

## **Appendix B2**

Technical support document for the development of quasi-point, nonpoint, and commercial marine diesel vessels, airport and railroad source (non-road model, MOVES5 sources) emissions inventories for 2032 and 2038

## Projection Years 2032 & 2038 Inventories

The 2032 and 2038 projected inventories were derived by applying the appropriate growth factors to the 2022 attainment year emissions inventories. The USEPA guidance describes four typical indicators of growth. In order of priority, these are product output, value added, earnings, and employment. Surrogate indicators of activity, for example population growth, are also acceptable methods.

Emissions from the quasi-point sources at the Andrews Air Force Base, Ronald Reagan National Airport, and Dulles International Airport were projected to be the same as the 2022 attainment year.

Round 10.0 Cooperative Forecasts (population, household and employment projections), gasoline sale projection, Vehicle Miles Traveled (VMT), and lane mile projections for 2032 and 2038 were used to project nonpoint and commercial diesel marine vessels, airport, and railroad sources emissions. Round 10.0 Cooperative Forecasts were prepared by the MWCOG staff and officially adopted by its Board of Directors on June 14, 2023. VMT and lane mile projections were developed by the National Capital Region Transportation Planning Board (TPB) staff based on the Travel Demand Model (Version 2.4.6), Round 10 MWCOG Cooperative Forecasts, and Visualize 2050 & FY 2026-29 TIP inputs. The methodology to develop GSE along with other nonroad emissions (except for commercial diesel marine vessels, airport, and railroad emissions) are described in Appendix C1.

The 2032 and 2038 emissions were calculated by multiplying the 2022 attainment year emissions by the above growth factors for 2032 and 2038 for each jurisdiction. Each nonpoint and commercial diesel marine vessel, airport, and railroad source category (Source Classification Code or SCC) was matched to an appropriate growth surrogate based on the activity used to generate the attainment year 2022 emissions estimates. The surrogates are listed in the tab “2015 O3 Growth Surrogates” of the file named “EPA EMP 2022v1 Emiss Data Tool\_2.5.25\_MARAMA0VA NP-MAR Emissions\_4.16.26\_Corrected.xlsx” and provided in Appendix B3.

Refueling emissions for 2032 and 2038 were generated by the MWCOG staff using the MOVES5 onroad model as described in Appendix D1.

The attainment and projected emissions inventories are provided in Appendix B3 (EPA EMP 2022v1 Emiss Data Tool\_2.5.25\_MARAMA0VA NP-MAR Emissions\_4.16.26\_Corrected.xlsx) along with the growth factors for population, household, employment, gasoline sales, VMT, and lane miles in the tab “Coop GFs\_CFs” of the above file.

Table 1, Table 2, and Table 3 below provide quasi-point, nonpoint, and marine, airport and railroad emissions respectively.

**Table 1: Quasi-Point Source Emission (Tons per day)**

Jurisdiction	NO <sub>x</sub>				VOC			
	2017	2022	2032	2038	2017	2022	2032	2038
District of Columbia								
Calvert								
Charles								
Fredrick								
Montgomery								
Prince George's	0.19	0.82	0.82	0.82	0.39	0.40	0.40	0.40
Arlington		2.60	2.85	2.98		0.42	0.46	0.48
Fairfax County								
Loudoun County		3.05	3.54	3.68		0.54	0.63	0.66
Prince William County								
Fairfax City								
Falls Church City								
Manassas City								
Manassas Park City								
Alexandria City								
NAA Total	0.19	6.48	7.22	7.48	0.39	1.37	1.50	1.55

**Table 2: Nonpoint Source Emission (Tons per day)**

Jurisdiction	NO <sub>x</sub>				VOC			
	2017	2022	2032	2038	2017	2022	2032	2038
District of Columbia	2.24	1.51	1.35	1.35	9.61	12.13	12.91	13.32
Calvert	0.24	0.21	0.21	0.21	2.33	2.04	2.10	2.10
Charles	1.05	0.83	0.86	0.88	4.42	10.25	10.63	10.76
Fredrick	1.27	1.26	1.34	1.38	7.18	11.88	12.53	12.86
Montgomery	4.14	3.35	3.36	3.46	22.70	21.48	22.14	22.34
Prince George's	3.30	3.04	3.04	3.12	21.28	26.85	27.55	28.13
Arlington	0.88	0.88	0.94	0.97	4.87	4.33	4.61	4.79
Fairfax County	4.74	5.17	5.43	5.54	25.96	23.00	24.02	24.50
Loudoun County	2.21	2.15	2.14	2.17	10.56	9.21	10.23	10.51
Prince William County	1.76	1.80	1.79	1.82	12.36	10.32	11.03	11.29
Fairfax City	0.21	0.62	0.59	0.61	0.88	2.99	3.52	3.78
Falls Church City	0.09	0.18	0.18	0.18	0.41	0.70	0.82	0.85
Manassas City	0.32	0.09	0.09	0.10	1.18	0.33	0.40	0.42
Manassas Park City	0.11	0.24	0.23	0.24	0.79	0.98	1.05	1.07
Alexandria City	0.65	0.09	0.09	0.09	3.35	0.57	0.62	0.64
NAA Total	23.22	21.41	21.64	22.10	127.88	137.07	144.16	147.37

**Table 3: Marine, Airport, and Railroad Source Emission (Tons per day)**

<b>Jurisdiction</b>	<b>NOx</b>				<b>VOC</b>			
	<b>2017</b>	<b>2022</b>	<b>2032</b>	<b>2038</b>	<b>2017</b>	<b>2022</b>	<b>2032</b>	<b>2038</b>
District of Columbia	1.34	1.03	1.13	1.17	0.13	0.05	0.06	0.06
Calvert	0.86	0.60	0.58	0.57	0.05	0.02	0.03	0.03
Charles	0.02	0.16	0.16	0.16	0.02	0.01	0.01	0.01
Fredrick	0.84	0.86	0.89	0.94	0.16	0.06	0.07	0.07
Montgomery	0.73	0.75	0.80	0.85	0.05	0.04	0.05	0.05
Prince George's	0.52	0.62	0.68	0.72	0.04	0.03	0.04	0.04
Arlington	2.38	0.06	0.07	0.07	0.76	0.00	0.00	0.00
Fairfax County	0.58	0.57	0.64	0.67	0.03	0.02	0.03	0.03
Loudoun County	2.93	0.03	0.04	0.04	0.72	0.04	0.05	0.05
Prince William County	0.52	0.44	0.52	0.56	0.02	0.02	0.02	0.02
Fairfax City	0.00	0.29	0.32	0.34	0.00	0.01	0.01	0.01
Falls Church City	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manassas City	0.06	0.00	0.00	0.00	0.03	0.00	0.00	0.00
Manassas Park City	0.00	0.11	0.11	0.12	0.00	0.05	0.05	0.05
Alexandria City	0.31	0.01	0.02	0.02	0.01	0.00	0.00	0.00
NAA Total	11.09	5.53	5.95	6.24	2.05	0.38	0.42	0.43