

## Appendix C1

Technical support document for the development of MOVES3.0.4  
nonroad mobile (except marine, airport, and railroad) emissions  
inventories for 2025 and 2030

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## Projection Years 2025 & 2030 Inventories

Emissions inventories for nonroad sources for 2025 and 2030 were developed using EPA's MOVES3.0.4 model except for marine diesel vessels, aircrafts, and locomotives (MAR). No changes were made to emissions inventories for MAR sources for 2025 and 2030 in the 2017 plan.

Model runs were executed for the District, Maryland, and Virginia for both milestone years for July/Weekday, which represented an average ozone season weekday. All combinations of fuels and sectors were selected except for Virginia where Airport Ground Support Equipment (GSE) sector was not included. Virginia provided emissions for that sector for 2025 and 2030 for the 2017 plan using a different methodology and no changes were made to those emissions in this revised plan. MOVES2014a was used to develop Airport GSE emissions for both milestone years for the District and Maryland in the 2017 plan so those emissions were updated using MOVES3.0.4 for this revised plan.

Separate model runs were not necessary for individual Maryland and Virginia jurisdictions as inputs were same for all jurisdictions within a particular state. Therefore, two separate model runs were executed (one each for Maryland and Virginia) to develop emissions inventories for all jurisdictions in those two states for each milestone year.

The model generated emissions by Source Classification Code (SCC) for each jurisdiction.

Details of the methodology used to prepare inputs for model runs are provided below.

### Meteorology

Meteorology data used for developing nonroad emissions for the 2017 plan was also used to develop nonroad model emissions for this revised plan.

For the 2017 plan, meteorology data was acquired from the National Climatic Data Center (NCDC). Hourly average temperature and dew point temperature data were collected from the Dulles airport (IAD) weather station for July 2014. Hourly relative humidity data was calculated using these two parameters. This data was also used for the 2025 and 2030 runs.

### Fuel Parameters

Fuel parameters were supplied by the District, Virginia, and Maryland. The District decided to use the model default values for fuel parameters. Maryland decided to use the model default values for fuel parameters except for Gasohol (E10) for which it supplied local data. Virginia supplied local data.

MOVES3.0.4 nonroad input, output, and runspec files are being provided in Appendix C2.

Summary of MOVES3.0.4 Nonroad Model Emissions Inventories by Jurisdiction

The table below provides nonroad model emissions inventories for VOC and NOx in tons per day for individual jurisdictions in the maintenance area.

Jurisdiction	2025		2030	
	VOC (tpd)	NOx (tpd)	VOC (tpd)	NOx (tpd)
The District	1.29	1.15	1.29	1.03
Calvert County	0.67	0.41	0.60	0.37
Charles County	1.08	0.66	1.00	0.58
Fredrick County	2.33	1.12	2.39	1.02
Montgomery County	8.72	3.34	8.98	3.14
Prince George's County	4.98	2.41	5.10	2.22
Arlington County	0.82	1.11	0.78	0.85
Fairfax County	9.08	4.17	9.02	3.67
City of Fairfax	0.32	0.10	0.32	0.10
City of Falls Church	0.19	0.06	0.19	0.05
Loudoun County	4.42	2.62	4.36	2.14
Prince William County	2.69	1.71	2.63	1.40
City of Manassas	0.13	0.09	0.13	0.09
City of Manassas Park	0.18	0.05	0.18	0.05
City of Alexandria	0.65	0.23	0.65	0.23
<b>The District</b>	<b>1.29</b>	<b>1.15</b>	<b>1.29</b>	<b>1.03</b>
<b>Maryland</b>	<b>17.78</b>	<b>7.94</b>	<b>18.07</b>	<b>7.33</b>
<b>Virginia</b>	<b>18.47</b>	<b>10.14</b>	<b>18.26</b>	<b>8.58</b>
<b>Washington DC-MD-VA 2008 Ozone NAAQS Maintenance Area</b>	<b>37.55</b>	<b>19.23</b>	<b>37.61</b>	<b>16.94</b>