

2015 NATIONAL AMBIENT AIR QUALITY STANDARDS FOR OZONE: REDESIGNATION REQUEST AND MAINTENANCE PLAN

Briefing on On-Road Emissions Inventories

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National Capital Region
Transportation Planning Board

Presentation Purpose

- Brief the committee on proposed values of motor vehicle emissions budgets (MVEBs) in the draft 2015 Ozone National Ambient Air Quality Standards (NAAQS) Maintenance Plan
- Make the committee aware of the upcoming public comment period for the 2015 Ozone National Ambient Air Quality Standards (NAAQS) Maintenance Plan (MP) and Redesignation Request (RR)



National Ambient Air Quality Standards

- The Clean Air Act (CAA), last amended in 1990, requires the Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for six principal air pollutants (“Criteria” air pollutants).
 - **Ozone (O₃), Particulate Matter (PM), Carbon Monoxide (CO), Nitrogen Dioxide (NO₂), Lead (Pb), and Sulfur Dioxide (SO₂)**
- Achieving the NAAQS is verified using regional monitoring data.
- Even after attaining the NAAQS, requirements under the CAA do not end.
- Ground-level ozone is the only remaining criteria pollutant that the region must evaluate under the CAA.



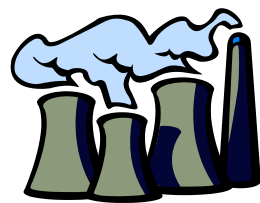
How is Ground Level Ozone Formed?

Volatile Organic Compounds (VOCs) and Nitrogen Oxides (NO_x) mix with sunlight to form ground-level ozone.



Human-made Sources of Ground-Level Ozone Pollution

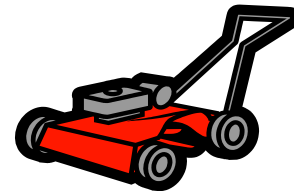
Point, on-road mobile, area, and non-road mobile sources produce VOCs and NO_x emissions.



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Point
Source

Mobile
Source

Area
Source

Non-road
source



Ozone Standard

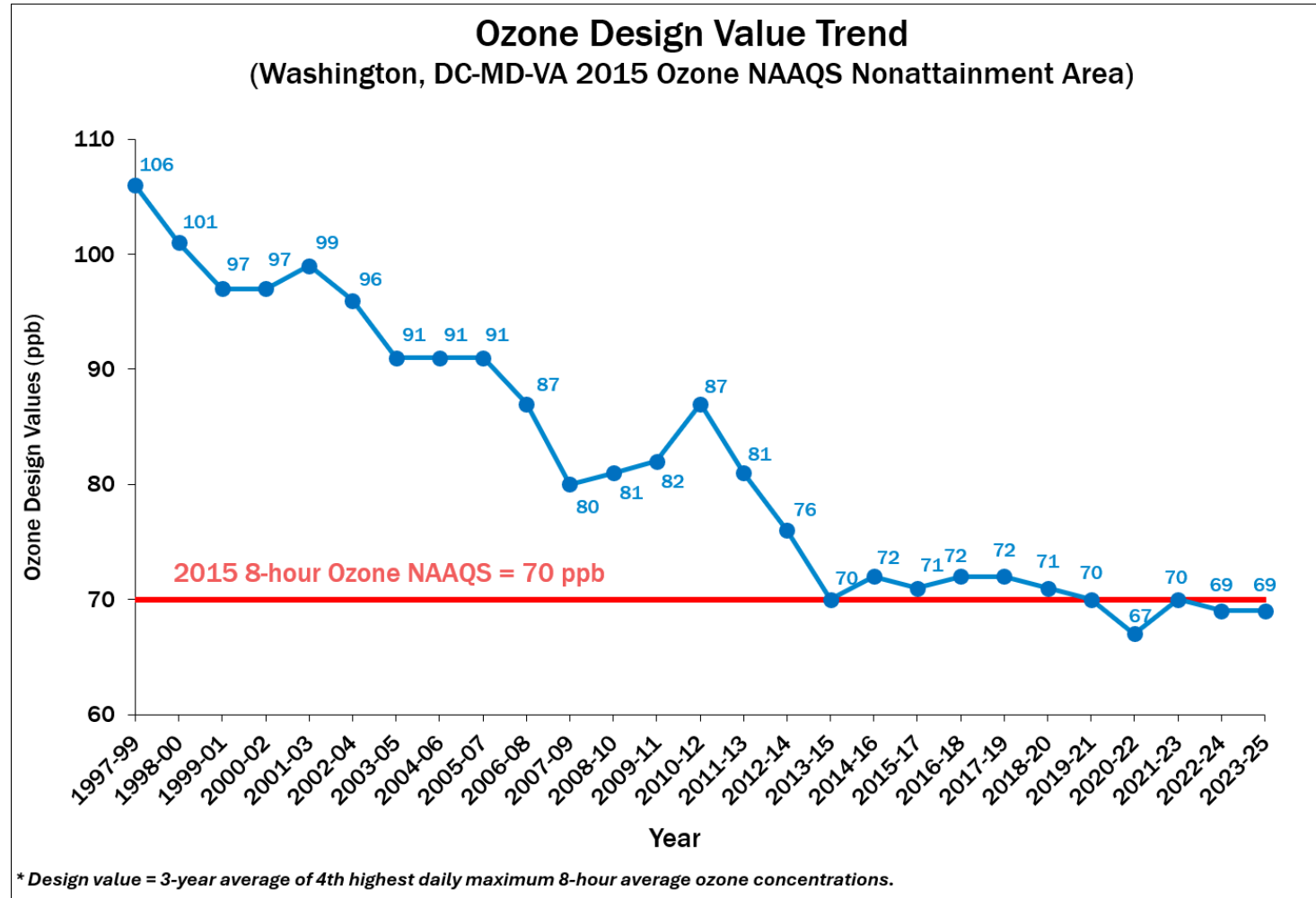
- Current ozone NAAQS is the 2015 8-Hour Standard of 70 ppb.
- Promulgated in October 2015.
- The region was designated nonattainment in August 2018.
- On April 4, 2025, final rulemaking by the EPA confirmed that the region had met the 2015 NAAQS for Ozone.
- This does not, on its own, change the status of the region to maintenance.

Metropolitan Washington Ozone Monitors

Washington, DC, MD, VA



Ozone Standards – Regional Data



Redesignation Request/Maintenance Plan

- A Redesignation Request (RR) is a formal request to the EPA to designate an area as attaining the Ozone NAAQS, placing the region in “maintenance” status.
- A Maintenance Plan (MP) outlines how the local air district will maintain its attainment of a federal air quality standard for 10 years into the future.
- In an Ozone MP, the precursor pollutants, VOCs and NO_x, from the four human-made sources*, are evaluated instead of Ozone directly.
- MWAQC, in conjunction with TPB, develops both the RR and MP. These are then provided to the state air agencies for finalization and submission to the EPA for approval.

* Point, Mobile, Area, and Non-road



Redesignation Request/Maintenance Plan

The TPB and the Metropolitan Washington Air Quality Committee (MWAQC) work together to develop the Maintenance Plan.

- I. TPB: Develops on-road mobile inventories for ozone season pollutants, VOC, and NO_x, using the latest version of EPA's MOVES model, MOVES5.
- II. MWAQC: Develops inventories for the other three sources.
- III. TPB & MWAQC: Set MVEBs for use in future air quality conformity analyses of the region's Metropolitan Transportation Plans and Transportation Improvement Programs.

The RR and MP are provided to the state air agencies for finalization and submission to the EPA for approval, tentatively in late 2026/early 2027



Elements of Redesignation Request and Maintenance Plan

Air Quality Data

- ✓ Monitor data to show compliance with the 2015 ozone standard (3-year average: 2019-2021)

Emissions Inventories (All Sources)

- ✓ 2017 Base Year
- ✓ 2022 Attainment Year - Future emissions may not exceed these values
- ✓ 2032 Intermediate Year
- ✓ 2038 Final Maintenance Year (must be at least 10 years beyond EPA's official date of redesignation for an area – likely in 2027)



Elements of Redesignation Request and Maintenance Plan

Contingency Measures

- In case the region exceeds the ozone standard in the future, these measures would be implemented.

Motor Vehicle Emissions Budgets (MVEBs)

- Portion of the inventory set aside for On-road sources
- Emissions ceilings for MPO Plans and TIP (Air quality conformity)
- The new MVEBs will replace the existing MVEBs, developed for the previous 2008 Ozone Standard.
- EPA can provide an “adequacy finding” for the MVEBs so they can be used for air quality analyses without waiting for the MP to be approved.



Motor Vehicle (Mobile) Emissions Inventories

On-Road Emissions Inventories for NO_x and VOC* (Tons/Day)

Pollutant	2017	2022	2032	2038
Oxides of Nitrogen (NO _x)	110.048	60.519	23.556	15.854
Volatile Organic Compounds (VOC)	53.345	33.861	21.357	17.791

* For 2015, 8-hour Ozone Nonattainment Area



Motor Vehicle Emissions Budgets (MVEB)

Title 40, United States Code, Part 93*

§93.101 Definitions:

Motor vehicle emissions budget is that portion of the total allowable emissions defined in the submitted maintenance plan for a certain date for the purpose of maintenance of the NAAQS, for any criteria pollutant or its precursors, allocated to highway and transit vehicle use and emissions.

Safety margin means the amount by which the total projected emissions from all sources of a given pollutant are less than the total emissions that would satisfy the applicable requirement for reasonable further progress, attainment, or maintenance

§93.118(e)(4) Criteria & Procedures:

- (iii) The motor vehicle emissions budget(s) is clearly identified and precisely quantified;
- (iv) The motor vehicle emissions budget(s), when considered together with all other emissions sources, is consistent with applicable requirements for Maintenance.....;
- (v) The motor vehicle emissions budget(s) is consistent with and clearly related to the emissions inventory and the control measures in themaintenance plan;

* Source: Transportation Conformity Regulations, April 2012



Motor Vehicle Emissions Budgets Safety Margins

- Safety Margins are meant to deal with “uncertainties”
 - Elements out of TPB control that can lead to mobile budget exceedances.
- Uncertainties can come from several sources:
 - Changes to the models employed:
 - EPA MOVES updates (MOVES6 is under development).
 - For example, there was more than 100% change in NO_x in the 2040 analysis year when the region moved from EPA Mobile model to MOVES.
 - Changes to the regional travel demand forecasting model – from trip-based Gen2 to the activity-based Gen3 model.
 - Updates to the Cooperative Forecasts – economic growth.



Motor Vehicle Emissions Budgets Safety Margins

- Vehicle Fleet Changes:
 - Vehicle registration data - updated approximately every 3 years, with the next update scheduled to reflect 2026 data.
 - Aging vehicle fleet and trend towards larger vehicles.
 - Difficulty in forecasting EV and alternative fuel/technology vehicles.
 - Holding MOVES 2025 default values constant into the future to account for most recent trends.



Joshua Roberts, International Monetary Fund/Flickr



Motor Vehicle Emissions Budgets Safety Margins

- Vehicle Fleet Changes (Continued):
 - Changes to vehicle and fuel regulations:
 - Rescission of light, medium, and heavy-duty GHG emissions regulations.*
 - Revision of Tier 4 Criteria Pollutant Standards, Part 1: Amendments to Phase-In Schedule for Light-Duty and Medium-Duty Vehicles**
- * EPA, *Rescission of the Greenhouse Gas Endangerment Finding and Motor Vehicle Greenhouse Gas Emission Standards Under the Clean Air Act*, 91 Fed. Reg. 7686 (February 18, 2026)
- ** EPA, *Revision of Tier 4 Criteria Pollutant Standards, Part 1: Amendments to Phase-In Schedule for Light-Duty and Medium-Duty Vehicles*, 91 Fed. Reg. 28463 (Monday, May 18, 2026)



Inventories, Safety Margins and Recommended MVEBs

Volatile Organic Compounds (VOC)

tons/day

	Inventory	Safety Margin (20%)	New MVEBs
2022	33.9	-	-
2032	21.4	4.3	25.7
2038	17.8	3.6	21.4

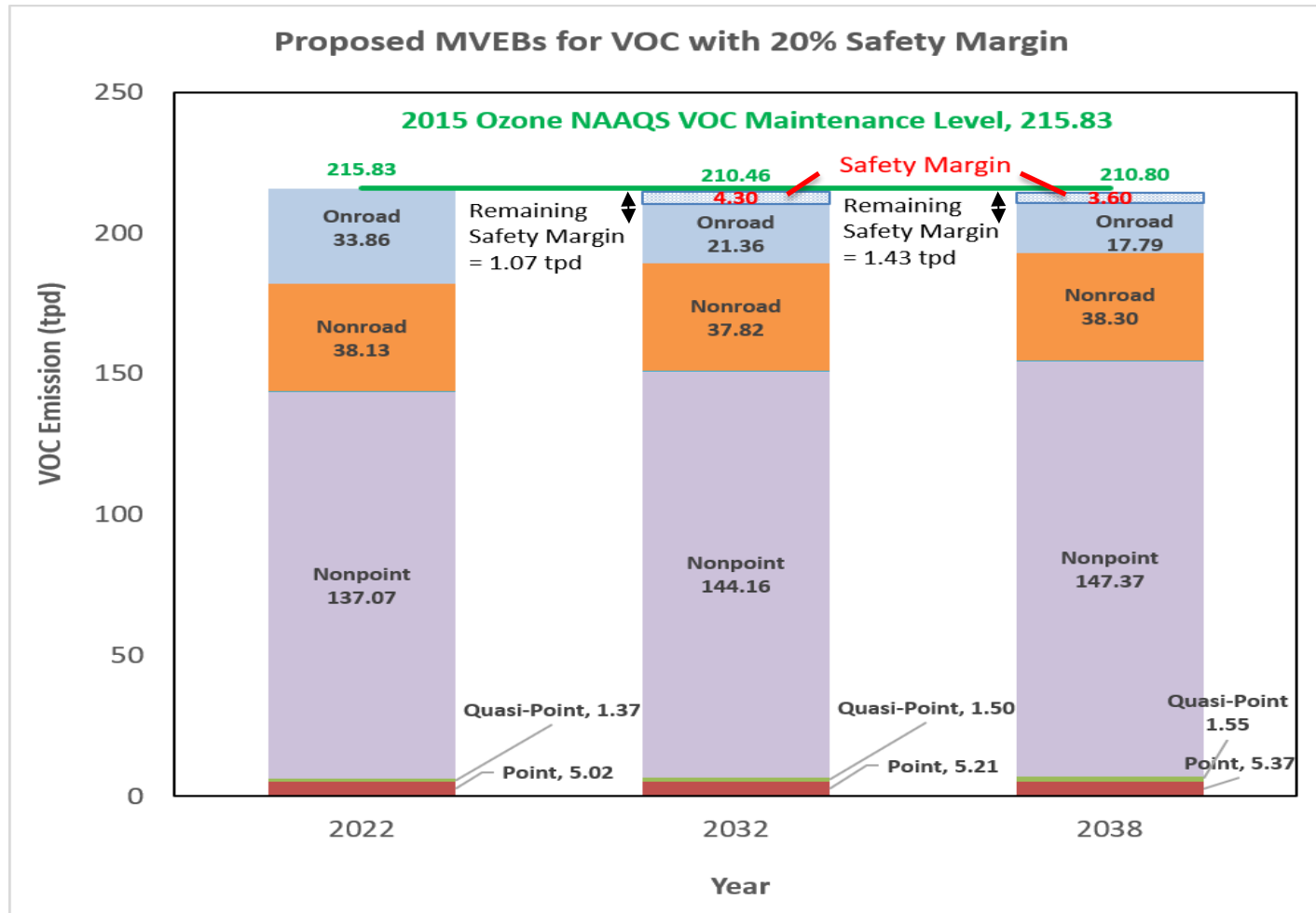
Nitrogen Oxides (NO_x)

tons/day

	Inventory	Safety Margin (40%)	New MVEBs
2022	60.5	-	-
2032	23.6	9.4	33.0
2038	15.9	6.4	22.3



Emissions & Motor Vehicle Emission Budgets–VOC (tpd)



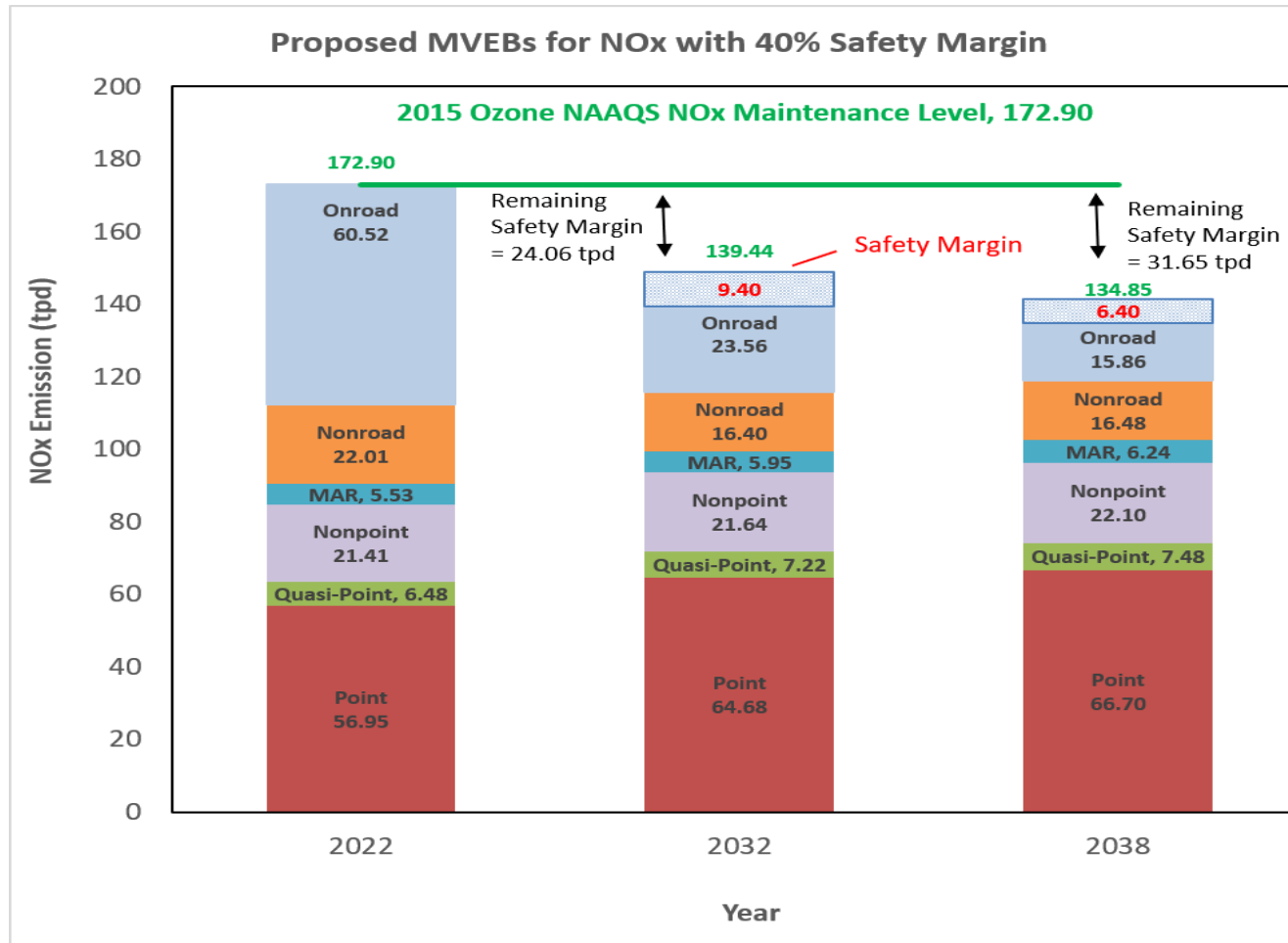
VOC MVEBs (20% Safety Margin)

2032: 21.4 + 4.3 = 25.7 tpd

2038: 17.8 + 3.6 = 21.4 tpd



Emissions & Motor Vehicle Emission Budgets–NOx (tpd)



NOx MVEBs (40% Safety Margin)

2032: 23.6 + 9.4 = 33.0 tpd

2038: 15.9 + 6.4 = 22.3 tpd



When Are New Budgets Used?

- Once EPA finds them adequate, or approves the maintenance plan, the mobile budgets will become effective immediately.
- Once approved by EPA, these mobile budgets must be used in the regional air quality conformity determination of the Plan and TIP.
- A conformity determination of the existing Plan and TIP should be completed within two years of the EPA approving a new Maintenance Plan or when the MVEBs are granted an adequacy finding, even if there is no federally required update to the Plan and TIP.



Project Status

- State air agencies and COG/TPB staff have:
 - Finalized draft emissions inventories for all sources.
 - Developed draft motor vehicle emissions budgets with safety margins.
 - Identified draft contingency measures for inclusion in the MP.
- State air agencies and COG/TPB staff continue to develop draft redesignation request and maintenance plan for public comments.
 - Draft redesignation request and maintenance plan documents have been submitted to the EPA for informal review.



Next Steps

- Following EPA's informal review process, MWAQC is scheduled to approve the RR/MP for release for public comment at the special July 22, 2026 meeting (tentative).
- Public comment periods will differ by state, but tentatively, they are expected to take place in August.
- TPB staff will notify members once public comment period dates have been set.
- MWAQC adopts the RR/MP, Virginia and Maryland Governors/District of Columbia Mayor approve and submit the documents formally to the EPA.
- Current schedule anticipates submitting RR and MP to the EPA formally for approval late 2026.



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