

Air Quality Conformity

Air Quality Conformity Analysis of the Constrained Element of Visualize 2045

Presentation for the
Travel Forecasting Subcommittee
November 30, 2018
Item 3

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Long Range Transportation Plan

Visualize 2045

➤ Federally Mandated Quadrennial Update

➤ Components include:

- Financially Constrained Element*
- Aspirational/Unconstrained Element
- Public Participation
- Financial Element

*Air Quality Conformity Analysis is for the Financially Constrained Element ONLY



Analysis Years

2019, 2021, 2025, 2030, 2040, 2045



Conformity Inputs: 2016 CLRP vs Visualize

| | 2016 CLRP amendment | Visualize 2045 |
|-----------------------|---|----------------|
| Cooperative Forecasts | Round 9.0 | Round 9.1 |
| Vehicle Fleet | 2014 VIN | 2016 VIN |
| Travel Demand Model | Version 2.3.70 | Version 2.3.75 |
| Project Inputs | 2016 CLRP with VDOT and MDOT amendments (10/2017) | Visualize 2045 |
| Metrorail Constraint | yes | no |



Round 9.1 Cooperative Forecasts

COG/TPB Planning Area (thousands)

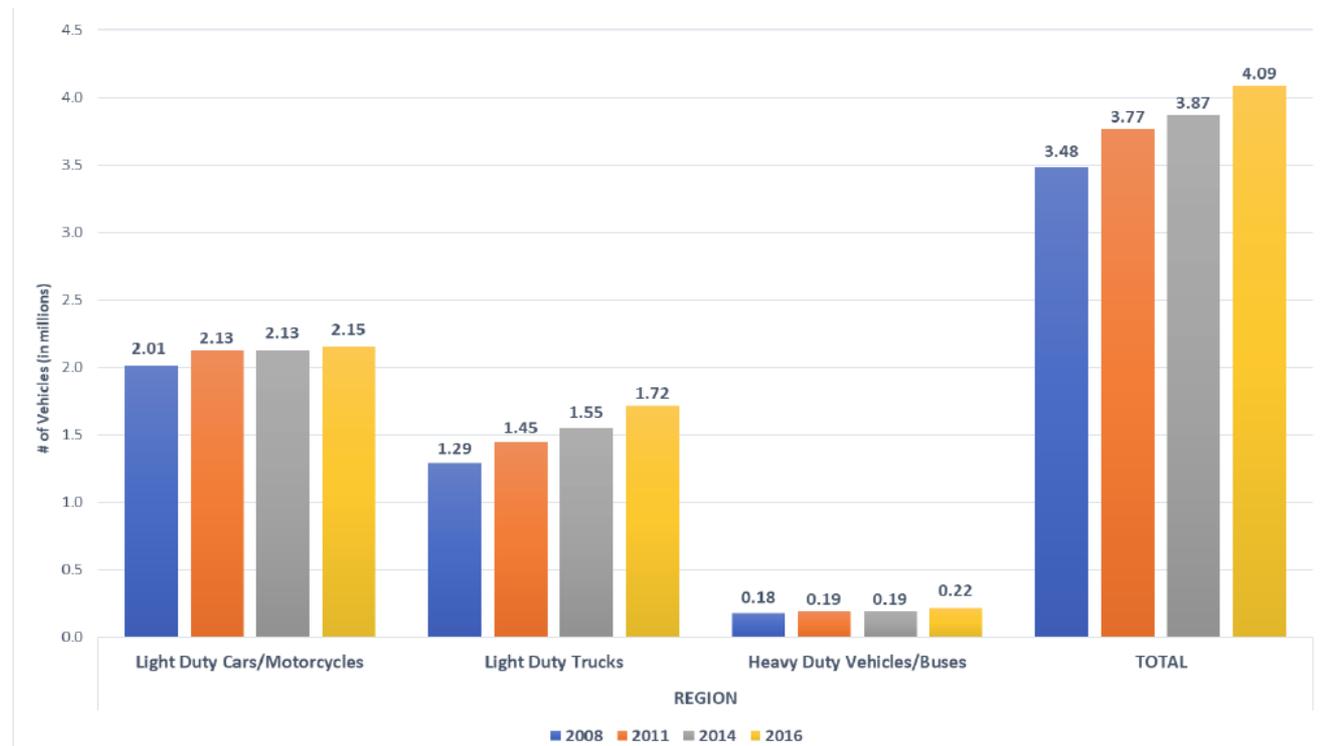
| | Round 9.1 | | 2015 to 2045 | |
|-------------------|-----------|---------|--------------|---------|
| | 2015 | 2045 | Number | Percent |
| Employment | 3,160.8 | 4,273.8 | 1,113.0 | 35% |
| Population | 5,390.6 | 6,925.7 | 1,535.1 | 28% |
| Households | 2,011.7 | 2,659.9 | 648.2 | 32% |

| | Round 9.0 | Round 9.1 | Number | Percent |
|-------------------|-----------|-----------|--------|---------|
| Employment | 4,291.2 | 4,273.8 | -17.4 | -0.4% |
| Population | 6,876.0 | 6,925.7 | 49.7 | 0.7% |
| Households | 2,651.3 | 2,659.9 | 8.6 | 0.3% |



Vehicle Fleet

2014 VIN vs 2016 VIN Historical Growth in Vehicles By Type



* Based on Decoded Records

NOTE: The Vehicle fleet includes ALL vehicles (commercial, government, other public, private, gas, electric, hybrid, buses, trucks, cars, motorcycles, etc.) registered in the region.



Vehicle Fleet

Historical changes in average vehicle age

- Between 2008 and 2014, vehicle age increased across all vehicle types
- Between 2014 and 2016, vehicle age decreased for all vehicle types

Average Age of Regional Vehicle Fleet by Year

| Year | Light Duty Cars* (LDC) | Light Duty Trucks (LDT) | Heavy Duty Vehicles (HDV) | All Vehicle Types |
|------|---------------------------|----------------------------|------------------------------|-------------------|
| 2008 | 8.51 | 7.53 | 9.21 | 8.18 |
| 2011 | 9.25 | 8.55 | 10.56 | 9.05 |
| 2014 | 9.62 | 9.09 | 11.30 | 9.49 |
| 2016 | 9.33 | 8.69 | 11.29 | 9.17 |

*Motorcycles are included



Travel Model: Version 2.3.75

MODEL:

- Enhanced Managed Lanes Modeling
 - Removed the need to conduct two runs of the travel model for each year (no HOV skim replacement)
- Removed Metrorail transit constraint to/through the regional core
- Added Check to Assure That No Rail Stations are Disconnected from the Highway Network

MODEL INPUTS:

- Updated External, Miscellaneous, and Airport Trip Forecasts
- Updated Consumer Price Index Information
 - Based on 2017 data
- Updated Transit Fares
 - WMATA Tariff #37 (effective June 25, 2017)
 - VRE, MARC, bus fares current to March 2018
- Updated Highway Tolls (on fixed-rate facilities)
 - Current to March 2018



Updated Transportation Projects: DC

DISTRICT OF COLUMBIA

visualize2045
A LONG-RANGE TRANSPORTATION PLAN FOR THE NATIONAL CAPITAL REGION

Major Additions and Changes to Existing Projects

Major New Projects

- Bicycle Lanes, Districtwide
 - 17th St. NW from New Hampshire Ave. to K St.
 - Irving St. NE/NW from Warder St. NW to Michigan Ave. NE
 - K St. NE/NW from 7th St. NW to Florida Ave. NE
 - New York Ave. NE from Florida Ave. to Bladensburg Rd.
 - Pennsylvania Ave. SE from 2nd St./Independence Ave. to Barney Circle

Changes to Existing Projects

- Remove three segments of the planned streetcar network:
 - Anacostia Initial Line from Defense Blvd./S. Capitol St. SE to Howard Rd. SE/Firth Sterling
 - Anacostia Extension from Howard Rd./Firth Sterling to Good Hope Rd. SE
 - M St. SE/SW from Good Hope Rd. SE to Maine Ave. SW



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Agenda Items #8 and 9: Visualize 2045 Update
January 17, 2018

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Updated Transportation Projects: VA

NORTHERN VIRGINIA

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A LONG-RANGE TRANSPORTATION PLAN FOR THE NATIONAL CAPITAL REGION

Major Additions and Changes to Existing Projects

Major New Projects

- I-95 Southbound Auxiliary Lane
- US 15 Widening

Changes to Existing Projects

- I-495 Capital Beltway HOT Lanes – Northern Extension
 - Advance from 2030 to 2025
 - Construct two HOT lanes in each direction up to American Legion Bridge to coordinate with Maryland's Traffic Relief Plan
- Remove the planned extension of VRE to Gainesville-Haymarket

Non-Major New Projects

- 28 new roadway, transit, and bicycle/pedestrian improvements



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Updated Transportation Projects: MD

SUBURBAN MARYLAND

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A LONG-RANGE TRANSPORTATION PLAN FOR THE NATIONAL CAPITAL REGION

Major Additions and Changes to Existing Projects

Major New Projects

- I-270 Toll Lanes (Traffic Relief Plan)
- I-495 Toll Lanes (Traffic Relief Plan)
- US 301 Widening
- MD 201 Widening
- MD 97 Reconstruction
- Randolph Road BRT
- North Bethesda Transitway BRT
- MD 355 BRT
- Veirs Mill Road BRT

Changes to Existing Projects

- Widen MD 29 from MD 97 to MD 182 (Reduce Project Scope)
 - Eastern limit changed from I-95 to MD 182 – approx. 8.5 miles shorter
- Remove the planned widening of MD 27 from MD 355 to Snowden Farm Parkway



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Updated Transportation Projects: WMATA

WMATA

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A LONG-RANGE TRANSPORTATION PLAN FOR THE NATIONAL CAPITAL REGION

Major Additions and Changes to Existing Projects

Major New Projects

- Implement 100% 8-car trains
- Core station capacity improvements
- Supporting infrastructure and facilities



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Conformity Network Input Table

VISUALIZE 2045 AIR QUALITY CONFORMITY NETWORK INPUTS
(highway)

7/30/2018

| Con ID | Project ID | Agency ID | Improvement | Facility | From | To | Facility | | Lanes | | Completion Date |
|----------------|------------|-----------|-----------------|---|---|---|----------|----|-------|----------|-----------------|
| | | | | | | | Fr | To | Fr | To | |
| | MI2TNB 2 | | Construct | I270 northbound auxiliary lane (innovative congestion management) | South of MD 28 slip ramp to express lanes | North of MD 28 slip ramp to local lanes | 1 | 1 | | | 2019 |
| | MI2TNB 3 | | Construct | I270 northbound (innovative congestion management) | Shady Grove Road | I-370 off-ramp | 1 | 1 | | | 2019 |
| | MI2TNB 4 | | Construct | I270 northbound (innovative congestion management) | MD 124 on-ramp | Watkins Mill Road off-ramp | 1 | 1 | | | 2019 |
| | MI2TNB 4 | | Construct | I270 northbound auxiliary lane (innovative congestion management) | Watkins Mill Road on-ramp | Middlebrook Road westbound off-ramp | 1 | 1 | | | 2019 |
| | MI2TNB 5 | | Construct | I270 northbound (innovative congestion management) | MD 121 | Comus Road bridge | 1 | 1 | | | 2019 |
| 210 | MI4 | | Widen | I70 | Mt. Philip Road | MD 170 | 1 | 1 | 4 | 6 | 2040-2035 |
| 151 | MI4a | FR5801 | Reconstruct | I70 | at MD 144FA, Meadows Road, and MD National Pike | MD 170 | 1 | 1 | 6 | 6 | 2040-2025 |
| | | | Study | I-295 Toll Lanes- planning study | US 50 | I-95 (in Baltimore) | | | | | Not Coded |
| 108 | MI1P | PG3331 | Construct | I-95/I-495 | at Greenbelt Metro Station | | 1 | 1 | 8 | 8+2 | 2040-2030 |
| 696 | MI1Q | AW0731 | Construct/Widen | I495 Toll Lanes | at Greenbelt Metro Station | I-95 (in Baltimore) | | | | | Not Coded |
| 856 | MI1R | AW0731 | Construct/Widen | I495 Toll Lanes | at Greenbelt Metro Station | I-95 (in Baltimore) | | | | | Not Coded |
| 905 | MI1S | AW0731 | Construct/Widen | I495 Toll Lanes | MD 355 | MD 355 | 1 | 1 | 6 | 6+4 ETL | 2025 |
| 906 | MI1T | AW0731 | Construct/Widen | I95 / I495 Toll Lanes | MD 355 | I95 | 1 | 1 | 8 | 8+4 ETL | 2025 |
| 907 | MI1U | AW0731 | Construct/Widen | I95 / I495 Toll Lanes | I95 | Baltimore Washington Parkway | 1 | 1 | 8 | 8+4 ETL | 2025 |
| 908 | MI1V | AW0731 | Construct/Widen | I95 / I495 Toll Lanes | Baltimore Washington Parkway | Glenarden Parkway | 1 | 1 | 8 | 8+4 ETL | 2025 |
| 909 | MI1W | AW0731 | Construct/Widen | I95 / I495 Toll Lanes | Glenarden Parkway | MD 202F | 1 | 1 | 10 | 10+4 ETL | 2025 |
| 856 | | | Study | I270 | MD 202F | Potomac River (not including Wilson Bridge) | 1 | 1 | 8 | 8+4 ETL | 2025 |
| 696 | | | Study | I495 | I-495 | I-70 | | | | | Not Coded |
| Primary | | | | | | | | | | | |
| 139 | MP10A | PG2531 | Reconstruct | US 1 | College Avenue | MD 193 | 2 | 2 | 4 | 4 | 2040-2021 |
| 539 | NRS | PG2531 | Reconstruct | US 1 | MD 193 | I95 / I495 | 2 | 2 | 4 | 4 | 2030 |
| 370 | MP9 | CA4131 | Widen | MD 2/4 Solomons Island Road | North of Stoakley Road/Hospital Drive | South of MD 765A (south junction) just south of Parkers Creek | 2 | 2 | 4 | 6 | 2040 |

NOTE: Shaded areas represent changes from the VDOT/MDOT off-cycle amendment to the 2016 CLRP.

conformity_table_page.xlsx

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The Conformity Network Input Table is in Appendix B of the Conformity Report:
<https://www.mwcog.org/documents/2018/10/17/visualize-2045-air-quality-conformity-analysis/>



Pollutants

- Volatile Organic Compounds (VOC)
- Nitrogen Oxides (NO_x)
- Greenhouse Gases (not officially for conformity)



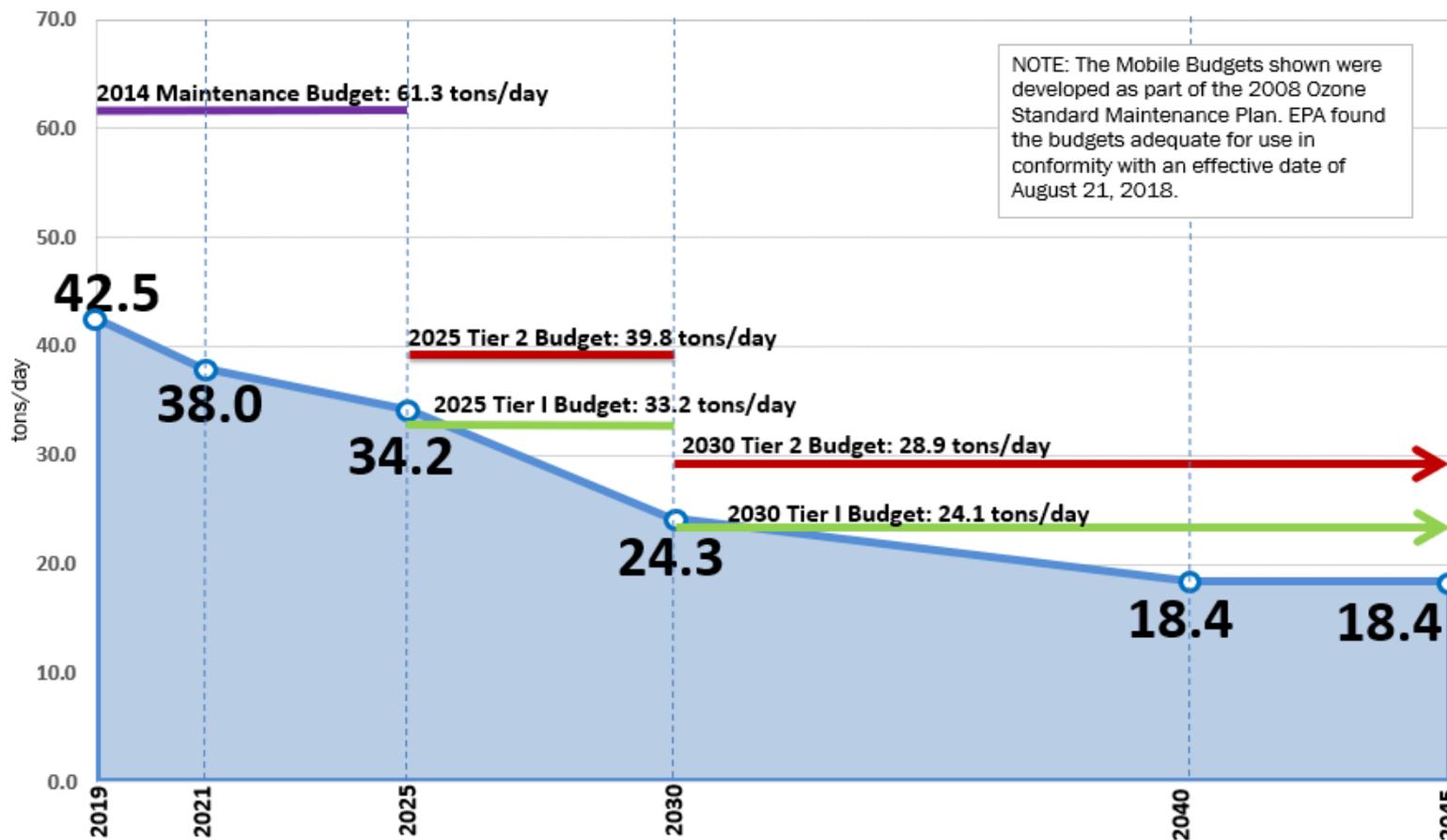
Pollutants

The analysis shows that the constrained element of the Visualize 2045 Long Range Transportation Plan “conforms” because emissions levels are at or below EPA approved Motor Vehicle Emissions Budgets (“MVEBs” or “mobile budgets”)



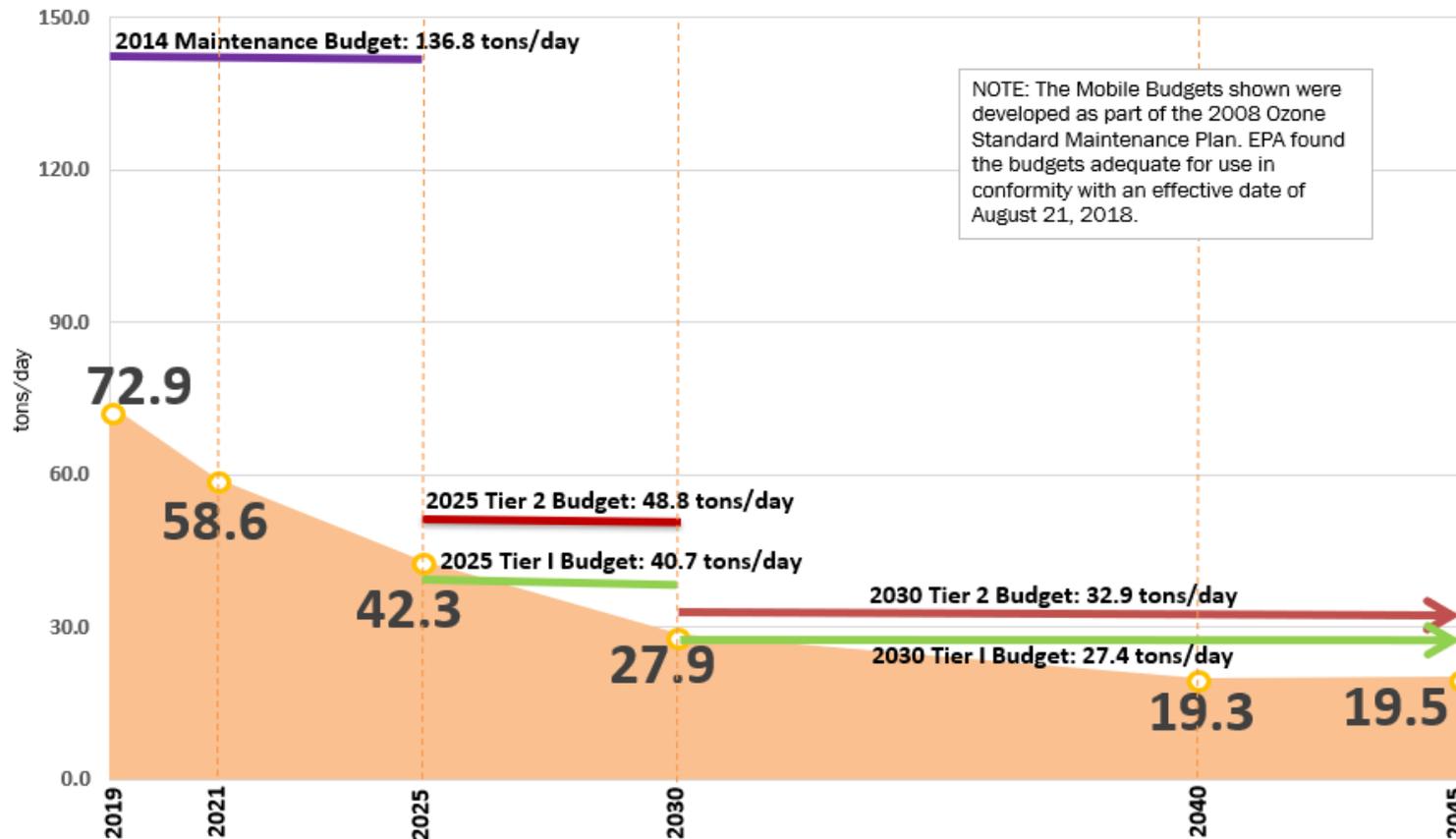
Volatile Organic Compounds

Mobile Source Emissions and Mobile Budgets Ozone Season VOC



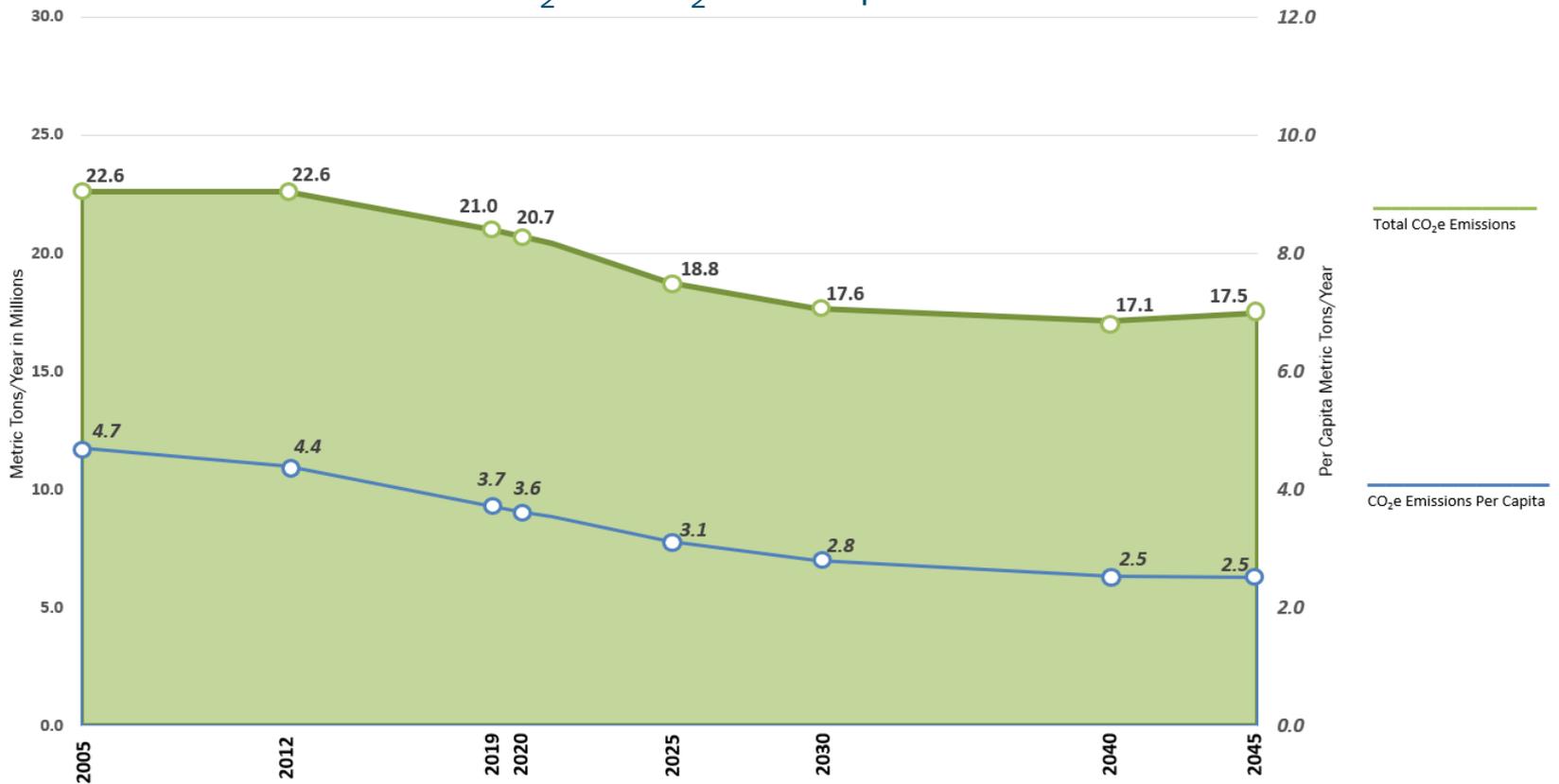
Nitrogen Oxides

Mobile Source Emissions and Mobile Budgets Ozone Season NOx

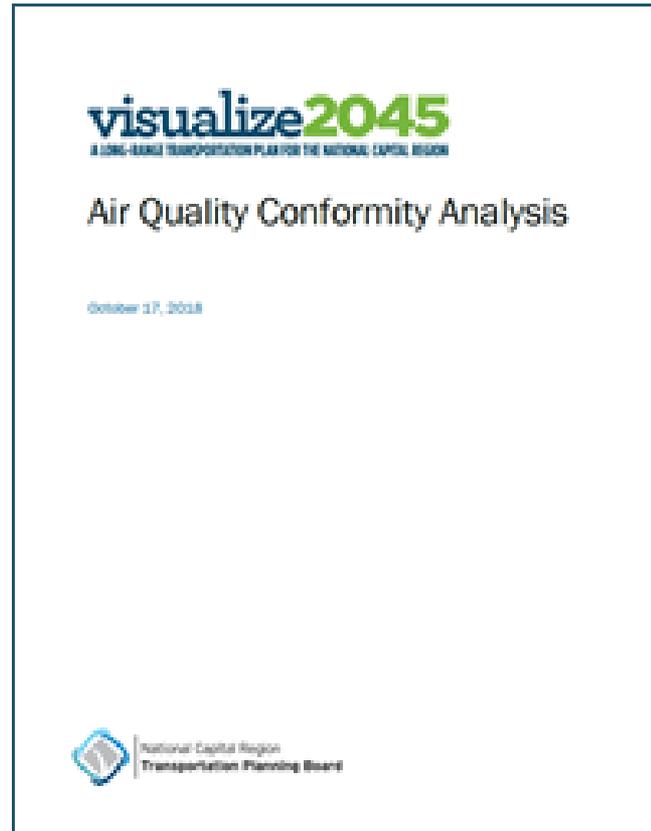


Greenhouse Gases

Visualize 2045
Greenhouse Gas
Mobile Source Emissions
CO₂ and CO₂ e Per Capita



Air Quality Conformity Report



Approved by the TPB
on October 17, 2018

<https://www.mwcog.org/documents/2018/10/17/visualize-2045-air-quality-conformity-analysis/>



Visualize 2045: Air Quality Conformity

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