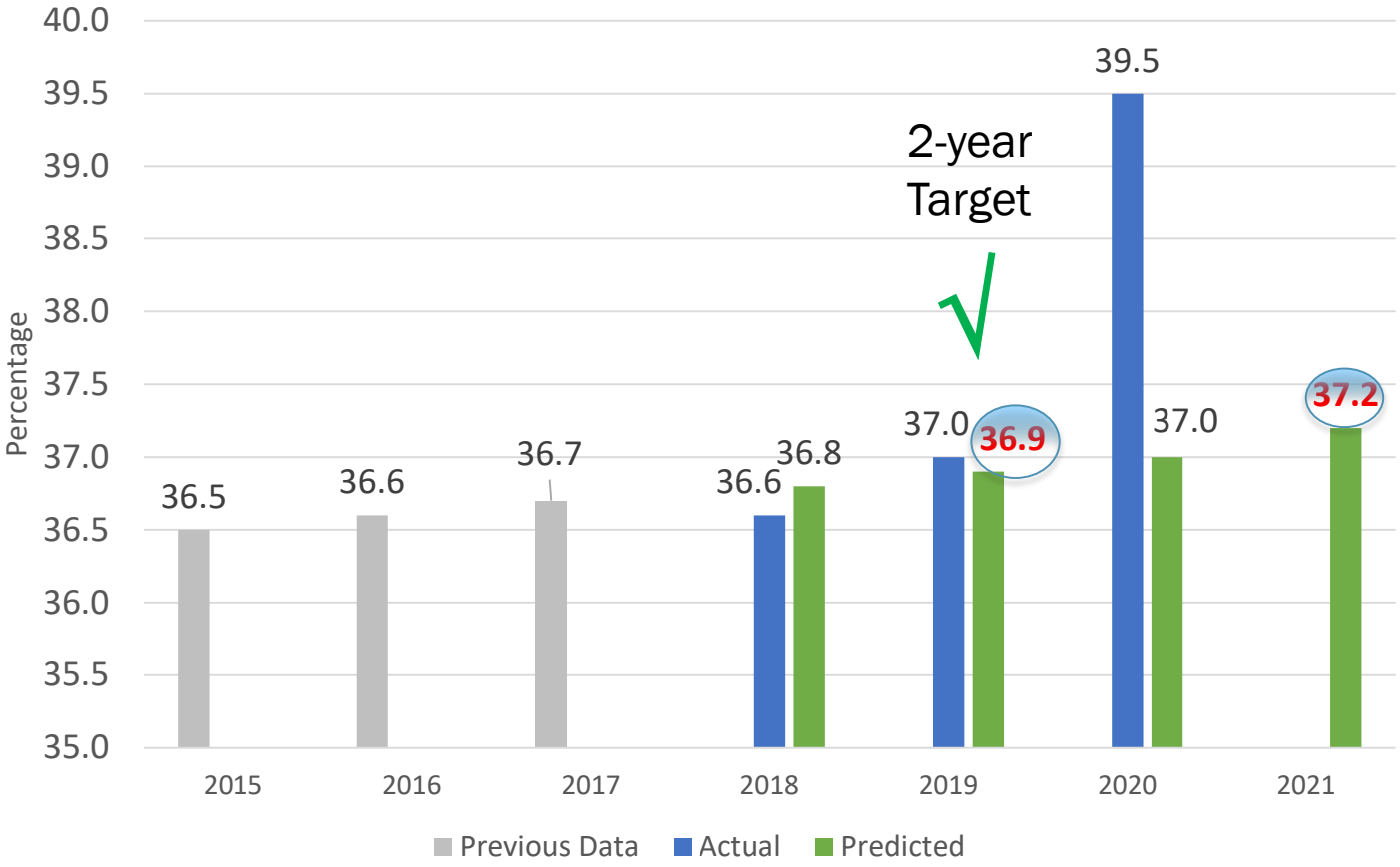
- Use same general methodology as used in 2018
  - Average of observed trends and short-term predictions of TPB travel demand model
    - Observed trends captures recent influences
    - Model captures the impacts of increased population and travel demand vs. road and transit changes
  - The impact of the pandemic on the PHED performance measure is evident but has uncertain implications for trends going forward
    - Exclude data from pandemic years (2020, 2021)
    - Use trend data for 2016-2019 (four years) and extrapolate from 2019

2022-2025 Draft PHED Graph and Target



DRAFT	CY 2022 – 2023 Two Year Target	CY 2022 – 2025 Four Year Target
Peak Hour Excessive Delay (PHED)	22.5 Hours	22.7 Hours

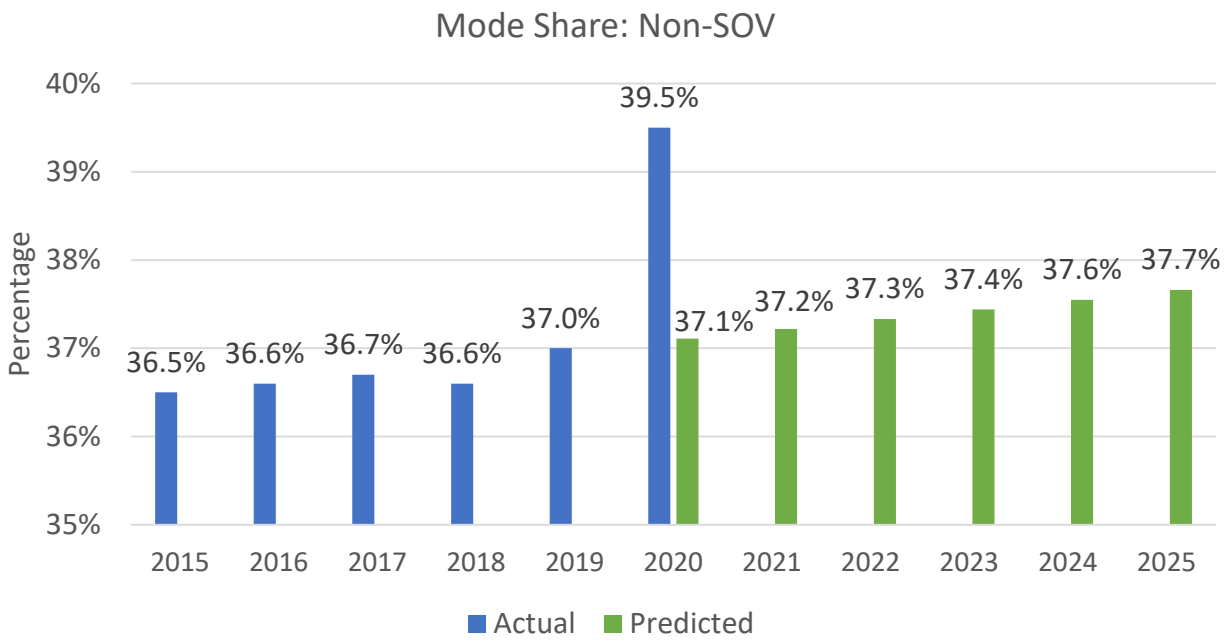
Traffic Congestion: Mode Share (Non-SOV) Performance vs Target



2022-2025 Draft Mode Share Target Methodology

- Recommended methodology:
  - Use only observed trend
    - Uncertainty over impacts of telework and other factors affecting transportation mode choice
  - The impacts of the pandemic on the Mode Share performance measure is evident
    - Exclude data from pandemic year (2020)
      - Note 2021 data not available until early CY 2023
    - Use trend data for 2016-2019 (four years) and extrapolate from 2019

2022-2025 Draft Mode Share Graph and Target



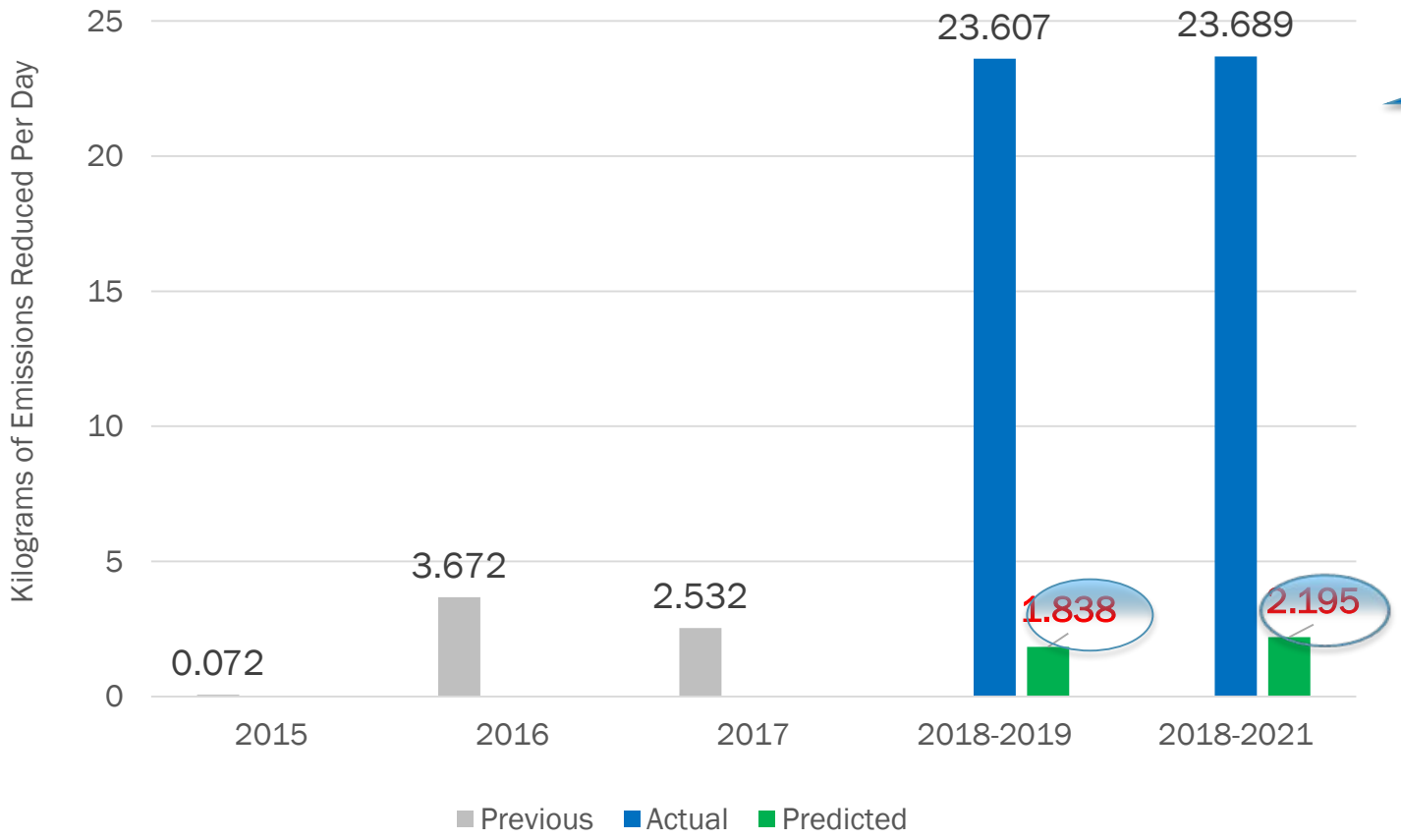
DRAFT	CY 2022 – 2023 Two Year Target	CY 2022 – 2025 Four Year Target
Mode Share (Non-SOV)	37.4%	37.7%

CMAQ Program: Emissions Reductions

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

Targets set by the TPB on June 20, 2018

Emissions Reduction (VOC): Performance vs. Targets



Desired Direction

2-year and 4-year Targets

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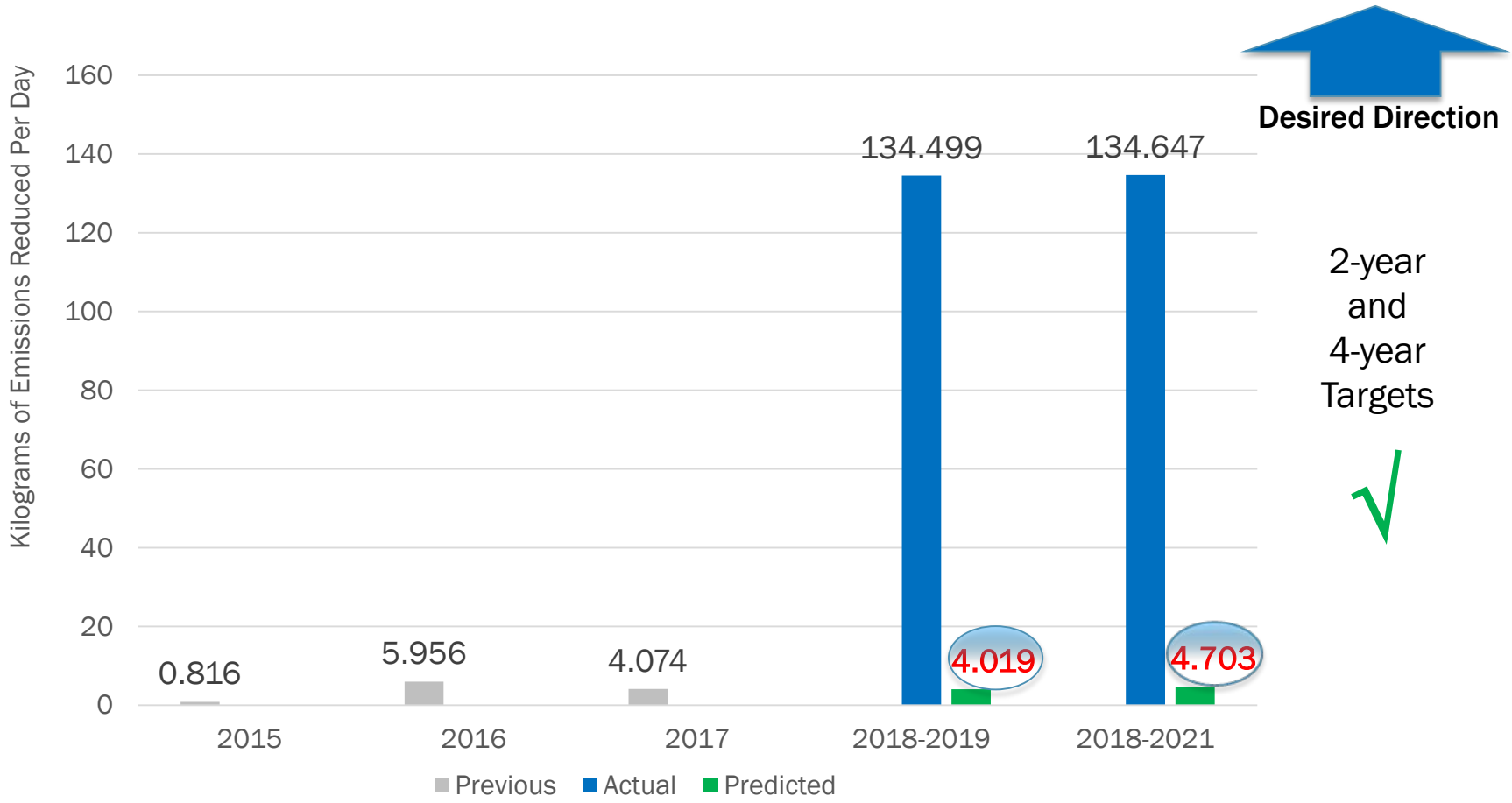
Emissions Reduction (NOx): Performance vs. Targets



Observations on CMAQ: Emissions Reduction Performance

- Forecasting / target development based on past trends of CMAQ projects and their quantitatively estimated emissions reductions

- The impact of project selection with emissions reductions quantitative calculations a consideration is evident. Targets were vastly exceeded:
  - A single project in MD (SHA Adaptive "Smart" Signal Systemization) accounted for 80% of the reduced emissions

2022-2025 Draft Emissions Reduction Targets

Factors in 2022-2025 CMAQ Emission Reduction forecasting and target-setting

- Maryland and Virginia CMAQ Projects already selected through 2026, though not all have quantitative emissions calculated
- DC's CMAQ projects are still in development

- Draft targets based on forecast reductions or average of past annual reductions

DRAFT	FFY 2022 – 2023 Two Year Target	FFY 2022 – 2025 Four Year Target
Volatile Organic Compounds (VOCs)	0.610 Kg/Day	2.830 Kg/Day
Nitrogen Oxides (NOx)	9.408 Kg/Day	21.117 Kg/Day

Next Steps

- Take comments on the draft CMAQ targets through May
- TPB is scheduled to adopt the CMAQ traffic congestion and emissions reductions targets at the June 15 meeting
- TPB staff will complete the MPO CMAQ Performance Plans and submit to State DOTs by September
  - State DOTs submit targets and MPO Performance Plans to FHWA by October 1, 2022
- Develop regional targets for Highway Assets and other Highway System Performance targets
  - Anticipate TPB briefing and approval in September-November timeframe

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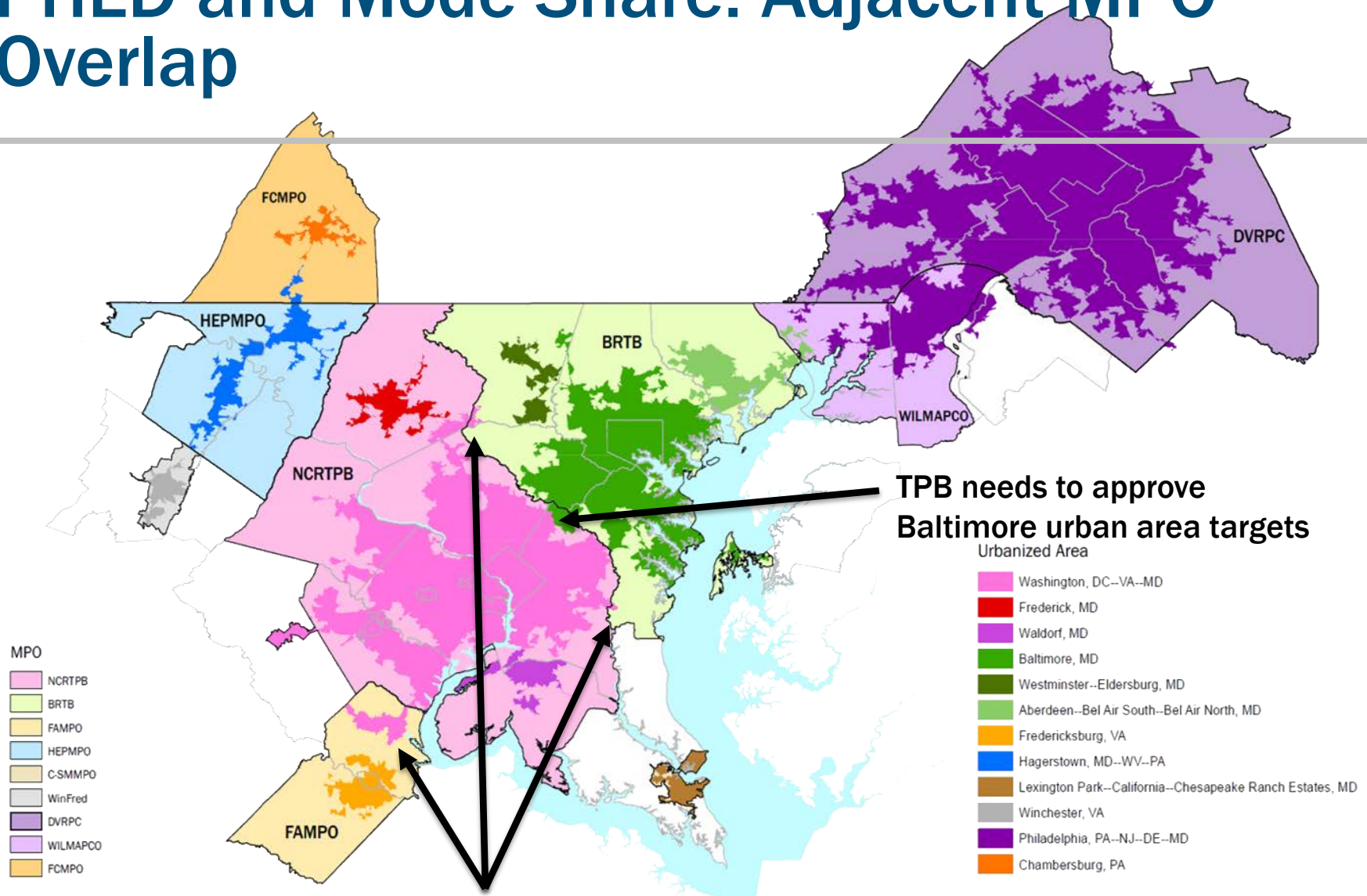
PHED and Mode Share: Adjacent MPO Overlap



CMAQ Emissions Reduction - Overview

- Applies to criteria pollutants in non-attainment or maintenance areas*
- Emissions reductions data are estimates from projects that have received CMAQ funds
- **Forecast emissions reductions are estimates based on projects anticipated to receive CMAQ funds**
- TPB targets reflect the anticipated cumulative emissions reduction to be reported by MDOT, VDOT, and DDOT for the region

* Targets for Calvert County set by Calvert-St Mary's MPO (outside TPB planning area) .

EXHIBIT 1
TPB Transportation Planning Areas