



# CMAQ On-road Mobile Source Emissions Reductions FFY 2022-2025 Targets FFY 2018-2021 Performance

**Presentation to BRTB Inter-Agency Consultation Group**

June 15, 2022


Virginia Burke, Maryland Department of Transportation

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# Agenda

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- Background & Applicability
- FFY2022-2025 Targets & Projects
- FFY2018-2021 Performance

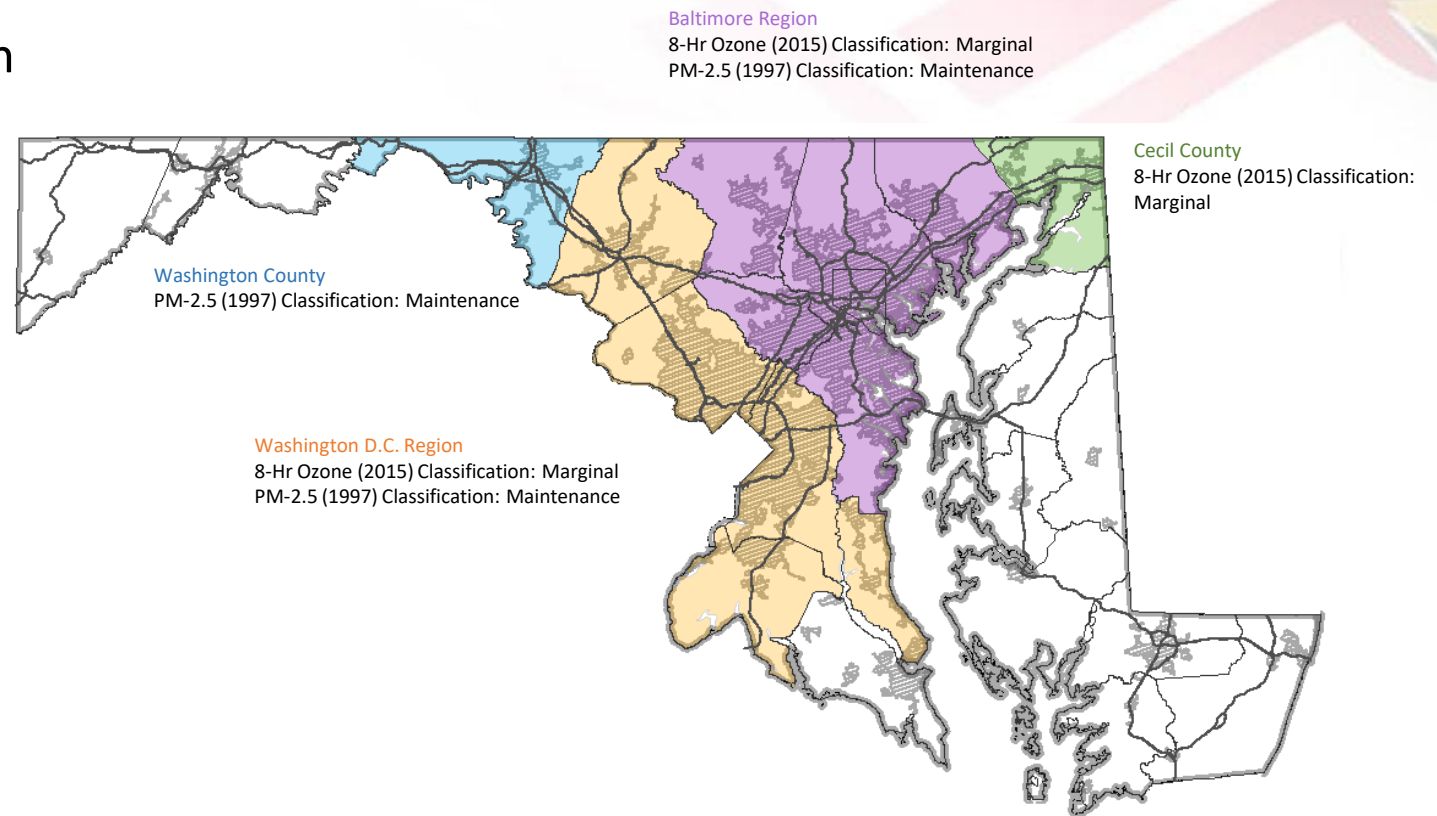


# Background & Applicability

# Background

- Meet requirements of Clean Air Act
- Flexible funding source for transportation projects & programs that improve air quality and relieve congestion
- Reduce mobile source emissions in areas designated as:
  - Non-attainment area
  - Maintenance areas
- State DOTs are required to set targets:
  - Criteria pollutant
    - Ozone, PM<sub>2.5</sub>, PM<sub>10</sub>, CO
  - Precursors
    - VOC & NO<sub>x</sub>

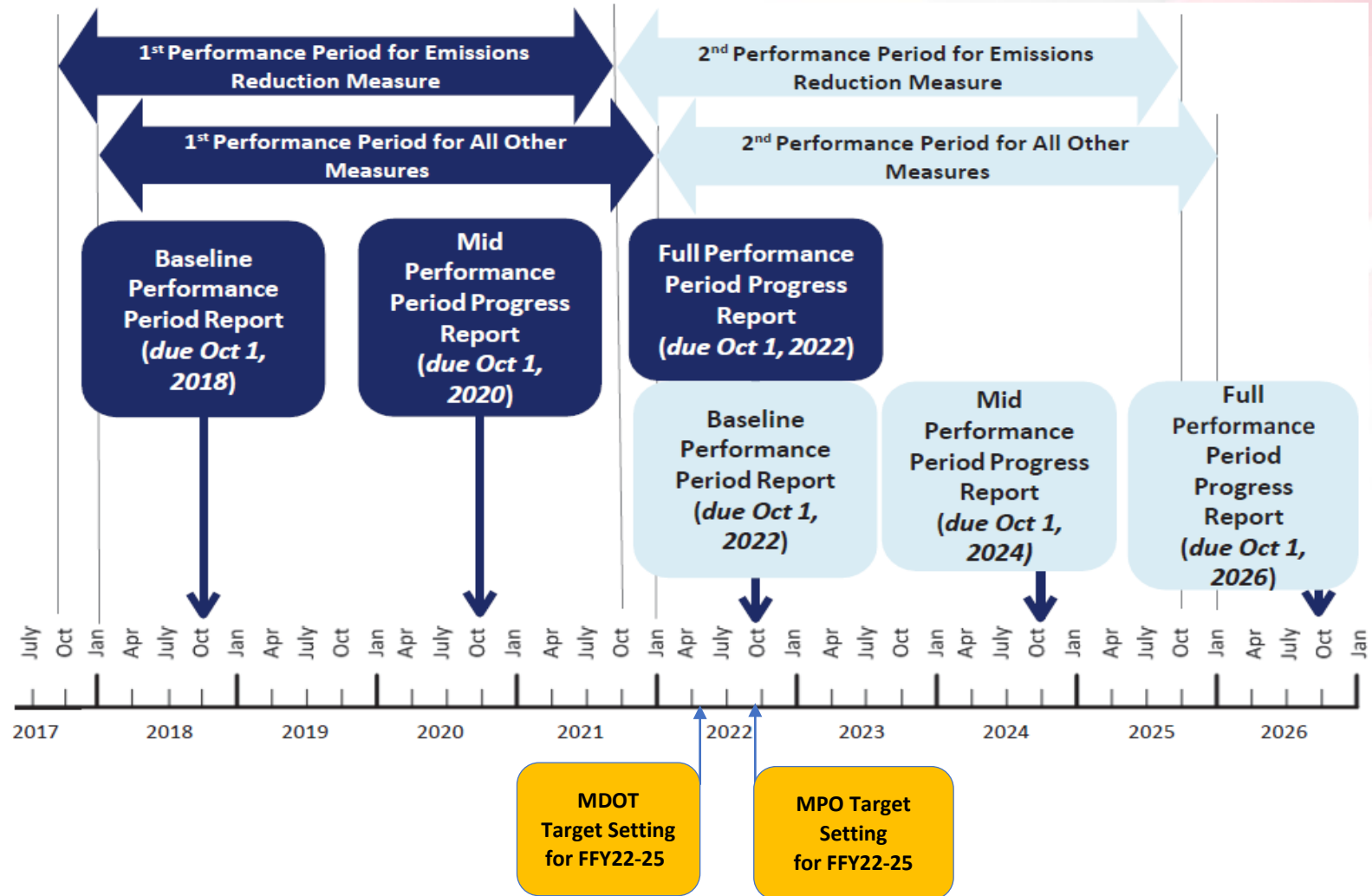
## Maryland's Non-attainment & Maintenance Areas



# MPO Applicability

Measure	Component	MDOT	CAMPO	HEPMPO	TPB	BRTB	WILMAPCO	S/W MPO	C-SM MPO
NAAQS	PM 2.5								
	Ozone (2008)	X			X	X	X	X	
	Ozone (2015)	X			X	X		X	
	CO								
Precursors	VOCs	X			X	X	X	X	X
	NOx	X			X	X	X	X	X
Establish 2- and 4-year targets & CMAQ Performance Plan?			N/A		X	X	X	No – Only required to set 4-year targets.	

# Timeline





# Statewide Targets & Projects

# FFY 2022-2025 Methodology

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## Combined approach:

- Historic trends
  - Emission reductions from the FFY 2014-17 and FFY 2018-21 performance periods
- Anticipated Programmed CMAQ projects
  - MTA – BEBs, Purple Line Crescent Trail; LOTS Ridesharing; LOTS Guaranteed Ride Home
  - SHA – Sidewalk improvements, pedestrian facilities, Smart Signal projects, park & ride improvements; congestion mitigation measures
- Adjustments for:
  - Outlier projects - Omitted
  - Altered commute patterns & Covid rebound
  - Declining emission rates of LDVs

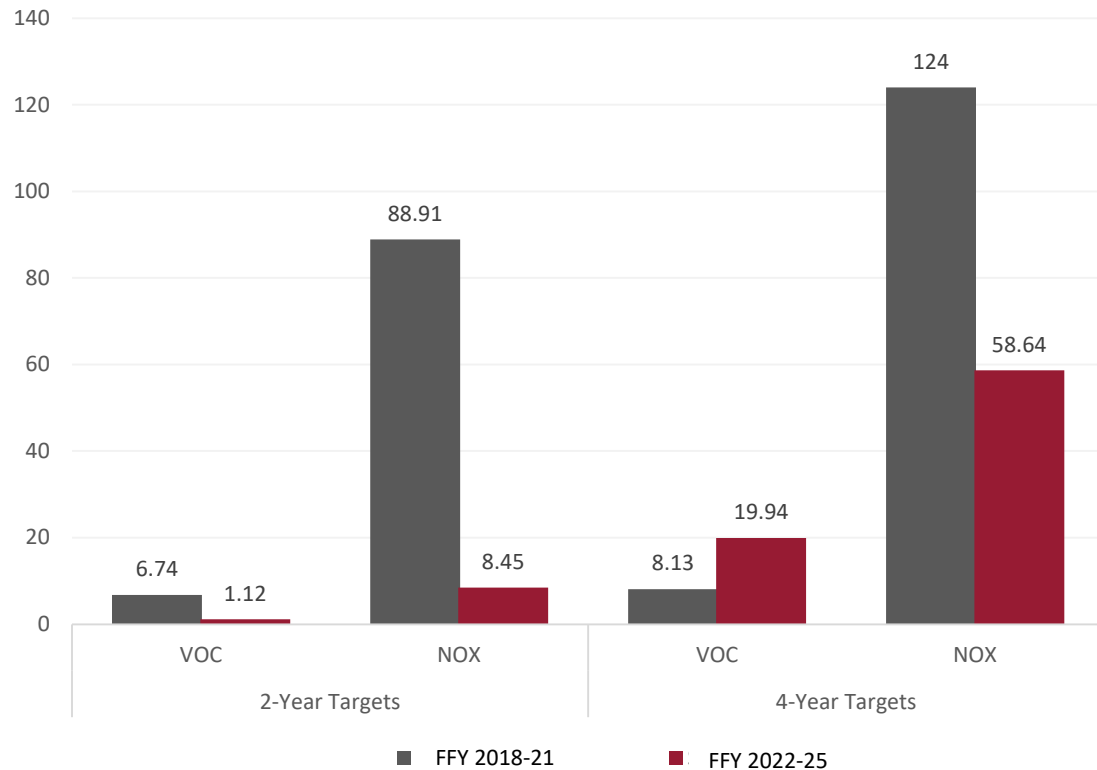
## Tools

- MAQONE
- FHWA Emissions Calculator Toolkit
- TRIMMS



# Statewide Targets

2-Year and 4-year Target Emission Reductions



## Statewide Targets

- Sum of emission reductions from SHA & MTA projects

## MPO Targets

- Allocated to MPO based on:
  - project location
  - historic project location trends

Target Emission Reductions by MPO

State/MPO	2-Year Target (Sum FY22-FY23)		4-Year Target (Sum FY22-FY25)	
	Sum of Emissions Benefits (kg/Day)		Sum of Emissions Benefits (kg/Day)	
	VOC	NOX	VOC	NOX
<b>BRTB</b>	0.87	6.64	13.63	43.27
<b>TPB</b>	0.21	1.71	6.24	15.19
<b>WILMAPCO</b>	0.04	0.10	0.07	0.18
<b>MDOT (statewide)</b>	<b>1.12</b>	<b>8.45</b>	<b>19.94</b>	<b>58.64</b>

# FFY 2022-2025 Projects

MPO	Project Description	Type of Project	FFY
BRTB	Battery Electric Bus Procurement	Transit Improvements	2024/2025
	Battery Electric Bus Charging Infrastructure	Transit Improvements	2023/2024
	LOTS Ridesharing Program	Ride Sharing	2024
	LOTS State of Maryland Guaranteed Ride Home – Baltimore Region	Ride Sharing	2024
TRB	Purple Line Capital Crescent Trail Construction (3.3 Mile Trail)	Bicycle/Pedestrian Facility	2023
	LOTS State of Maryland Guaranteed Ride Home – Washington Region	Ride Sharing	2024
	Sidewalk improvements/pedestrian facilities in Prince George’s, Montgomery, and Frederick counties	Bicycle/Pedestrian Facility	2022-2025
	Smart Signal projects in Prince George’s County	Congestion reduction/traffic flow improvements	2024
	Park and Ride facility improvements- Emmitsburg Park and Ride (MD 140)	Ride Sharing	2024-2025
WILMAPCO	MD 7D - MD 281 to Cresswell Avenue	Sidewalks	2024-2025
	MD 222 - Cedar Corner Road to Saint Marks Church Road	Sidewalks	2024/2025
	US 40 - @ Nottingham Road	Geometric Improvements	2023
	MD 7/MD 281 - South Street to Hermitage Drive	Sidewalks	2023-2025
	MD 268 - Main Street to MD 279	Sidewalks	2023-2025

# FFY 2018-2021 Methodology

## Combined approach:

- Historic trends
  - Avg emissions from FFY 2014-17 for SHA CMAQ projects
- Programmed CMAQ projects
  - MTA bus replacement FY 2018-21
- Adjustments for:
  - Federal vehicle & fuel standards for LDVs

## Setting Targets

- Statewide Targets:
  - Sum of emission reduction from SHA & MTA projects
- MPO Targets
  - Allocated based on project location

## Projects

### New

- Received CMAQ funding during FFY
- Emissions benefits were claimed for the current FFY

### Subsequent

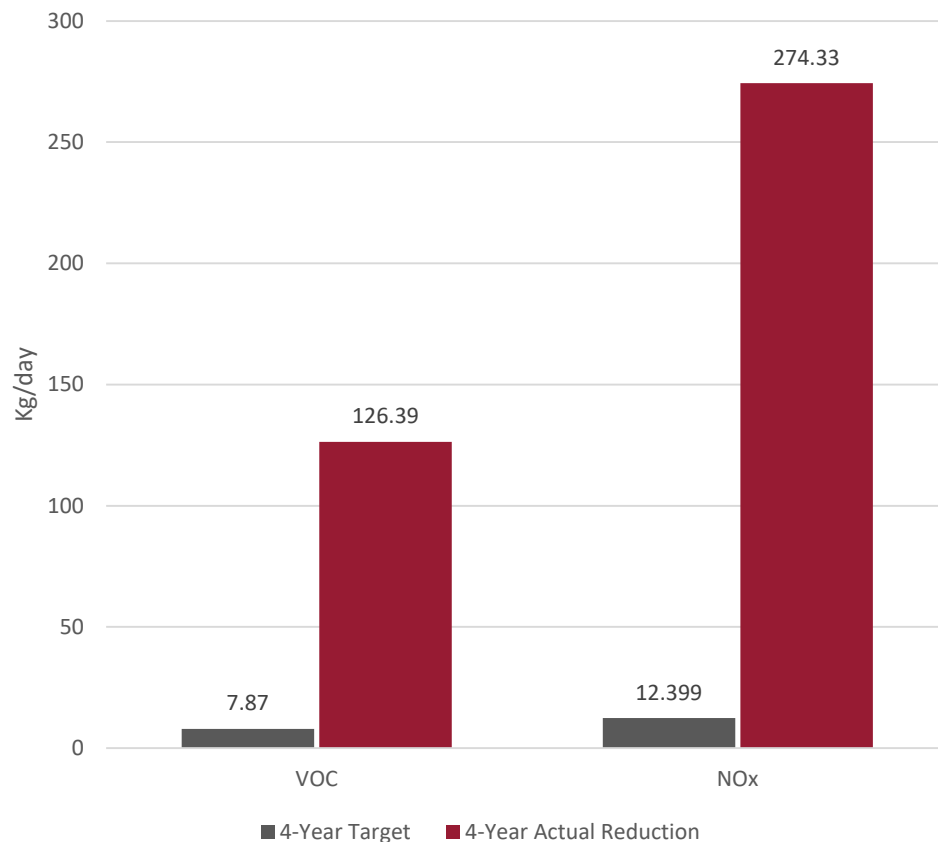
- Continuing from previous FFY
- Emission benefits were taken in previous FFY
- CMAQ funding was obligated or de-obligated during the FFY

## Tools

- MAQONE
- FHWA Emissions Calculator Toolkit

# FFY 2018-2021 Baltimore Region

Target vs Actual Emission Reductions



- Targets
  - Met 2-year and 4-year targets for VOC & NOx
- 11 Projects with emission reductions

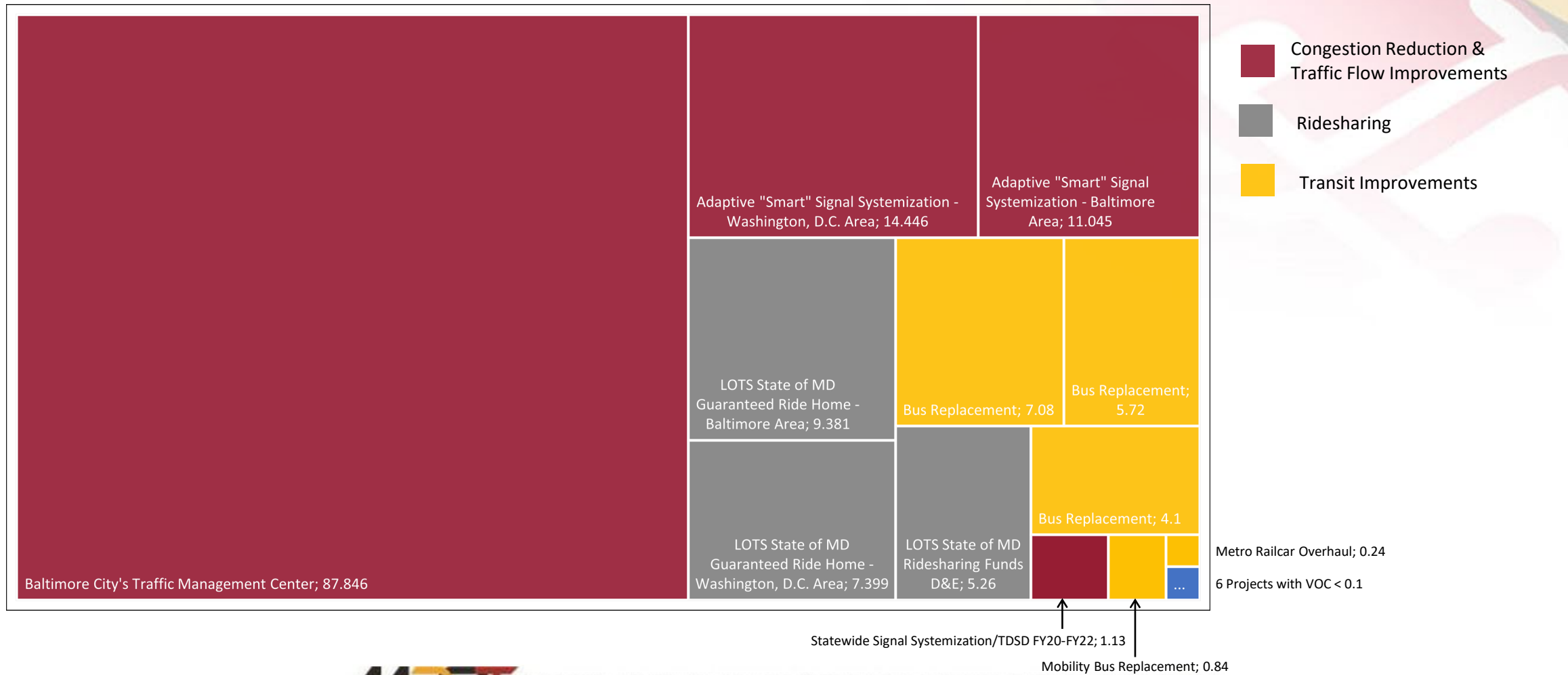
Top 3 Projects for VOC Reductions

Project	Type	VOC (kg/day)
Baltimore City's Traffic Management Center	Congestion Reduction and Traffic Flow Improvements	87.846
Adaptive "Smart" Signal Systemization	Congestion Reduction and Traffic Flow Improvements	11.045
LOTS State of MD Guaranteed Ride Home	Ride Sharing	9.381

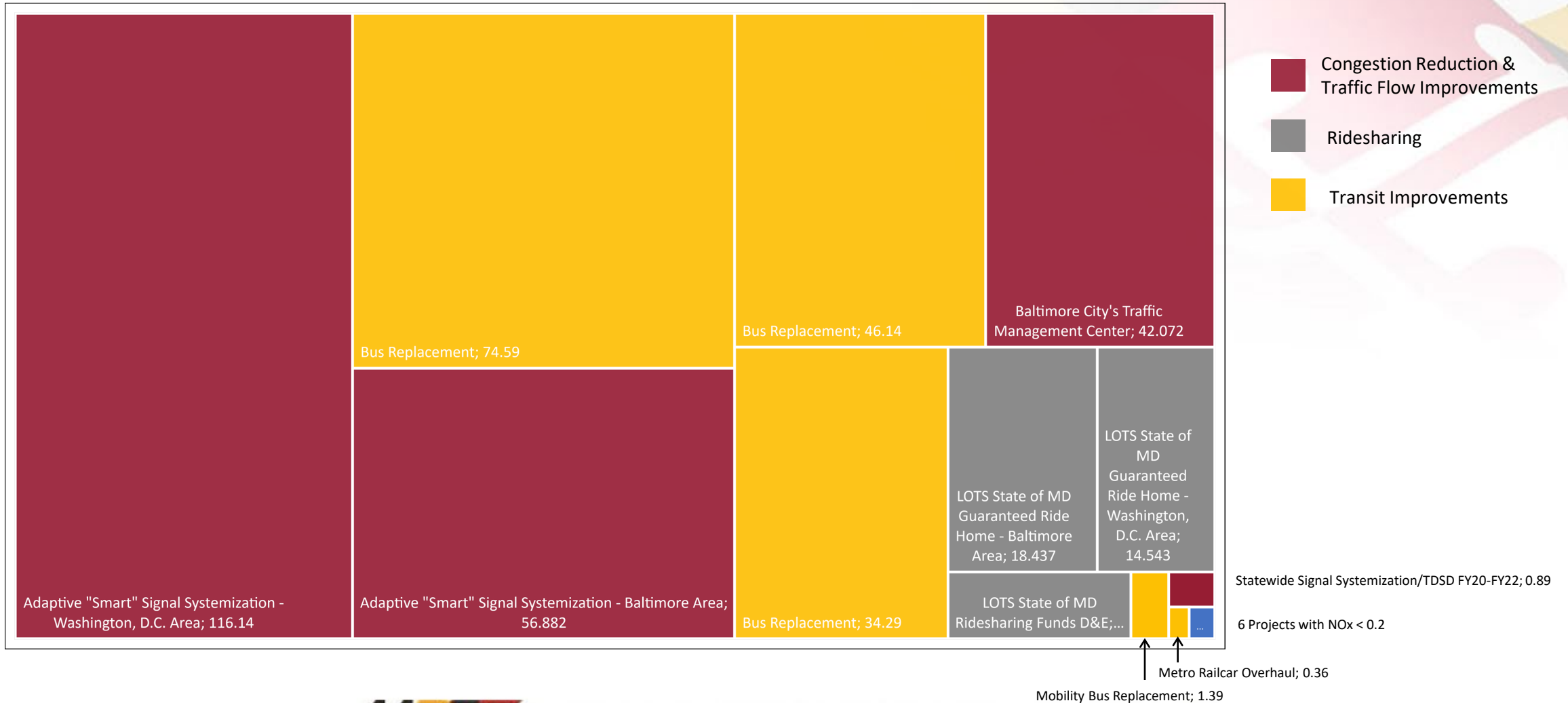
Top 3 Projects for NOx Reductions

Project	Type	NOx (kg/day)
Bus Replacement	Transit Improvements	74.59
Adaptive "Smart" Signal Systemization	Congestion Reduction and Traffic Flow Improvements	56.882
Bus Replacement	Transit Improvements	46.14

# FFY 2018-2021 All Projects VOC Emission Benefits by Project Type



# FFY 2018-2021 All Projects NOx Emission Benefits by Project Type



# FFY 2022-2025 – Recommended targets

State/MPO	2-Year Target (Sum FY22-FY23)		4-Year Target (Sum FY22-FY25)	
	Sum of Emissions Benefits (kg/Day)		Sum of Emissions Benefits (kg/Day)	
	VOC	NOX	VOC	NOX
<b>BRTB</b>	0.87	6.64	13.63	43.27
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Baltimore Region Projects	Type of Project	FFY
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Battery Electric Bus Charging Infrastructure	Transit Improvements	2023/2024
LOTS Ridesharing Program	Ride Sharing	2024
LOTS State of Maryland Guaranteed Ride Home – Baltimore Region	Ride Sharing	2024