MWAQC Technical Advisory Committee
Meeting Summary
November 12, 1:00 PM - 2:30 PM

Present:
Doris McLeod, Virginia Department of Environmental Quality
Emily Bull, Maryland Department of the Environment
Hawi Kitila, Maryland Department of the Environment
Jennifer Roelke, Maryland Department of the Environment
Jim Ponticello, Virginia Department of Transportation
Kane Samue, District Department of Energy & Environment
Kari Snyder, Maryland Department of Transportation
Kirti Rajpurohit, District Department of Transportation
Marcia Ways, Maryland Department of the Environment
Mark Rawlings, District Department of Transportation
Monae Sott, District Department of Environmental
Melissa Atwood, City of Alexandria
Roger Thunell, Maryland Department of the Environment
Sonya Lewis-Cheatham, Virginia Department of Environmental Quality
Thomas Foster, Virginia Department of Environmental Quality
Virginia Burke, Maryland Department of Transportation

Staff:
Sunil Kumar, COG/DEP
Alissa Boggs, COG/DEP
Dusan Vuksan, COG/DTP
Erin Morrow, COG/DTP
Jeff King, COG/DEP
Jen Desimone, COG/DEP
Jinchul Park, COG/DTP
Leah Boggs, COG/DEP
Mark Moran, COG/DTP
Robert d'Abadie, COG/DTP

1. Call to Order & Review of Meeting Summary

Joseph Jakuta called to order it at 1 PM. The October 14th meeting summary was approved without any changes.

2. 2015 Ozone NAAQS RR/MP Inventory

Sunil Kumar briefed members on the status of emissions inventories for all sources for the redesignation request/maintenance plan.

Nonroad Model:
Sunil Kumar discussed nonroad inventories for 2017, 2022, and 2032 that were developed using MOVES5 model. These inventories for Virginia didn't include railway maintenance and ground support equipment emissions. Sunil asked if we should use GSEs and railway maintenance from EMP DB or from MOVES5 runs. Members decided to use MOVES5 emissions for the two categories.

Nonpoint/MAR:
2022 ozone season day emissions are available for most SCCs along with annual emissions from MARAMA. Using 2022 OSD/annual ratio for each SCC and annual emissions from EPA EMP 2022v1 for 2032 and 2038, projected 2032 and 2038 emissions will be developed. A few SCCs are missing in MARAMA database that are present in EMP database and vice versa. Those will be

reconciled next. EMP database had most of the airport and yard locomotive (railroad) emissions assigned to point sources. They were reassigned to airport and railroad categories. Line haul in EMP database was assigned to nonpoint. This was reassigned to railroad. CMV emissions were included in nonpoint. They were reassigned to marine category. Biogenic was included in the nonpoint category This was reassigned to its own category.

Point:
2022 - MD and VA ozone season day inventories are available. DC inventory is needed.
2032/38 - MD inventories will be developed next. DC inventories are needed.

Onroad:
Dusan Vuksan presented results of a detailed sensitivity study and briefed on the methodology to project vehicle population, an input for the onroad mobile model. He said that travel-related data is currently used to generate "Source Type Population" input for MOVES runs for all analysis years. These projections are currently derived using linear regression and vehicle population data points from various sources (vehicle registration data and other) dating back to the 1980s. He presented a staff recommendation on the revised methodology to do so. The recommendation is to apply the observed vehicles-to-household ratio for a particular jurisdiction to project future vehicle population for any given year assuming that the vehicle population per household remains constant (* USDOT. Summary of Travel Trends. 2022 National Household Travel Survey. January 2024. https://nhts.ornl.gov/assets/2022/pub/2022_NHTS_Summary_Travel_Trends.pdf, Table 2-6 shows that average vehicle population per household has not changed significantly in this century).

Relative to the current regression method, number of vehicles at the regional level using the proposed method is:
- Lower by 5% for all years up to 2040 and lower by 9% in 2050

Relative to the current regression method, emissions at the regional level using the proposed method are:
- Lower by 2% or less for NOx, depending on the analysis year
- Lower by 6% or less for VOC, depending on the analysis year
- Same for greenhouse gases (within 0.2%)

He said that this is a good time to make the change. Same method used for MVEBs setting now will subsequently be used in future air quality conformity analyses.

He also presented results of an AVFT data sensitivity study involving passenger car, passenger trucks, and combination short-haul trucks. TPB staff estimated emissions in 2038 using the following sets of assumptions for AVFT data:
- Local AVFT: Inputs provided by the state air agencies, developed using MOVES5 tools and guidance for both historic and future data
- MOVES5 defaults
- Fixed 2022 AVFT: Assuming today's shares of vehicles by fuel/vehicle technology in the future; 2022 AVFT inputs (or shares), used to represent the today's conditions for the test, supplied by the states are "fixed" and applied in the future years (e.g., in 2038).

Results:
- Using MOVES5 AVFT defaults resulted in increases in estimated Nox emissions by 4% and VOC emissions by 3% percent relative to the local AVFT inputs in 2038.
- However, using "Fixed 2022 Inputs" that match the distribution of various vehicle categories to current conditions (i.e., 2022), resulted in greater estimated increases in NOx emissions (14%) and VOC emissions by (21%) relative to the local AVFT inputs in 2038.
- Heavy-duty vehicles (or trucks) account for about 60% of NOx emissions.

Main concern:

Using locally developed data or MOVES5 defaults, motor vehicle emissions budgets (MVEBs) may be set using relatively optimistic vehicle electrification assumptions that could become outdated if the EPA were to repeal some of the recent regulations embedded in MOVES5 assumptions. It may be challenging to pass conformity using a future model if MVEBs were set using the current MOVES5 model, which assumes a cleaner vehicle fleet. In addition to the vehicle fleet, other tools/inputs periodically change, including, but not limited to, demographic data and the travel demand model. The next step is to consider the implications of using different sets of assumptions and determine the optimal way to move forward.

3. NOAA AQM Evaluation

Kane Samuel discussed the evaluation of NOAA's Air Quality Forecast Model. NOAA recently released the modeled meteorological and emissions inputs for their Air Quality Model version 7 (AQMv7). Kane researched the model's performance by comparing its predictions to observed daily maximum 8-hour ozone concentrations. Through two case studies, he explored instances where the model accurately forecasted high ozone levels, as well as where it overpredicted them. With access to the underlying input, he outlined the factors driving these outcomes, offering new insights into the model's strengths and limitations.

4. Contingency Measures

Members discussed briefly a few contingency measures from OTC to be included in the maintenance plan. Roger suggested using commercial consumer products as a measure.

5. State and Local Updates

Maryland and Virginia didn't have any were no updates. District submitted its SO2 designation recommendation for the secondary standard to EPA. District also submitted regional haze progress report.