

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

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## Briefing on On-Road Emissions Inventories

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National Capital Region  
**Transportation Planning Board**

# National Ambient Air Quality Standards (NAAQS)

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- 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 (O<sub>3</sub>), Particulate Matter (PM), Carbon Monoxide (CO), Nitrogen Dioxide (NO<sub>2</sub>), Lead (Pb), and Sulfur Dioxide (SO<sub>2</sub>)**
- Achieving the NAAQS is verified using regional monitoring data.
- Even after attaining the NAAQS, ongoing analyses and evaluations are required under the CAA.
- The pollutant of concern for the region is Ground Level Ozone.



# How is Ground Level Ozone Formed?

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Volatile Organic Compounds (VOCs) and Nitrogen Oxides (NO<sub>x</sub>) mix with sunlight to form ground-level ozone.



# Human-made Sources of Ground-Level Ozone Pollution

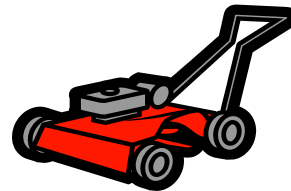
Point, on-road mobile, area, and non-road mobile sources produce VOCs and NO<sub>x</sub> emissions.



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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 official status of the region to maintenance status.

## Metropolitan Washington Ozone Monitors

Washington, DC, MD, VA



# Ozone Standards – Regional Data



# Redesignation Request/Maintenance Plan

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- 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<sub>x</sub>, 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<sub>x</sub>, using the latest version of EPA's MOVES model, MOVES5.
- II. MWAQC: Develops inventories for the other three sources.
- III. TPB & MWAQC: Set motor vehicle emissions budgets (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

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## 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

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## 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<sub>x</sub> and VOC\* (Tons/Day)

Pollutant	2017	2022	2032	2038
Oxides of Nitrogen (NO <sub>x</sub> )	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 the ....maintenance plan;

\* Source: Transportation Conformity Regulations, April 2012



# Motor Vehicle Emissions Budgets Safety Margins

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- 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<sub>x</sub> 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

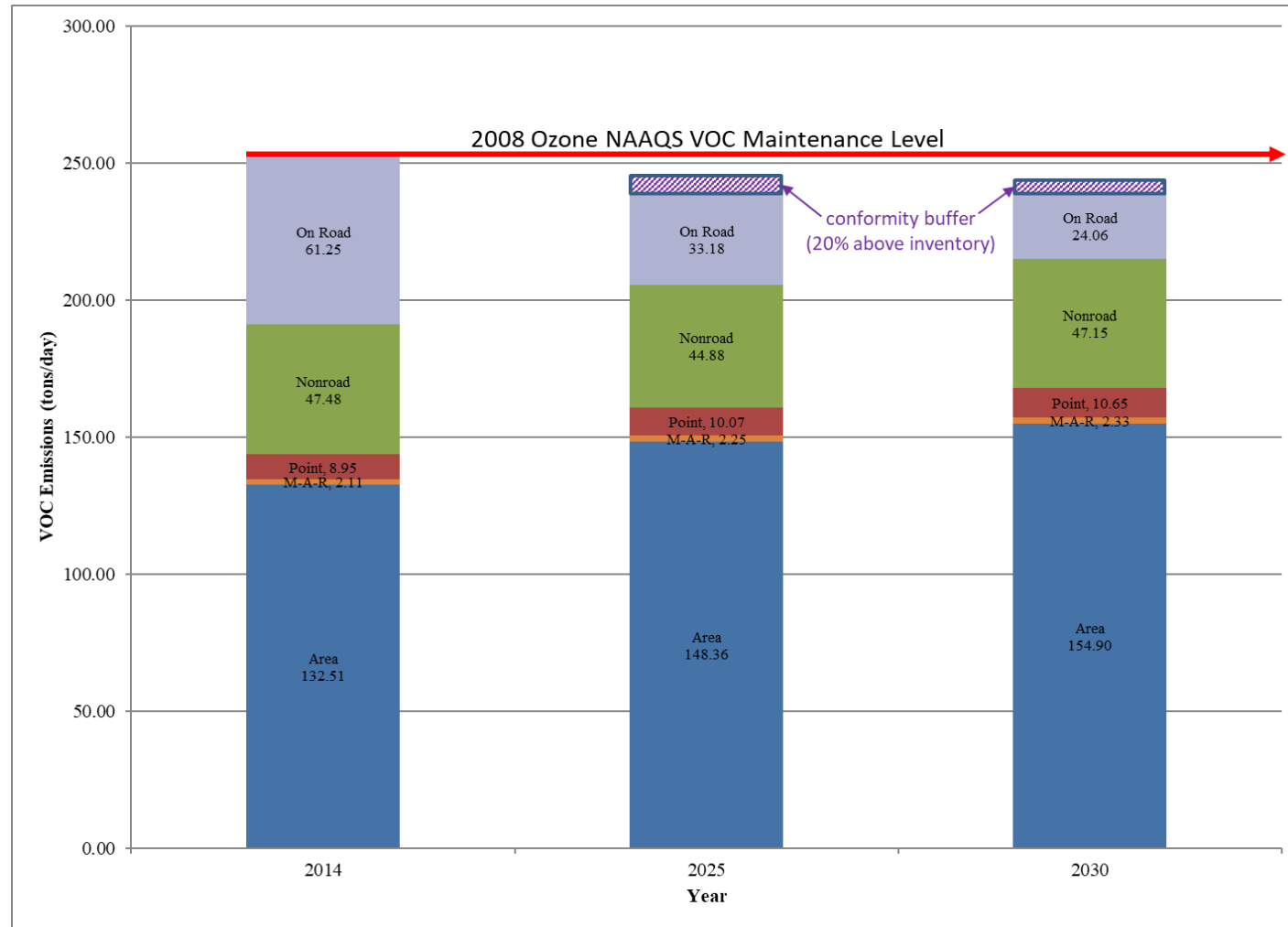
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- Vehicle Fleet Changes:
  - Vehicle registration data – updated approximately every 3 years, with the next update scheduled to reflect 2026 data.
  - Ageing vehicle fleet and trend towards larger vehicles.
  - Difficulty in forecasting EV and alternative fuel/technology vehicles.
    - Holding MOVES 2025 default values constant into the future to account for most recent trends.
  - Changes to vehicle and fuel regulations – for example, the recent rescission of light, medium, and heavy-duty GHG emissions regulations.\*

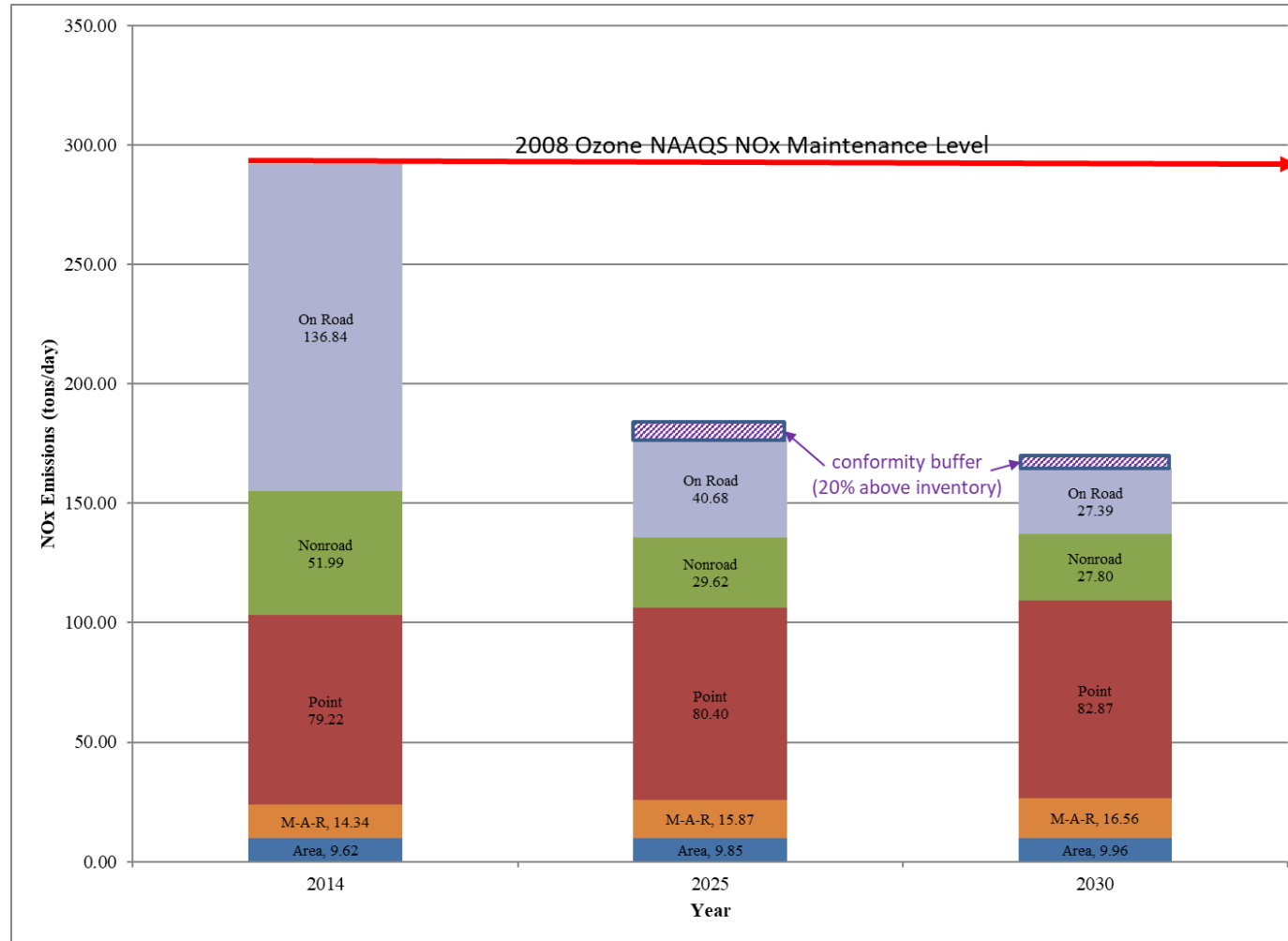
\* EPA, *Rescission of the Greenhouse Gas Endangerment Finding and Motor Vehicle Greenhouse Gas Emission Standards Under the Clean Air Act*, 91 Fed. Reg. 7686 (February 18, 2026)



# Sample Inventories: 2008 Ozone NAAQS - VOC



# Sample Inventories: 2008 Ozone NAAQS - NO<sub>x</sub>



# When Are New Budgets Used?

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- 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.



# Next Steps

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- State air agencies and COG/TPB staff continue to:
  - finalize the emissions inventories for all sources
  - develop motor vehicle emissions budgets with safety margins
  - identify contingency measures for inclusion in the MP
  - develop draft redesignation request and MP for public comments
- MWAQC adopts the RR/MP, Virginia and Maryland Governors/District of Columbia Mayor approve and submit the plan to the EPA.
- Current schedule anticipates submitting RR and MP to the EPA for approval late 2026/early 2027.



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