Status of 2008 Ozone NAAQS Redesignation Request & Maintenance Plan

Milestone Years

Base year – 2011
Attainment year – 2014
Intermediate year - 2025
Final year - 2030

Emissions Inventories

Pollutants and Time Period of Analysis - VOC & NOx, Average Ozone Season Day

2011

Emissions from BY2011 emissions inventory submitted for the 2008 ozone SIP will be used for the analysis required as part of the redesignation request.

On-road Source Emissions - MOVES2014a emissions for 2011 will be adjusted to develop MOVES2014a emissions for that year and compared with MOVES2014a based 2014 emissions for redesignation request purposes. A preliminary calculation is shown on the page 2 of this document to illustrate the comparison.

2014

a) Point (EGU & NEGU), Area, MAR sources – States working on developing these by converting annual NEI2014 emissions to the average ozone season day emissions.

b) Nonroad & On-road model sources - MWAQC received MOVES2014a fuel and I/M program inputs from state air agencies. MWAQC staff developed hourly meteorology inputs for July 2014 using Dulles airport data. MWAQC staff now working on QA/QC of these inputs and developing MOVES2014a inputs files for each jurisdiction, which will be provided to TPB staff shortly. TPB staff developing transportation related inputs.

2025 & 2030

a) Point (EGU only) sources – States working on developing these.

b) NEGU, Area and MAR sources – COG developing growth factors to project emissions to future years for:

   i. Population, Employment, and Households from COG Co-operative Round 9.0
   ii. VMT using TPB VMT projections from the 2016 CLRP analysis.

c) Nonroad & On-road model sources - MWAQC received MOVES2014a fuel and I/M program inputs from state air agencies. MWAQC staff developed hourly meteorology inputs for 2014, which would also be used for 2025 and 2030 analyses. TPB has transportation related inputs already available from the 2016 CLRP analysis.

Plan Document Development

Baltimore region 2008 ozone redesignation request & maintenance plan documents provided by MDE are being used as templates for developing Washington region redesignation request & maintenance plan documents. Currently MWAQC staff is editing these documents and preparing a draft structure, which would be shared with state air agencies. After receiving the feedback from the state air agencies, they will be shared with MWAQC-TAC.

Comparison of 2011 and 2014 MOVES2014a Emissions

The table below lists MOVES2014a emissions of VOC and NOx for 2011 and 2014. MOVES2014a emissions for 2011 were developed using a TPB comparative study for MOVES2010a and MOVES2014. This study showed MOVES2014 emissions for VOC and NOx to be 4% and 13% lower respectively compared to MOVES2010a in the year 2015. Based on these differences, adjusted MOVES20104a emissions for 2011 were developed. Since 2014 emissions have not been developed for the 2008 ozone NAAQS RR/MP effort yet, these were developed by interpolating emissions for 2011 and 2016. 2016 emissions are taken from the 2016 CLRP analysis.

The table below shows VOC and NOx emission reduction between 2011 and 2014 to be 14.2 tpd and 41.8 tpd respectively.

Though these calculations are based on estimated figures, emissions reductions are significant enough and it is doubtful whether any changes in assumptions in the calculations would change this number significantly. As soon as the actual 2014 emissions developed using MOVES2014a become available, we will revise this calculation again.

Milestone Year	VOC (Tons per day)	NOx (Tons per day)
2011	82.4 (MOVES2010a emission from BY2011 Emissions Inventory submittal for 2008 ozone NAAQS)	205.5 (MOVES2010a emission from BY2011 Emissions Inventory submittal for 2008 ozone NAAQS)
2011	79.1 (Estimated MOVES2014a emission using TPB comparative analysis) [a]	178.8 (Estimated MOVES2014a emission using TPB comparative analysis) [c]
2016	55.5 (MOVES2014a emission from 2016 CLRP analysis)	109.2 (MOVES2014a emission from 2016 CLRP analysis)
2014	64.9 (Interpolated MOVES2014a emission) [b]	137.0 (Interpolated MOVES2014a emission) [d]
2011 - 2014	79.1 – 64.9 = 14.2	178.8 – 137.0 = 41.8

[a] TPB study found a difference of 4% in VOC emission between MOVES2010a and MOVES2014 for 2015. Assuming this difference also holds true for VOC emission between MOVES2010a and MOVES2014a for 2011, the revised MOVES20104a based 2011 VOC emission will be 82.4*(1-0.04) = 79.1 tpd.

[b] Based on a linear interpolation between 2011 and 2016, NOx emission for 2014 comes out to be 64.9 tpd (79.1-((79.1-55.5)/5)*3)).

[c] TPB study found a difference of 13% in NOx emission between MOVES2010a and MOVES2014 for 2015. Assuming this difference also holds true for NOx emission between MOVES2010a and MOVES2014a for 2011, the revised MOVES20104a based 2011 NOx emission will be 205.5*(1-0.13)=178.8 tpd.

[d] Based on a linear interpolation between 2011 and 2016, NOx emission for 2014 comes out to be 137.0 tpd (178.8-((178.8-109.2)/5)*3)).

There are two caveats in the calculation of emissions reductions above. First, we assume that the difference in emissions estimation between MOVES2014 and MOVES2014a is minimal (as mentioned in the MOVES2014a Q&A document) and second, the TPB study above also holds true for 2011.