Appendix D

2025 Future Year
Point, Area, On-Road Mobile and Off-Road Mobile
Projected Emissions Inventory

(Missouri Counties)

Appendix D-1	**2025 Emissions Inventory Summary for the Missouri Portion of the Nonattainment Area**
Appendix D-2	**2025 Point Source Emissions**
Appendix D-3	**2025 Area Source Emissions**
Appendix D-4	**2025 On-Road Mobile Source Emissions**
Appendix D-5	**2025 Off-Road Mobile Source Emissions**

Appendix D-1 2025 Emissions Inventory Summary for the Missouri Portion of the Nonattainment Area

Table D-1 displays the projected 2025 emissions inventory summary for point, area, on-road mobile, and off-road mobile sources for the Missouri portion of the 1997 St. Louis ozone nonattainment area in tons/ozone season day. Details regarding the development of the future year (2025) inventory for the Missouri portion of the nonattainment area can be found in Appendices D-2 through D-5.

Table D-1 2025 Emissions Inventory Summary for the Missouri Portion of the Nonattainment Area

County Name	Source Category	CO	NO_X	VOC
Franklin County	Point Sources	9.05	25.80	3.67
Jefferson County		5.79	23.46	2.86
St. Charles County		2.96	20.00	6.31
St. Louis County		17.83	15.49	9.57
St. Louis City		5.16	5.05	5.60
Totals		**40.80**	**89.81**	**28.01**
Franklin County	Area Sources	4.37	0.76	5.51
Jefferson County		9.59	0.92	10.74
St. Charles County		0.84	0.55	19.42
St. Louis County		3.43	2.92	68.54
St. Louis City		1.67	1.70	26.70
Totals		**19.91**	**6.85**	**130.91**
Franklin County	On-Road Mobile Sources	19.59	2.91	1.33
Jefferson County		27.81	3.75	2.26
St. Charles County		40.22	5.56	3.1
St. Louis County		41.28	6.49	2.68
St. Louis City		155.3	22.95	10.78
Totals		**284.20**	**41.66**	**20.15**
Franklin County	Off-Road Mobile Sources	16.85	3.44	1.81
Jefferson County		29.00	1.77	1.99
St. Charles County		62.58	4.34	3.85
St. Louis County		330.81	15.20	18.22
St. Louis City		47.93	4.69	2.30
Totals		**487.16**	**29.44**	**28.17**
Grand Total		**832.07**	**167.76**	**207.24**

Appendix D-2 2025 Point Source Emissions

All of the details associated with developing the 2008 point and area source emissions inventories are described in Appendix B-1 of this document. To forecast to the future year of 2025, growth factors were obtained from the Economic Growth and Analysis System (EGAS) version 5.0, published in January 2006. The model forecasts economic activity to generate growth factors used to develop emission inventories. For this project, growth factors were obtained for the 2025 future year for the five counties of interest: Franklin (29071), Jefferson (29099), St. Charles (29183), St. Louis County (29189), and St. Louis City (29510). The default REMI 5.5 (Regional Economic Model, Inc) configuration was used, and it includes growth based on economy, population, employment, consumption, and value-added for 53 major sectors of the economy. Factors were created for both point and area categories, and are broken out by SCC, county, and year.

Point growth factors covered all point SCCs in use in Missouri for 2008. The county and SCC-specific growth factor was multiplied by the 2008 ozone season day emissions to get the 2025 forecast point source inventory. The four electric utilities, Ameren's Labadie, Meramec, Rush Island, and Sioux, in the St. Louis nonattainment area were grown as follows. The actual regulatory ozone season (May – September) NO_X emissions from these Ameren units from 2008 - 2011 were obtained from the Clean Air Market Division database and averaged to obtain a yearly regulatory ozone season average of NO_X emissions over these four years. This yearly regulatory ozone season average of NO_X emissions over these four years were then divided by 153 (the number of days in the regulatory ozone season to obtain the projected average ozone season day emissions in 2025 for these four facilities. The average 2008 – 2011 regulatory ozone season NO_X emissions and the calculated average ozone season day NO_X emissions during the same time period for these four Ameren EGU facilities are listed in Table D-2. This four year average of regulatory ozone season NO_X emissions was determined to be representative of the projected NO_X emissions in 2025 because of CAIR. In 2015, their allowances from CAIR drop significantly, but they will likely have some banked allowances allowing them to hold their emissions pretty steady for the first several years after the 2015 CAIR allocations take effect. CO and VOC emissions from Ameren units were grown to 2025 using EGAS 5.0 growth factors. Table D-3 summarizes the total point source emissions projected for 2025 for the Missouri portion of the St. Louis ozone nonattainment area.

Table D-2 2008 - 2011 Average Ozone Season NO_X Emissions for Ameren EGUs in the Missouri Portion of the St. Louis Ozone Nonattainment Area

Boiler Name	Average O3 Season NO_X Emissions (tons/ozone season)	Average O3 Season Day NO_X Emissions (tons/ozone season day)
Labadie Unit 1	896	5.85
Labadie Unit 2	991	6.48
Labadie Unit 3	1,045	6.83
Labadie Unit 4	1,011	6.61
Labadie Total	**3,943**	**25.77**
Meramec Unit 1	255	1.66
Meramec Unit 2	232	1.52
Meramec Unit 3	666	4.36
Meramec Unit 4	938	6.13
Meramec Total	**2,091**	**13.67**
Rush Island Unit 1	760	4.97
Rush Island Unit 2	836	5.46
Rush Island Total	**1,596**	**10.43**
Sioux Unit 1	1,580	10.33
Sioux Unit 2	1,375	8.99
Sioux Total	**2,955**	**19.31**

Table D-3 2025 Annual Point Source Emissions by County in the St. Louis $PM_{2.5}$ Nonattainment Area (Missouri Counties Only) (tons/ozone season day)

County Name	CO	NO_X	VOC
Franklin County	9.05	25.80	3.67
Jefferson County	5.79	23.46	2.86
St. Charles County	2.96	20.00	6.31
St. Louis County	17.83	15.49	9.57
St. Louis City	5.16	5.05	5.60
Totals	**40.80**	**89.81**	**28.01**

As stated in Appendix B, EPA's 2008 National Emissions Inventory (NEI) includes point source emissions for aircraft takeoffs and landings. However, they really should be classified as off-road mobile source emissions. Therefore, the emissions for aircraft takeoffs and landings are not included in the total point source emissions listed in Table D-3. The SCC codes for the aircraft categories are listed in Table D-6, and the emissions from these categories are included in Table D-16, to be included as off-road mobile source emissions.

Table D-4 includes all of the projected point source emissions for 2025 by facility. As mentioned above, the EGAS growth factors were not used for the NO_X emissions from the Ameren EGU Facilities.

Table D-4 2025 Point Source Emissions Projections by Facility in the Missouri Portion of the St. Louis Nonattainment Area (tons/ozone season day)

FIPS	ID	Facility Site Name	CO (tons/ozone season day)	NO_X (tons/ozone season day)	VOC (tons/ozone season day)
29071	0003	Amerenue-Labadie Plant	9.04	25.77	1.09
29071	0014	Canam Steel Corp-Canam Steel Corp	0.00	0.02	0.63
29071	0020	Steelweld Equipment Co-St Clair	0.00	0.00	0.10
29071	0031	Jefferson Smurfit Corp-Pacific	0.00	0.00	0.16
29071	0068	Meramec Industries Inc-Ramsey St Plant	0.00	0.00	0.25
29071	0087	Bull Moose Tube Company-Bull Moose Tube Company	0.00	0.00	0.12
29071	0131	Sullivan Precision Metal Finishing Inc-Sullivan Precision Metal Finishing Inc	0.00	0.00	0.12
29071	0132	Sporlan Valve Company-Plant #2 - West Main	0.00	0.00	0.25
29071	0144	Integram - St Louis Seating-Pacific	0.00	0.00	0.12
29071	0151	Aerofil Technology Inc-Aerofil Technology Inc	0.00	0.00	0.22
29071	0153	Magnet Llc-Washington	0.00	0.00	0.07
29071	0154	Marble Decor Inc-Marble Decor Inc	0.00	0.00	0.00
29071	0157	Plaze Incorporated-Plaze Incorporated	0.00	0.01	0.34
29071	0173	GDX Automotive - Danny Scott Drive-New Haven	0.00	0.00	0.09
29071	0178	Sporlan Valve Company-Plant #3 - Lange Drive	0.00	0.00	0.11
Franklin County Total			**9.05**	**25.80**	**3.67**
29099	0002	Rc Cement Company Inc-River Cement Co - Selma Plant	1.41	12.09	1.04
29099	0003	Doe Run Company-Herculaneum Smelter	0.08	0.06	0.01
29099	0011	Union Pacific Railroad Co-Desoto Car Shop	0.01	0.01	0.12
29099	0014	Dow Chemical Company The-Riverside Plant	0.00	0.00	0.01
29099	0016	Amerenue-Rush Island Plant	4.22	10.43	0.51
29099	0044	Metal Container Corporation-Arnold	0.03	0.04	0.50
29099	0052	Engineered Coil Company-D B A Marlo Coil	0.00	0.00	0.05
29099	0068	Saint-Gobain Containers Llc-Pevely	0.03	0.80	0.15
29099	0111	Carondelet Corporation-Carondelet Corporation	0.01	0.02	0.46
29099	0114	Aero Metal Finishing-Aero Metal Finishing	0.00	0.02	0.02
Jefferson County Total			**5.79**	**23.46**	**2.86**

FIPS	ID	Facility Site Name	CO (tons/ozone season day)	NO_X (tons/ozone season day)	VOC (tons/ozone season day)
29183	0001	Amerenue-Sioux Plant	2.52	19.31	0.55
29183	0004	Fred Weber Inc-O'Fallon Asphalt Plant	0.18	0.02	0.00
29183	0010	McDonnell Douglas Corp-Boeing Company	0.01	0.01	0.08
29183	0019	St Joseph Health Center-St Joseph Health Center	0.01	0.03	0.00
29183	0027	Memc Electronic Materials Inc-St Peters Plant	0.04	0.10	0.07
29183	0076	General Motors-Wentzville Center	0.21	0.53	4.66
29183	0077	O Fallon Casting Llc-O Fallon	0.00	0.00	0.28
29183	0129	Woodbridge Corporation-St Peters	0.00	0.00	0.40
29183	0131	Superior Home Products Inc-Superior Home Products Inc	0.00	0.00	0.08
29183	0184	True Manufacturing Co-O'Fallon	0.00	0.00	0.19
St. Charles County Total			**2.96**	**20.00**	**6.31**
29189	0002	Chrysler Assembly Plant 1-Fenton	0.06	0.07	1.18
29189	0010	Amerenue-Meramec Plant	13.05	13.67	0.37
29189	0020	Monsanto World Headquarters-Lindbergh Blvd	0.02	0.02	0.00
29189	0021	U S Silica Company-Pacific	0.01	0.02	0.00
29189	0025	Dana Corporation-Perfect Circle Division	0.00	0.00	0.01
29189	0032	Pharmacia-Chesterfield Village	0.08	0.20	0.13
29189	0035	Rockwood Pigments Na Inc-E Hoffmeister	0.03	0.04	0.00
29189	0042	Washington University-Millbrook Blvd	0.03	0.03	0.00
29189	0057	St Louis Post-Dispatch-Dunlap Ind Dr	0.00	0.00	0.08
29189	0064	Sunnen Products Company-Maplewood	0.00	0.00	0.03
29189	0065	St Louis Airport Authority-Lambert International Blvd	0.03	0.08	0.14
29189	0111	Simpson Construction Materials Llc-West Lake Quarry & Material Co	0.16	0.05	0.00
29189	0141	Energy Petroleum Company-Kienlen	0.00	0.00	0.03
29189	0208	Printpack Inc-Hazelwood Plant	0.01	0.01	1.08
29189	0217	Metropolitan St Louis Sewer District-Lemay Waste Water Treatment Plant	1.30	0.21	0.07
29189	0226	Nesco Container Corp-Fenton	0.01	0.02	0.71
29189	0230	McDonnell Douglas Corp /Boeing Company-Lindbergh Plant	0.06	0.07	0.40
29189	0231	Chrysler Corp-North Plant	0.19	0.18	2.88
29189	0238	St Louis Lithographing Company-Heege Avenue	0.00	0.00	0.10

FIPS	ID	Facility Site Name	CO (tons/ozone season day)	NO_X (tons/ozone season day)	VOC (tons/ozone season day)
29189	0242	Multiplex Display Fixture-Fenton	0.00	0.00	0.02
29189	0281	BFI Missouri Pass Landfill-Maryland Heights	0.08	0.03	0.02
29189	0282	Color Art Inc-Crestwood	0.00	0.01	0.13
29189	0308	Fred Weber Inc Sanitary Landfill-St Louis County	0.64	0.03	0.03
29189	0310	Onyx Oak Ridge Landfill Inc-(West County)	0.12	0.01	0.02
29189	0312	Bridgeton Landfill Authority-Bridgeton	0.67	0.04	0.03
29189	0315	Flex-O-Lite Inc-Fenton	0.00	0.00	0.18
29189	0317	Pro-Tect Mfg Inc-Ferguson Ave	0.00	0.00	0.13
29189	0318	St Marys Health Center-Richmond Heights	0.01	0.02	0.00
29189	0327	Camie-Campbell Inc-Watson Industrial Park	0.00	0.00	0.03
29189	1012	Belt Service Corp-Earth City	0.00	0.00	0.30
29189	1015	Kv Pharmaceutical Company-Brentwood	0.00	0.00	0.37
29189	1029	Depaul Health Center-Bridgeton	0.01	0.02	0.00
29189	1047	Kv Pharmaceutical Company-Schuetz Rd	0.00	0.00	0.04
29189	1052	Veterans Admin Medical Center-Jefferson Barracks Drive	0.00	0.00	0.01
29189	1097	Reichhold Chemicals Inc-Valley Park	0.02	0.02	0.19
29189	1101	St Luke'S Hospital-Woods Mill Road	0.02	0.02	0.00
29189	1156	St Joseph Hospital-Kirkwood	0.01	0.01	0.01
29189	1192	Pan-Glo St Louis-Trenton Avenue	0.00	0.00	0.02
29189	1204	Whitmire Microgen Research Laboratory-Kirkwood	0.00	0.00	0.04
29189	1205	Metropolitan St Louis Sewer District-Mo River Wasterwater Treatment Plant	0.02	0.23	0.03
29189	1210	Metropolitan St Louis Sewer District-Coldwater Creek Sewage Treatment Plant	0.14	0.21	0.01
29189	1226	Simpson Construction Materials Llc-Valley Park	0.23	0.07	0.02
29189	1248	Fred Weber Inc-South Asphalt	0.19	0.03	0.00
29189	1249	Fred Weber Inc-North Asphalt H & B	0.28	0.05	0.01
29189	1250	Fred Weber Inc-North Asphalt B & G	0.29	0.02	0.01
29189	1489	Gkn Aerospace Services Inc-Berkeley	0.02	0.02	0.26
29189	1520	F & S Real Eastate Inc-St Louis	0.00	0.00	0.34
29189	1538	KV PHARMACEUTICAL-BRIDGETON	0.00	0.00	0.11
St. Louis County Total			**17.83**	**15.49**	**9.57**

FIPS	ID	Facility Site Name	CO (tons/ozone season day)	NO_X (tons/ozone season day)	VOC (tons/ozone season day)
29510	0003	Anheuser-Busch Inc-St Louis	0.51	2.10	0.87
29510	0017	Mallinckrodt Inc -Mallinckrodt Inc	0.22	0.32	0.19
29510	0027	Precoat Metals-Precoat Metals	0.02	0.03	0.20
29510	0031	ADM Gromark River Systems-St Louis	0.00	0.00	0.00
29510	0038	Trigen-St Louis Energy Corp-Ashley Street Station	0.09	0.08	0.01
29510	0040	Washington Univ Medical School-Boiler Plant	0.02	0.05	0.00
29510	0047	Fred Weber Inc-Asphalt Plant	0.06	0.01	0.00
29510	0053	Metropolitan St Louis Sewer District-Bissel Plant	2.48	0.42	0.18
29510	0057	Procter & Gamble-Procter & Gamble	0.03	0.04	0.00
29510	0063	Dial Corp-Dial Corp	0.04	0.04	0.01
29510	0066	Elementis Specialties Inc-Elementis Specialties Inc	0.02	0.02	0.23
29510	0070	Astaris Llc-Carondelet Plant	0.09	0.03	0.00
29510	0096	P D George Co (The)-P D George Co (The)	0.01	0.02	0.17
29510	0097	U S Paint Div Of Grow Group-U S Paint Div Of Grow Group	0.00	0.00	0.18
29510	0118	Alumax Foils Inc-Alcoa Foil Products/Alumax Foils Inc	0.05	0.08	2.53
29510	0159	ADM/TPC Milling Co-Pillsbury Company	0.00	0.00	0.04
29510	0161	Poly One Corporation-St Louis	0.00	0.00	0.03
29510	0162	Marquette Tool & Die-Marquette Tool & Die	0.00	0.00	0.05
29510	0175	St Louis Metallizing-St Louis	0.00	0.00	0.03
29510	0179	Italgrani Elevator-Italgrani Elevator	0.01	0.02	0.00
29510	0204	Bjc Health System-Pavillion	0.03	0.14	0.01
29510	0269	Sensient Colors Inc-Baldwin Plant	0.01	0.01	0.00
29510	0391	Hermann Oak Leather Co-Hermann Oak Leather Co	0.00	0.00	0.04
29510	0468	Lange-Stegmann Co-Lange-Stegmann Co	0.00	0.00	0.00
29510	0697	Sigma - Aldrich Co-Sigma - Aldrich Co	0.01	0.00	0.02
29510	0808	Chemisphere Corporation-Chemisphere	0.00	0.00	0.02
29510	0809	PQ Corporation (The)-St Louis	0.04	0.51	0.02
29510	0938	Interstate Brands Corp-Interstate Brands Corp	0.01	0.01	0.31
29510	1055	Goodwin Printing Co -St Louis	0.00	0.00	0.06
29510	1077	Mid-West Industrial Chemical-Mid-West Industrial Chemical	0.00	0.00	0.03
29510	1093	Brenntag Mid-South Inc-Brenntag Mid-South Inc	0.00	0.00	0.00

FIPS	ID	Facility Site Name	CO (tons/ozone season day)	NO_X (tons/ozone season day)	VOC (tons/ozone season day)
29510	1123	U S Ringbinder Corp-Loose Leaf Metals	0.00	0.00	0.02
29510	1280	St Louis Post Dispatch-St Louis Post Dispatch	0.00	0.00	0.01
29510	1370	National Geospatial-Intelligence Agency-National Geospatial-Intelligence Agency	0.00	0.01	0.00
29510	1396	Sigma - Aldrich Co-Sigma Chemical Company	0.01	0.02	0.05
29510	1407	Southern Metal Processing-Southern Metal Processing	0.01	0.03	0.01
29510	1423	Ashland Distribution Company-St Louis Plant	0.00	0.00	0.04
29510	1460	Allied Health Care Products-Allied Health Care Products	0.00	0.00	0.02
29510	1505	Energy Center (The)-St Louis Univ Health Sciences Center	0.02	0.04	0.00
29510	1519	Permacel St Louis Inc-Permacel St Louis Inc	0.00	0.00	0.00
29510	1556	Connector Castings-Connector Castings	0.00	0.00	0.01
29510	1642	J S Alberici Construction-J S Alberici Construction	0.00	0.00	0.17
29510	2300	Superior Solvent & Chemical-St Louis	0.00	0.00	0.02
29510	2378	Laclede Tower Associates Llc-Laclede Gas Building	1.23	0.80	0.01
29510	2433	New World Pasta- Marceau Facility-New World Pasta	0.02	0.02	0.00
29510	2545	Southwestern Bell Telephone Company-Southwestern Bell Telephone Company	0.10	0.19	0.01
29510	2711	St Louis University-Facilities Svcs	0.01	0.01	0.00
29510	2833	WASHINGTON UNIVERSITY-HILLTOP CAMPUS	0.00	0.00	0.00
St. Louis City Total			**5.16**	**5.05**	**5.60**
Nonattainment Area Total (Missouri Portion)			**40.80**	**89.81**	**28.01**

Appendix D-3 2025 Area Source Emissions

Similarly to the 2025 point source emission projections, the 2025 area source emission projections for all categories of CO and NO_X as well as the majority of categories for VOC were calculated using the 2008 area source emissions inventory and applying growth factors to project the emissions in 2025. The growth factor file included SCCs with non-numeric characters. These were identified and determined not to be placeholder SCCs that would be used to match to Missouri SCCs, and so they were removed. When the Missouri area SCCs were initially matched to the growth factors generated by EGAS 5.0, there were several categories that did not have a growth factor. Area SCCs added since 2006 would not be included in EGAS, so a similar growth factor had to be found. The area residential wood category has seen new SCCs added to account for EPA-certified stoves, hydronic heaters, and wax firelogs. EGAS provides a single growth factor for all other residential wood combustion, and so this single factor is used for the new SCCs. New SCCs for portable fuel containers are assigned the most similar growth factor for gasoline product storage. SCCs for bulk plant evaporation of gasoline are assigned the growth factor for bulk terminal evaporation of gasoline.

Once all area SCCs had an assigned growth factor, the 2008 ozone season day emissions were multiplied by the growth factor specific to that county and SCC to get the 2025 forecast emissions. The county totals are summarized below in Table D-5. This table includes stage II refueling emissions for on-road motor vehicles (SCC 2501060100) developed using EPA's Motor Vehicle Emissions Simulator (MOVES). The stage II controls in MOVES were "turned off" by setting the stage II control efficiencies in the countyyear input table to zero (0) for all counties in the Missouri portion of the St. Louis nonattainment area. This was done, because the Air Program is currently developing a SIP revision to remove stage II control requirements in the St. Louis area due to the widespread use of on-board vapor recovery systems, and stage II controls are expected to be completely phased out by December 31, 2015.

As stated in Appendix B, due to the methods that are used to calculate the emissions for the marine, and rail categories, these categories are included as area source emissions in the NEI, although they really should be classified as off-road mobile source emissions. Therefore, the emissions for aircraft, rail, and marine are not included in the total area source emissions listed in Table D-5. The source classification codes for the aircraft, rail and marine categories are listed in Table D-6, and the emissions from these categories are listed in Table D-16, to be included as off-road mobile source emissions.

Table D-5 2025 Annual Area Source Emissions by County in the Missouri Portion of the St. Louis Nonattainment Area (tons/ozone season day)

County Name	CO	NO_X	VOC
Franklin County	19.59	2.91	1.33
Jefferson County	27.81	3.75	2.26
St. Charles County	40.22	5.56	3.1
St. Louis County	41.28	6.49	2.68
St. Louis City	155.3	22.95	10.78
Totals	**284.20**	**41.66**	**20.15**

Table D-6 SCC Codes and Descriptions Not Included in the Analysis for Point or Area Source Emissions

SCC	SCC Level One	SCC Level Two	SCC Level Three	SCC Level Four
2275001000	Mobile Sources	Aircraft	Military Aircraft	Total
2275020000	Mobile Sources	Aircraft	Commercial Aircraft	Total: All Types
2275050011	Mobile Sources	Aircraft	General Aviation	Piston
2275050012	Mobile Sources	Aircraft	General Aviation	Turbine
2275060011	Mobile Sources	Aircraft	Air Taxi	Piston
2275060012	Mobile Sources	Aircraft	Air Taxi	Turbine
2275085000	Mobile Sources	Aircraft	Unpaved Airstrips	Total
2275087000	Mobile Sources	Aircraft	In-flight (non-Landing-Takeoff cycle)	Total
2280002100	Mobile Sources	Marine Vessels, Commercial	Diesel	Port emissions
2280002200	Mobile Sources	Marine Vessels, Commercial	Diesel	Underway emissions
2280003100	Mobile Sources	Marine Vessels, Commercial	Residual	Port emissions
2280003200	Mobile Sources	Marine Vessels, Commercial	Residual	Underway emissions
2280004000	Mobile Sources	Marine Vessels, Commercial	Gasoline	Total, All Vessel Types
2285002006	Mobile Sources	Railroad Equipment	Diesel	Line Haul Locomotives: Class I Operations
2285002007	Mobile Sources	Railroad Equipment	Diesel	Line Haul Locomotives: Class II / III Operations
2285002008	Mobile Sources	Railroad Equipment	Diesel	Line Haul Locomotives: Passenger Trains (Amtrak)
2285002009	Mobile Sources	Railroad Equipment	Diesel	Line Haul Locomotives: Commuter Lines
2285002010	Mobile Sources	Railroad Equipment	Diesel	Yard Locomotives
28500201	Internal Combustion Engines	Railroad Equipment	Diesel	Yard Locomotives

Table D-7 includes all of the area source emissions for 2025 by SCC for each county in the nonattainment area along with the associated growth factors for each SCC. As mentioned above, 2025 stage II refueling VOC emissions from on-road motor vehicles were calculated using MOVES and therefore have no growth factor listed in Table D-7.

Table D-7 Projected 2025 Area Source Emissions and Growth Factors in the Missouri Portion of the St. Louis Nonattainment Area (tons/ozone season day)

County	SCC	2025 Growth Factor	2025 CO Emissions	2025 NO_X Emissions	2025 VOC Emissions
29071	2102001000	1.00932241	0.000	0.000	0.000
29071	2102002000	1.00932241	0.178	0.392	0.002
29071	2102004000	1.18843675	0.001	0.004	0.000
29071	2102005000	0.99838579	0.000	0.003	0.000
29071	2102006000	1.2709738	0.002	0.003	0.000
29071	2102007000	1.23716939	0.000	0.000	0.000
29071	2102008000	1.40088403	0.128	0.047	0.004
29071	2102011000	1.0981698	0.000	0.000	0.000
29071	2103001000	0.99788296	0.000	0.000	0.000
29071	2103002000	0.99788296	0.004	0.009	0.000
29071	2103004000	1.29994249	0.000	0.000	0.000
29071	2103005000	1.00653291	0.000	0.000	0.000
29071	2103006000	1.07174218	0.020	0.024	0.001
29071	2103007000	1.01385462	0.002	0.002	0.000
29071	2103008000	1.00000715	0.005	0.002	0.000
29071	2103011000	1.0452143	0.000	0.000	0.000
29071	2104002000	0.8955754	0.000	0.000	0.000
29071	2104004000	0.77196217	0.000	0.001	0.000
29071	2104006000	1.02143395	0.001	0.002	0.000
29071	2104007000	1.02364647	0.023	0.082	0.003
29071	2104008100	0.98844743	0.020	0.000	0.003
29071	2104008210	0.98844743	0.031	0.000	0.007
29071	2104008220	0.98844743	0.006	0.000	0.001
29071	2104008230	0.98844743	0.001	0.000	0.000
29071	2104008310	0.98844743	0.028	0.000	0.006
29071	2104008320	0.98844743	0.005	0.000	0.000
29071	2104008330	0.98844743	0.001	0.000	0.000
29071	2104008400	0.98844743	0.001	0.000	0.000
29071	2104008510	0.98844743	0.006	0.000	0.000
29071	2104008610	0.98844743	0.012	0.000	0.001
29071	2104009000	0.98844743	0.002	0.000	0.001
29071	2104011000	1.19318724	0.004	0.014	0.001
29071	2302002100	1.16712332	0.007	0.000	0.002
29071	2302002200	1.16712332	0.022	0.000	0.007
29071	2302003000	1.16712332	0.000	0.000	0.002
29071	2302003100	1.16712332	0.002	0.000	0.001
29071	2302003200	1.16712332	0.000	0.000	0.000
29071	2401001000	1.36385	0.000	0.000	0.582
29071	2401005000	1.42292094	0.000	0.000	0.103
29071	2401008000	1.02949274	0.000	0.000	0.048
29071	2401015000	1.45865965	0.000	0.000	0.005
29071	2401020000	1.76039338	0.000	0.000	0.126
29071	2401025000	1.76039338	0.000	0.000	0.129
29071	2401030000	1.50668895	0.000	0.000	0.000
29071	2401040000	1.55949366	0.000	0.000	0.000

County	SCC	2025 Growth Factor	2025 CO Emissions	2025 NO_X Emissions	2025 VOC Emissions
29071	2401050000	1.6913631	0.000	0.000	0.304
29071	2401055000	2.58191705	0.000	0.000	0.322
29071	2401060000	1.91509438	0.000	0.000	0.000
29071	2401065000	1.15341389	0.000	0.000	0.016
29071	2401070000	1.67387652	0.000	0.000	0.086
29071	2401075000	1.56286955	0.000	0.000	0.009
29071	2401080000	1.40625	0.000	0.000	0.056
29071	2401085000	1.79831934	0.000	0.000	0.000
29071	2401090000	1.70041037	0.000	0.000	0.191
29071	2401100000	1.43951619	0.000	0.000	0.222
29071	2401200000	1.54354358	0.000	0.000	0.002
29071	2415000000	1.76039338	0.000	0.000	0.452
29071	2420000000	1.33265722	0.000	0.000	0.005
29071	2425000000	1.42790198	0.000	0.000	0.298
29071	2460100000	1.18945324	0.000	0.000	0.313
29071	2460200000	1.18945324	0.000	0.000	0.296
29071	2460400000	1.18945324	0.000	0.000	0.224
29071	2460500000	1.18945324	0.000	0.000	0.156
29071	2460600000	1.18945324	0.000	0.000	0.094
29071	2460800000	1.18945324	0.000	0.000	0.293
29071	2460900000	1.18945324	0.000	0.000	0.012
29071	2461021000	1.44767177	0.000	0.000	0.148
29071	2461022000	1.44767177	0.000	0.000	0.077
29071	2501011011	1.28112268	0.000	0.000	0.053
29071	2501011012	1.28112268	0.000	0.000	0.104
29071	2501011013	1.28112268	0.000	0.000	0.012
29071	2501011014	1.28112268	0.000	0.000	0.004
29071	2501011015	1.28112268	0.000	0.000	0.000
29071	2501012011	1.28112268	0.000	0.000	0.002
29071	2501012012	1.28112268	0.000	0.000	0.003
29071	2501012013	1.28112268	0.000	0.000	0.017
29071	2501012014	1.28112268	0.000	0.000	0.008
29071	2501012015	1.28112268	0.000	0.000	0.001
29071	2501050120	1.02949274	0.000	0.000	0.020
29071	2501055120	1.28112268	0.000	0.000	0.019
29071	2501060053	1.02949274	0.000	0.000	0.057
29071	2501060100	NA	0.000	0.000	0.100
29071	2501060201	1.02949274	0.000	0.000	0.081
29071	2501080050	1.57230079	0.000	0.000	0.050
29071	2501080100	1.57230079	0.000	0.000	0.003
29071	2505030120	1.02949274	0.000	0.000	0.005
29071	2505040120	1.28571427	0.000	0.000	0.021
29071	2610000100	1.18945324	0.081	0.004	0.020
29071	2610000400	1.18945324	0.101	0.004	0.014
29071	2610000500	1.18945324	2.266	0.067	0.156
29071	2610030000	1.18945324	1.411	0.100	0.142
29071	2630020000	1.41875005	0.000	0.000	0.007
Franklin County Total			**4.372**	**0.761**	**5.508**

County	SCC	2025 Growth Factor	2025 CO Emissions	2025 NO_X Emissions	2025 VOC Emissions
29099	2102001000	1.00932241	0.000	0.000	0.000
29099	2102002000	1.00932241	0.170	0.374	0.002
29099	2102004000	1.18843675	0.001	0.004	0.000
29099	2102005000	0.99838579	0.000	0.003	0.000
29099	2102006000	1.2709738	0.002	0.003	0.000
29099	2102007000	1.23716939	0.000	0.000	0.000
29099	2102008000	1.40088403	0.123	0.045	0.003
29099	2102011000	1.0981698	0.000	0.000	0.000
29099	2103001000	0.99788296	0.000	0.000	0.000
29099	2103002000	0.99788296	0.001	0.002	0.000
29099	2103004000	1.29994249	0.000	0.000	0.000
29099	2103005000	1.00653291	0.000	0.000	0.000
29099	2103006000	1.07174218	0.004	0.005	0.000
29099	2103007000	1.01385462	0.000	0.000	0.000
29099	2103008000	1.00000715	0.001	0.000	0.000
29099	2103011000	1.0452143	0.000	0.000	0.000
29099	2104002000	0.8955754	0.000	0.000	0.000
29099	2104004000	0.77196217	0.000	0.001	0.000
29099	2104006000	1.02143395	0.006	0.013	0.001
29099	2104007000	1.02364647	0.032	0.112	0.004
29099	2104008100	0.98844743	0.043	0.001	0.005
29099	2104008210	0.98844743	0.065	0.001	0.015
29099	2104008220	0.98844743	0.013	0.000	0.001
29099	2104008230	0.98844743	0.003	0.000	0.000
29099	2104008310	0.98844743	0.059	0.001	0.013
29099	2104008320	0.98844743	0.011	0.000	0.001
29099	2104008330	0.98844743	0.003	0.000	0.000
29099	2104008400	0.98844743	0.001	0.000	0.000
29099	2104008510	0.98844743	0.013	0.000	0.001
29099	2104008610	0.98844743	0.025	0.000	0.002
29099	2104009000	0.98844743	0.005	0.000	0.002
29099	2104011000	1.19318724	0.002	0.007	0.000
29099	2302002100	1.16712332	0.015	0.000	0.004
29099	2302002200	1.16712332	0.047	0.000	0.014
29099	2302003000	1.16712332	0.000	0.000	0.004
29099	2302003100	1.16712332	0.004	0.000	0.002
29099	2302003200	1.16712332	0.000	0.000	0.000
29099	2401001000	1.36385	0.000	0.000	1.255
29099	2401005000	1.42292094	0.000	0.000	0.118
29099	2401008000	1.02949274	0.000	0.000	0.047
29099	2401015000	1.45865965	0.000	0.000	0.001
29099	2401020000	1.76039338	0.000	0.000	0.050
29099	2401025000	1.76039338	0.000	0.000	0.006
29099	2401030000	1.50668895	0.000	0.000	0.076
29099	2401040000	1.55949366	0.000	0.000	0.803
29099	2401050000	1.6913631	0.000	0.000	0.082
29099	2401055000	2.58191705	0.000	0.000	0.080
29099	2401060000	1.91509438	0.000	0.000	0.005

County	SCC	2025 Growth Factor	2025 CO Emissions	2025 NO_X Emissions	2025 VOC Emissions
29099	2401065000	1.15341389	0.000	0.000	0.000
29099	2401070000	1.67387652	0.000	0.000	0.007
29099	2401075000	1.56286955	0.000	0.000	0.009
29099	2401080000	1.40625	0.000	0.000	0.003
29099	2401085000	1.79831934	0.000	0.000	0.000
29099	2401090000	1.70041037	0.000	0.000	0.058
29099	2401100000	1.43951619	0.000	0.000	0.480
29099	2401200000	1.54354358	0.000	0.000	0.003
29099	2415000000	1.76039338	0.000	0.000	0.247
29099	2420000000	1.33265722	0.000	0.000	0.039
29099	2425000000	1.42790198	0.000	0.000	0.290
29099	2460100000	1.18945324	0.000	0.000	0.675
29099	2460200000	1.18945324	0.000	0.000	0.639
29099	2460400000	1.18945324	0.000	0.000	0.483
29099	2460500000	1.18945324	0.000	0.000	0.337
29099	2460600000	1.18945324	0.000	0.000	0.202
29099	2460800000	1.18945324	0.000	0.000	0.632
29099	2460900000	1.18945324	0.000	0.000	0.025
29099	2461021000	1.44767177	0.000	0.000	0.268
29099	2461022000	1.44767177	0.000	0.000	0.140
29099	2501011011	1.28112268	0.000	0.000	0.117
29099	2501011012	1.28112268	0.000	0.000	0.228
29099	2501011013	1.28112268	0.000	0.000	0.027
29099	2501011014	1.28112268	0.000	0.000	0.009
29099	2501011015	1.28112268	0.000	0.000	0.001
29099	2501012011	1.28112268	0.000	0.000	0.004
29099	2501012012	1.28112268	0.000	0.000	0.007
29099	2501012013	1.28112268	0.000	0.000	0.036
29099	2501012014	1.28112268	0.000	0.000	0.017
29099	2501012015	1.28112268	0.000	0.000	0.001
29099	2501050120	1.02949274	0.000	0.000	0.225
29099	2501055120	1.28112268	0.000	0.000	0.218
29099	2501060052	1.02949274	0.000	0.000	1.470
29099	2501060100	NA	0.000	0.000	0.130
29099	2501060201	1.02949274	0.000	0.000	0.143
29099	2501080050	1.57230079	0.000	0.000	0.007
29099	2501080100	1.57230079	0.000	0.000	0.000
29099	2505030120	1.02949274	0.000	0.000	0.009
29099	2505040120	1.28571427	0.000	0.000	0.239
29099	2610000100	1.18945324	0.104	0.006	0.026
29099	2610000400	1.18945324	0.130	0.005	0.018
29099	2610000500	1.18945324	6.890	0.204	0.473
29099	2610030000	1.18945324	1.817	0.128	0.183
29099	2630020000	1.41875005	0.000	0.000	0.016
Jefferson County Total			**9.590**	**0.915**	**10.740**
29183	2102001000	1.00932241	0.000	0.000	0.000
29183	2102002000	1.00932241	0.157	0.346	0.002
29183	2102004000	1.18843675	0.001	0.003	0.000

County	SCC	2025 Growth Factor	2025 CO Emissions	2025 NO_X Emissions	2025 VOC Emissions
29183	2102005000	0.99838579	0.000	0.002	0.000
29183	2102006000	1.2709738	0.002	0.002	0.000
29183	2102007000	1.23716939	0.000	0.000	0.000
29183	2102008000	1.40088403	0.113	0.042	0.003
29183	2102011000	1.0981698	0.000	0.000	0.000
29183	2103001000	0.99788296	0.000	0.000	0.000
29183	2103002000	0.99788296	0.004	0.008	0.000
29183	2103004000	1.29994249	0.000	0.000	0.000
29183	2103005000	1.00653291	0.000	0.000	0.000
29183	2103006000	1.07174218	0.017	0.020	0.001
29183	2103007000	1.01385462	0.002	0.001	0.000
29183	2103008000	1.00000715	0.004	0.001	0.000
29183	2103011000	1.0452143	0.000	0.000	0.000
29183	2104002000	0.8955754	0.016	0.001	0.001
29183	2104004000	0.77196217	0.000	0.000	0.000
29183	2104006000	1.02143395	0.017	0.041	0.002
29183	2104007000	1.02364647	0.019	0.067	0.003
29183	2104008100	0.98844743	0.068	0.001	0.009
29183	2104008210	0.98844743	0.102	0.001	0.023
29183	2104008220	0.98844743	0.020	0.000	0.002
29183	2104008230	0.98844743	0.005	0.000	0.001
29183	2104008310	0.98844743	0.092	0.001	0.021
29183	2104008320	0.98844743	0.018	0.000	0.002
29183	2104008330	0.98844743	0.004	0.000	0.001
29183	2104008400	0.98844743	0.002	0.000	0.000
29183	2104008510	0.98844743	0.020	0.000	0.001
29183	2104008610	0.98844743	0.040	0.000	0.003
29183	2104009000	0.98844743	0.008	0.000	0.002
29183	2104011000	1.19318724	0.001	0.004	0.000
29183	2302002100	1.16712332	0.024	0.000	0.007
29183	2302002200	1.16712332	0.075	0.000	0.023
29183	2302003000	1.16712332	0.000	0.000	0.007
29183	2302003100	1.16712332	0.007	0.000	0.003
29183	2302003200	1.16712332	0.000	0.000	0.000
29183	2401001000	1.36385	0.000	0.000	2.015
29183	2401005000	1.42292094	0.000	0.000	0.277
29183	2401008000	1.02949274	0.000	0.000	0.053
29183	2401015000	1.45865965	0.000	0.000	0.010
29183	2401020000	1.76039338	0.000	0.000	0.055
29183	2401025000	1.76039338	0.000	0.000	0.000
29183	2401030000	1.50668895	0.000	0.000	0.000
29183	2401040000	1.55949366	0.000	0.000	0.000
29183	2401050000	1.6913631	0.000	0.000	0.416
29183	2401055000	2.58191705	0.000	0.000	0.986
29183	2401060000	1.91509438	0.000	0.000	0.005
29183	2401065000	1.15341389	0.000	0.000	0.000
29183	2401070000	1.67387652	0.000	0.000	0.465
29183	2401075000	1.56286955	0.000	0.000	0.000

County	SCC	2025 Growth Factor	2025 CO Emissions	2025 NO_X Emissions	2025 VOC Emissions
29183	2401080000	1.40625	0.000	0.000	0.003
29183	2401085000	1.79831934	0.000	0.000	0.030
29183	2401090000	1.70041037	0.000	0.000	0.287
29183	2401100000	1.43951619	0.000	0.000	0.770
29183	2401200000	1.54354358	0.000	0.000	0.005
29183	2415000000	1.76039338	0.000	0.000	0.900
29183	2420000000	1.33265722	0.000	0.000	0.420
29183	2425000000	1.42790198	0.000	0.000	3.286
29183	2460100000	1.18945324	0.000	0.000	1.083
29183	2460200000	1.18945324	0.000	0.000	1.026
29183	2460400000	1.18945324	0.000	0.000	0.775
29183	2460500000	1.18945324	0.000	0.000	0.541
29183	2460600000	1.18945324	0.000	0.000	0.325
29183	2460800000	1.18945324	0.000	0.000	1.014
29183	2460900000	1.18945324	0.000	0.000	0.040
29183	2461021000	1.44767177	0.000	0.000	0.298
29183	2461022000	1.44767177	0.000	0.000	0.156
29183	2501011011	1.28112268	0.000	0.000	0.234
29183	2501011012	1.28112268	0.000	0.000	0.458
29183	2501011013	1.28112268	0.000	0.000	0.053
29183	2501011014	1.28112268	0.000	0.000	0.017
29183	2501011015	1.28112268	0.000	0.000	0.001
29183	2501012011	1.28112268	0.000	0.000	0.007
29183	2501012012	1.28112268	0.000	0.000	0.015
29183	2501012013	1.28112268	0.000	0.000	0.073
29183	2501012014	1.28112268	0.000	0.000	0.034
29183	2501012015	1.28112268	0.000	0.000	0.003
29183	2501050120	1.02949274	0.000	0.000	0.116
29183	2501055120	1.28112268	0.000	0.000	0.112
29183	2501060052	1.02949274	0.000	0.000	2.245
29183	2501060100	NA	0.000	0.000	0.190
29183	2501060201	1.02949274	0.000	0.000	0.219
29183	2501080050	1.57230079	0.000	0.000	0.116
29183	2501080100	1.57230079	0.000	0.000	0.006
29183	2505030120	1.02949274	0.000	0.000	0.014
29183	2505040120	1.28571427	0.000	0.000	0.123
29183	2610000100	1.18945324	0.000	0.000	0.000
29183	2610000400	1.18945324	0.000	0.000	0.000
29183	2610000500	1.18945324	0.000	0.000	0.000
29183	2610030000	1.18945324	0.000	0.000	0.000
29183	2630020000	1.41875005	0.000	0.000	0.026
St. Charles County Total			**0.840**	**0.545**	**19.419**
29189	2102001000	1.00932241	0.000	0.000	0.000
29189	2102002000	1.00932241	1.042	2.292	0.010
29189	2102004000	1.18843675	0.005	0.022	0.000
29189	2102005000	0.99838579	0.001	0.016	0.000
29189	2102006000	1.2709738	0.013	0.016	0.001
29189	2102007000	1.23716939	0.000	0.000	0.000

County	SCC	2025 Growth Factor	2025 CO Emissions	2025 NO_X Emissions	2025 VOC Emissions
29189	2102008000	1.40088403	0.750	0.275	0.021
29189	2102011000	1.0981698	0.000	0.000	0.000
29189	2103001000	0.99788296	0.000	0.000	0.000
29189	2103002000	0.99788296	0.004	0.009	0.000
29189	2103004000	1.29994249	0.000	0.000	0.000
29189	2103005000	1.00653291	0.000	0.000	0.000
29189	2103006000	1.07174218	0.019	0.023	0.001
29189	2103007000	1.01385462	0.002	0.002	0.000
29189	2103008000	1.00000715	0.004	0.002	0.000
29189	2103011000	1.0452143	0.000	0.000	0.000
29189	2104002000	0.8955754	0.012	0.000	0.000
29189	2104004000	0.77196217	0.000	0.001	0.000
29189	2104006000	1.02143395	0.084	0.198	0.012
29189	2104007000	1.02364647	0.013	0.046	0.002
29189	2104008100	0.98844743	0.210	0.004	0.027
29189	2104008210	0.98844743	0.316	0.004	0.072
29189	2104008220	0.98844743	0.062	0.001	0.005
29189	2104008230	0.98844743	0.015	0.000	0.002
29189	2104008310	0.98844743	0.285	0.003	0.066
29189	2104008320	0.98844743	0.056	0.001	0.005
29189	2104008330	0.98844743	0.014	0.000	0.002
29189	2104008400	0.98844743	0.006	0.002	0.000
29189	2104008510	0.98844743	0.067	0.001	0.004
29189	2104008610	0.98844743	0.124	0.001	0.008
29189	2104009000	0.98844743	0.024	0.001	0.008
29189	2104011000	1.19318724	0.002	0.006	0.000
29189	2302002100	1.16712332	0.067	0.000	0.019
29189	2302002200	1.16712332	0.214	0.000	0.066
29189	2302003000	1.16712332	0.000	0.000	0.020
29189	2302003100	1.16712332	0.020	0.000	0.009
29189	2302003200	1.16712332	0.000	0.000	0.000
29189	2401001000	1.36385	0.000	0.000	5.719
29189	2401005000	1.42292094	0.000	0.000	1.445
29189	2401008000	1.02949274	0.000	0.000	0.147
29189	2401015000	1.45865965	0.000	0.000	0.018
29189	2401020000	1.76039338	0.000	0.000	0.482
29189	2401025000	1.76039338	0.000	0.000	0.423
29189	2401030000	1.50668895	0.000	0.000	0.090
29189	2401040000	1.55949366	0.000	0.000	0.275
29189	2401050000	1.6913631	0.000	0.000	0.349
29189	2401055000	2.58191705	0.000	0.000	1.488
29189	2401060000	1.91509438	0.000	0.000	0.000
29189	2401065000	1.15341389	0.000	0.000	0.001
29189	2401070000	1.67387652	0.000	0.000	1.990
29189	2401075000	1.56286955	0.000	0.000	0.000
29189	2401080000	1.40625	0.000	0.000	0.033
29189	2401085000	1.79831934	0.000	0.000	0.000
29189	2401090000	1.70041037	0.000	0.000	0.895

County	SCC	2025 Growth Factor	2025 CO Emissions	2025 NO_X Emissions	2025 VOC Emissions
29189	2401100000	1.43951619	0.000	0.000	2.186
29189	2401200000	1.54354358	0.000	0.000	0.015
29189	2415000000	1.76039338	0.000	0.000	2.745
29189	2420000000	1.33265722	0.000	0.000	1.508
29189	2425000000	1.42790198	0.000	0.000	13.596
29189	2460100000	1.18945324	0.000	0.000	3.074
29189	2460200000	1.18945324	0.000	0.000	2.912
29189	2460400000	1.18945324	0.000	0.000	2.200
29189	2460500000	1.18945324	0.000	0.000	1.537
29189	2460600000	1.18945324	0.000	0.000	0.922
29189	2460800000	1.18945324	0.000	0.000	2.879
29189	2460900000	1.18945324	0.000	0.000	0.113
29189	2461021000	1.44767177	0.000	0.000	1.271
29189	2461022000	1.44767177	0.000	0.000	0.665
29189	2501011011	1.28112268	0.000	0.000	1.343
29189	2501011012	1.28112268	0.000	0.000	2.623
29189	2501011013	1.28112268	0.000	0.000	0.305
29189	2501011014	1.28112268	0.000	0.000	0.100
29189	2501011015	1.28112268	0.000	0.000	0.008
29189	2501012011	1.28112268	0.000	0.000	0.043
29189	2501012012	1.28112268	0.000	0.000	0.084
29189	2501012013	1.28112268	0.000	0.000	0.416
29189	2501012014	1.28112268	0.000	0.000	0.193
29189	2501012015	1.28112268	0.000	0.000	0.016
29189	2501050120	1.02949274	0.000	0.000	0.576
29189	2501055120	1.28112268	0.000	0.000	0.578
29189	2501060052	1.02949274	0.000	0.000	10.085
29189	2501060100	NA	0.000	0.000	0.820
29189	2501060201	1.02949274	0.000	0.000	0.984
29189	2501080050	1.57230079	0.000	0.000	0.238
29189	2501080100	1.57230079	0.000	0.000	0.012
29189	2505030120	1.02949274	0.000	0.000	0.064
29189	2505040120	1.28571427	0.000	0.000	0.633
29189	2610000100	1.18945324	0.000	0.000	0.000
29189	2610000400	1.18945324	0.000	0.000	0.000
29189	2610000500	1.18945324	0.000	0.000	0.000
29189	2610030000	1.18945324	0.000	0.000	0.000
29189	2630020000	1.41875005	0.000	0.000	0.073
St. Louis County Total			**3.433**	**2.923**	**68.536**
29510	2102001000	1.00932241	0.000	0.000	0.000
29510	2102002000	1.00932241	0.622	1.369	0.006
29510	2102004000	1.18843675	0.003	0.013	0.000
29510	2102005000	0.99838579	0.001	0.009	0.000
29510	2102006000	1.2709738	0.008	0.009	0.001
29510	2102007000	1.23716939	0.000	0.000	0.000
29510	2102008000	1.40088403	0.448	0.164	0.013
29510	2102011000	1.0981698	0.000	0.000	0.000
29510	2103001000	0.99788296	0.000	0.000	0.000

County	SCC	2025 Growth Factor	2025 CO Emissions	2025 NO_X Emissions	2025 VOC Emissions
29510	2103002000	0.99788296	0.003	0.008	0.000
29510	2103004000	1.29994249	0.000	0.000	0.000
29510	2103005000	1.00653291	0.000	0.000	0.000
29510	2103006000	1.07174218	0.017	0.020	0.001
29510	2103007000	1.01385462	0.002	0.001	0.000
29510	2103008000	1.00000715	0.004	0.001	0.000
29510	2103011000	1.0452143	0.000	0.000	0.000
29510	2104002000	0.8955754	0.012	0.000	0.000
29510	2104004000	0.77196217	0.000	0.000	0.000
29510	2104006000	1.02143395	0.031	0.072	0.004
29510	2104007000	1.02364647	0.007	0.023	0.001
29510	2104008100	0.98844743	0.072	0.001	0.009
29510	2104008210	0.98844743	0.108	0.001	0.025
29510	2104008220	0.98844743	0.021	0.000	0.002
29510	2104008230	0.98844743	0.005	0.000	0.001
29510	2104008310	0.98844743	0.098	0.001	0.022
29510	2104008320	0.98844743	0.019	0.000	0.002
29510	2104008330	0.98844743	0.005	0.000	0.001
29510	2104008400	0.98844743	0.002	0.001	0.000
29510	2104008510	0.98844743	0.023	0.000	0.001
29510	2104008610	0.98844743	0.042	0.000	0.003
29510	2104009000	0.98844743	0.009	0.001	0.003
29510	2104011000	1.19318724	0.001	0.005	0.000
29510	2302002100	1.16712332	0.024	0.000	0.007
29510	2302002200	1.16712332	0.077	0.000	0.024
29510	2302003000	1.16712332	0.000	0.000	0.007
29510	2302003100	1.16712332	0.007	0.000	0.003
29510	2302003200	1.16712332	0.000	0.000	0.000
29510	2401001000	1.36385	0.000	0.000	2.043
29510	2401005000	1.42292094	0.000	0.000	0.247
29510	2401008000	1.02949274	0.000	0.000	0.035
29510	2401015000	1.45865965	0.000	0.000	0.013
29510	2401020000	1.76039338	0.000	0.000	0.540
29510	2401025000	1.76039338	0.000	0.000	0.920
29510	2401030000	1.50668895	0.000	0.000	0.058
29510	2401040000	1.55949366	0.000	0.000	0.275
29510	2401050000	1.6913631	0.000	0.000	0.847
29510	2401055000	2.58191705	0.000	0.000	0.211
29510	2401060000	1.91509438	0.000	0.000	0.000
29510	2401065000	1.15341389	0.000	0.000	0.007
29510	2401070000	1.67387652	0.000	0.000	0.182
29510	2401075000	1.56286955	0.000	0.000	0.000
29510	2401080000	1.40625	0.000	0.000	0.006
29510	2401085000	1.79831934	0.000	0.000	0.000
29510	2401090000	1.70041037	0.000	0.000	0.207
29510	2401100000	1.43951619	0.000	0.000	0.781
29510	2401200000	1.54354358	0.000	0.000	0.005
29510	2415000000	1.76039338	0.000	0.000	1.311

County	SCC	2025 Growth Factor	2025 CO Emissions	2025 NO_X Emissions	2025 VOC Emissions
29510	2420000000	1.33265722	0.000	0.000	0.824
29510	2425000000	1.42790198	0.000	0.000	6.699
29510	2460100000	1.18945324	0.000	0.000	1.098
29510	2460200000	1.18945324	0.000	0.000	1.040
29510	2460400000	1.18945324	0.000	0.000	0.786
29510	2460500000	1.18945324	0.000	0.000	0.549
29510	2460600000	1.18945324	0.000	0.000	0.329
29510	2460800000	1.18945324	0.000	0.000	1.029
29510	2460900000	1.18945324	0.000	0.000	0.040
29510	2461021000	1.44767177	0.000	0.000	0.460
29510	2461022000	1.44767177	0.000	0.000	0.241
29510	2501011011	1.28112268	0.000	0.000	0.208
29510	2501011012	1.28112268	0.000	0.000	0.406
29510	2501011013	1.28112268	0.000	0.000	0.047
29510	2501011014	1.28112268	0.000	0.000	0.016
29510	2501011015	1.28112268	0.000	0.000	0.001
29510	2501012011	1.28112268	0.000	0.000	0.007
29510	2501012012	1.28112268	0.000	0.000	0.013
29510	2501012013	1.28112268	0.000	0.000	0.065
29510	2501012014	1.28112268	0.000	0.000	0.030
29510	2501012015	1.28112268	0.000	0.000	0.003
29510	2501050120	1.02949274	0.000	0.000	0.619
29510	2501055120	1.28112268	0.000	0.000	0.598
29510	2501060052	1.02949274	0.000	0.000	2.578
29510	2501060100	NA	0.000	0.000	0.240
29510	2501060201	1.02949274	0.000	0.000	0.251
29510	2501080050	1.57230079	0.000	0.000	0.003
29510	2501080100	1.57230079	0.000	0.000	0.000
29510	2505030120	1.02949274	0.000	0.000	0.016
29510	2505040120	1.28571427	0.000	0.000	0.656
29510	2610000100	1.18945324	0.000	0.000	0.000
29510	2610000400	1.18945324	0.000	0.000	0.000
29510	2610000500	1.18945324	0.000	0.000	0.000
29510	2610030000	1.18945324	0.000	0.000	0.000
29510	2630020000	1.41875005	0.000	0.000	0.026
St. Louis City Total			**1.672**	**1.703**	**26.704**
Nonattainment Area Total (Missouri Portion)			**19.907**	**6.847**	**130.907**

Appendix D-4 2025 On-Road Mobile Source Emissions

The 2025 on-road mobile source emissions were calculated using MOVES version 2010b. Both vehicle miles traveled (VMT) data and source type population data for 2025, were grown annually by 1.5% from the 2008 data. This 1.5% growth factor was discussed and agreed to by the Transportation Conformity Interagency Council. The emissions for 2008 were calculated using 2008 VMT data provided by the East West Gateway Council of Governments. The 2008 VMT data was originally generated from the Missouri Department of Transportation for state-owned roads, and then East-West Gateway used their Traffic Demand Model to calculate the actual local VMT data for each of the five counties on the Missouri side of the St. Louis ozone nonattainment area.

The road type distribution input used in 2008 was developed from the National County Database (NCD) to distribute the county level VMT to road type. EPA's VMT converter workbook was then used to produce MOVES input tables. The same road type distribution data that was used for 2008 was also used for 2025. A vehicle registration distribution for 2008 was originally created for the National Mobile Inventory Model (NMIM) using registration data from Missouri's Department of Revenue. The vehicle distribution was converted to a MOVES age distribution table using EPA's VMT converter workbook. The same age distribution table was used for 2025. The registration data was also used to create the MOVES vehicle population input tables for 2008. Vehicle counts were converted from Mobile 6.2 vehicle classes to MOVES source types using the source type fractions from the Source Type Pop Fractions table in EPA's VMT converter workbook. As mentioned above these 2008 vehicle populations were grown annually by 1.5% to generate the vehicle populations used for the projected emissions in 2025. The meteorology data used for 2008 was developed by EPA from National Weather Service data. The 2008 meteorology data was also used for the projected emissions in 2025. Inspection and Maintenance (I/M) input tables were developed to characterize the Gateway Vehicle Inspection Program (the I/M program in place in the St. Louis Ozone nonattainment area). Additional details regarding the development of the MOVES I/M program input can be found in the MOVES I/M input table development protocol (Appendix E-4).

MOVES base data was used for all other inputs to calculate the 2025 mobile source emissions, after reviewing the data to ensure accuracy. The base fuel supply tables in MOVES were used for the runs, as they already took into account the reformulated gasoline used in the St. Louis nonattainment area. A separate input database was created for each county, using county specific data where possible.

To summarize, when projecting the 2025 on-road mobile source emissions, the vehicle age distributions, road type distributions, and the meteorological data was identical to the 2008 data that was used for each county in the nonattainment area. To reduce the size of this document, these files are not repeated again in this Appendix. The files that were used for both 2008 and 2025 include the following tables in Appendix B-5 of the redesignation demonstration and maintenance plan: Table B-14 and Tables B-18 through B-32. The following input files were updated for the 2025 MOVES runs to reflect projections of data in 2025: VMT data, source type population, fuel supply, fuel formulation, and I/M data. The data for these input files are included below in Tables D-9 through D-13.

Once MOVES input tables had been created, the MOVES model runs were set up selecting all available gasoline and diesel fuel vehicle type combinations, all months, days, hours, and all road types. A separate run was set-up for each pollutant and each county. All pollutant processes were selected in each run, but the VOC emissions from MOVES emission processes 18 and 19 (refueling displacement emissions, and refueling evaporative emissions) were removed during the post model analysis as these are stage II refueling emissions (SCC 2501060100), which are classified as area source emissions, and are not included in the mobile source emissions inventory (stage II on-road refueling VOC emissions are included in Appendix D-3). The emissions were post aggregated to the month level using MOVES and the emissions from the months of April through October were totaled and divided by 214, the number of days in those months, to give average ozone season day emissions. Table D-8 summarizes the projected 2025 ozone season day on-road emissions by county developed using MOVES for the Missouri counties located in the St. Louis ozone nonattainment area.

Table D-8 2025 On-Road Mobile Source Emissions by County in the Missouri Portion of the St. Louis Ozone Nonattainment Area (tons/ozone season day)

County Name	CO	NO_X	VOC
Franklin County	22.10	4.36	1.86
Jefferson County	31.23	5.70	3.10
St. Charles County	45.13	8.34	4.25
St. Louis County	173.40	34.24	14.68
St. Louis City	46.01	9.68	3.63
Totals	**317.87**	**62.32**	**27.51**

Table D-9 2025 Source Type Population (MOVES Inputs for 2025 On-Road Mobile Source Emissions)

			Source Type Population by County				
YearID	**SourceTypeName**	**SourceTypeID**	**Franklin**	**Jefferson**	**St Charles**	**St Louis County**	**St Louis City**
2025	Motorcycle	11	7,814	16,768	14,363	24,785	3,998
2025	Passenger Car	21	59,980	126,238	186,043	678,978	162,002
2025	Passenger Truck	31	59,107	106,273	142,179	390,651	76,516
2025	Light Commercial Truck	32	21,599	36,607	46,257	126,026	26,011
2025	Refuse Truck	41	10	53	46	121	89
2025	Single Unit Short-haul Truck	42	33	159	137	362	268
2025	Single Unit Long-haul Truck	43	389	697	707	3,490	852
2025	Motor Home	51	28	25	25	64	21
2025	School Bus	52	1,049	1,160	1,313	4,667	1,609
2025	Transit Bus	53	79	87	98	348	119
2025	Intercity Bus	54	56	91	106	488	185
2025	Combination Short-haul Truck	61	477	418	422	1,019	319
2025	Combination Long-haul Truck	62	395	331	332	702	206

Table D-10 2025 Annual VMT by HPMS Vehicle Type, County, and Year (MOVES Inputs for 2025 On-Road Mobile Source Emissions)

			HPMSBaseYearVMT by County				
HPMSVtypeID	**HPMSVtypeName**	**YearID**	**Franklin**	**Jefferson**	**St. Charles**	**St. Louis**	**St. Louis City**
10	Motorcycles	2025	14,965,924	17,828,328	26,752,934	118,484,952	34,345,144
20	Passenger Cars	2025	910,848,271	1,044,808,097	1,508,585,656	6,589,338,428	1,903,044,399
30	Other 2 axle-4 tire vehicles	2025	1,029,296,460	1,190,639,346	1,729,290,186	7,568,049,573	2,192,810,219
40	Buses	2025	6,159,081	7,185,593	10,540,023	46,276,615	13,485,395
50	Single Unit Trucks	2025	37,805,915	43,002,868	61,354,180	266,913,972	77,095,898
60	Combination Trucks	2025	109,060,971	124,079,785	177,139,868	770,813,976	223,517,955

Table D-11 Inspection and Maintenance Data for 2025 (MOVES Inputs for 2025 On-Road Mobile Source Emissions)

Pol Process ID	State ID	Year ID	Source Type ID	Fuel Type ID	IM Program ID	Inspect Freq.	Test Standards ID	Beg Model Year ID	End Model Year ID	Use IM Y/N	Compliance Factor
101	29	2025	21	1	1	1	11	1971	1995	N	93.12
101	29	2025	21	1	10	2	51	1996	2025	Y	97.94
101	29	2025	31	1	1	1	11	1971	1995	N	93.12
101	29	2025	31	1	10	2	51	1996	2025	Y	92.06
101	29	2025	32	1	1	1	11	1971	1995	N	93.12
101	29	2025	32	1	10	2	51	1996	2025	Y	86.18
102	29	2025	21	1	1	1	11	1971	1995	N	93.12
102	29	2025	21	1	10	2	51	1996	2025	Y	97.94
102	29	2025	31	1	1	1	11	1971	1995	N	93.12
102	29	2025	31	1	10	2	51	1996	2025	Y	92.06
102	29	2025	32	1	1	1	11	1971	1995	N	93.12
102	29	2025	32	1	10	2	51	1996	2025	Y	86.18
112	29	2025	21	1	7	1	41	1971	1995	N	93.12
112	29	2025	21	1	8	2	43	1996	2025	Y	97.94
112	29	2025	31	1	7	1	41	1971	1995	N	93.12
112	29	2025	31	1	8	2	43	1996	2025	Y	92.06
112	29	2025	32	1	7	1	41	1971	1995	N	93.12
112	29	2025	32	1	8	2	43	1996	2025	Y	86.18
113	29	2025	21	1	7	1	41	1971	1995	N	93.12
113	29	2025	21	1	8	2	43	1996	2025	Y	97.94
113	29	2025	31	1	7	1	41	1971	1995	N	93.12
113	29	2025	31	1	8	2	43	1996	2025	Y	92.06
113	29	2025	32	1	7	1	41	1971	1995	N	93.12
113	29	2025	32	1	8	2	43	1996	2025	Y	86.18
201	29	2025	21	1	1	1	11	1971	1995	N	93.12
201	29	2025	21	1	10	2	51	1996	2025	Y	97.94
201	29	2025	31	1	1	1	11	1971	1995	N	93.12
201	29	2025	31	1	10	2	51	1996	2025	Y	92.06
201	29	2025	32	1	1	1	11	1971	1995	N	93.12
201	29	2025	32	1	10	2	51	1996	2025	Y	86.18

Pol Process ID	State ID	Year ID	Source Type ID	Fuel Type ID	IM Program ID	Inspect Freq.	Test Standards ID	Beg Model Year ID	End Model Year ID	Use IM Y/N	Compliance Factor
202	29	2025	21	1	1	1	11	1971	1995	N	93.12
202	29	2025	21	1	10	2	51	1996	2025	Y	97.94
202	29	2025	31	1	1	1	11	1971	1995	N	93.12
202	29	2025	31	1	10	2	51	1996	2025	Y	92.06
202	29	2025	32	1	1	1	11	1971	1995	N	93.12
202	29	2025	32	1	10	2	51	1996	2025	Y	86.18
301	29	2025	21	1	10	2	51	1996	2025	Y	97.94
301	29	2025	31	1	10	2	51	1996	2025	Y	92.06
301	29	2025	32	1	10	2	51	1996	2025	Y	86.18
302	29	2025	21	1	10	2	51	1996	2025	Y	97.94
302	29	2025	31	1	10	2	51	1996	2025	Y	92.06
302	29	2025	32	1	10	2	51	1996	2025	Y	86.18

Table D-12 Fuel Formulation for 2025 (MOVES Inputs for 2025 On-Road Mobile Source Emissions)

Fuel FormulationID	Fuel SubtypeID	FuelSubtypeDesc	RVP	Sulfur Level	ETOH Volume	MTBE Volume	ETBE Volume	TAME Volume	Aromatic Content	Olefin Content
3820	12	Gasohol (E10)	11.1487	23.4846	10	0	0	0	20	10.7096
3821	12	Gasohol (E10)	8.77801	22.8285	10	0	0	0	20	9.32538
3822	12	Gasohol (E10)	7	22.3364	10	0	0	0	20	8.28724
3823	12	Gasohol (E10)	12.9267	23.9767	10	0	0	0	20	11.7477
20011	20	Conventional Diesel	0	11	0	0	0	0	0	0

Fuel FormulationID	Fuel SubtypeID	fuelSubtypeDesc	Benzene Content	e200	e300	biodiesel EsterVolume	cetaneIndex	PAHContent
3820	12	Gasohol (E10)	0.6	61.1946	84.2534	0	0	0
3821	12	Gasohol (E10)	0.6	56.2713	84.2534	0	0	0
3822	12	Gasohol (E10)	0.6	52.5789	84.2534	0	0	0
3823	12	Gasohol (E10)	0.6	64.887	84.2534	0	0	0
20011	20	Conventional Diesel	0	0	0	0	0	0

Table D-13 2025 Fuel Supply (MOVES Inputs for 2025 On-Road Mobile Source Emissions)

FuelYearID	Month GroupID	Fuel FormulationID	Market Share	Market ShareCV
2025	1	3823	1	0.5
2025	1	20011	1	0.5
2025	2	20011	1	0.5
2025	2	3820	1	0.5
2025	3	3820	1	0.5
2025	3	20011	1	0.5
2025	4	20011	1	0.5
2025	4	3821	1	0.5
2025	5	3821	1	0.5
2025	5	20011	1	0.5
2025	6	20011	1	0.5
2025	6	3822	1	0.5
2025	7	3822	1	0.5
2025	7	20011	1	0.5
2025	8	20011	1	0.5
2025	8	3822	1	0.5
2025	9	3822	1	0.5
2025	9	20011	1	0.5
2025	10	20011	1	0.5
2025	10	3821	1	0.5
2025	11	3820	1	0.5
2025	11	20011	1	0.5
2025	12	20011	1	0.5
2025	12	3820	1	0.5

Appendix D-5 2025 Off-Road Mobile Source Emissions

Off-road mobile source emissions were calculated for the Missouri counties in the St. Louis nonattainment area using the NONROAD 2008a model. Fuel and meteorological data from the NCD was used to run the non-road model and create ozone season day emissions for 2025. The modeling protocol, which was submitted by EPA Region 7 and is included in Appendix E-2 of the redesignation demonstration and maintenance plan, was followed except the Air Program used an oxygen weight percent of 3.5% and an ethanol market share of 100% instead of the values listed in the EPA protocol in Appendix E-2. The correct input data for the NONROAD 2008a model that was used in this latest modeling run is listed below in Table D-14.

Table D-14 NONROAD Model Temperature & Fuel Characteristic Input Values by County & Season

County	Season	Oxygen Weight %	RVP (psi)	Gasoline Sulfur %	Ethanol Volume %	Ethanol Market Share %	Diesel Sulfur	Marine Diesel Sulfur %	CNG/LPG Sulfur %	Temperatures		
										Min.	Max.	Avg.
Franklin	Summer	3.5	7	0.0049	10	100	0.0355	0.0402	0.003	61.8	90	75.9
Jefferson	Summer	3.5	7	0.0049	10	100	0.0355	0.0402	0.003	61	88.6	74.8
St. Charles	Summer	3.5	7	0.0049	10	100	0.0355	0.0402	0.003	62.2	89.2	75.7
St. Louis	Summer	3.5	7	0.0049	10	100	0.0355	0.0402	0.003	64.1	89.5	76.8
St. Louis City	Summer	3.5	7	0.0049	10	100	0.0355	0.0402	0.003	65.1	89.8	77.5

The data generated by the NONROAD model for the 2025 off-road mobile source emissions for the Missouri counties in the St. Louis ozone nonattainment area are summarized in Table D-15 in units of tons/ozone season day.

As stated in Appendices D-2 and D-3, EPA lists emissions data in the NEI for aircraft takeoffs and landings in the point source inventory and they include emissions data for commercial marine and locomotive in the non-point inventory. However, in this plan, these sources are classified as off-road mobile source emissions. Therefore, 2008 ozone season day emissions data for aircraft, marine, and rail emissions, were grown using EGAS growth factors to obtain 2025 emissions projections for these categories. These emissions need to be added to the off-road mobile source category. The projected 2025 emissions for aircraft, marine, and rail sources are summarized by county in Table D-16. The total projected 2025 off-road mobile source emissions by county are listed in Table D-17.

Table D-15 2025 Off-Road Mobile Source Emissions by County in the St. Louis Ozone Nonattainment Area (Excludes Aircraft, Marine and Rail Emissions) (Tons per Ozone Season Day) (Missouri Counties Only)

County Name	CO	NO_X	VOC
Franklin County	16.22	1.15	1.68
Jefferson County	28.82	1.23	1.97
St. Charles County	61.28	3.19	3.76
St. Louis County	324.45	9.12	17.42
St. Louis City	47.33	1.27	2.16
Totals	**478.10**	**15.96**	**26.99**

Table D-16 2025 Aircraft, Marine and Rail Emissions by County in the St. Louis Ozone Nonattainment Area (Tons per Ozone Season Day) (Missouri Counties Only)

County Name	CO	NO_X	VOC
Franklin County	0.63	2.29	0.13
Jefferson County	0.18	0.54	0.02
St. Charles County	1.30	1.15	0.09
St. Louis County	6.36	6.08	0.80
St. Louis City	0.60	3.42	0.14
Totals	**9.06**	**13.48**	**1.18**

Table D-17 Total 2025 Off-Road Mobile Source Emissions by County in the St. Louis Ozone Nonattainment Area (Tons per Ozone Season Day) (Missouri Counties Only)

County Name	CO	NO_X	VOC
Franklin County	16.85	3.44	1.81
Jefferson County	29.00	1.77	1.99
St. Charles County	62.58	4.34	3.85
St. Louis County	330.81	15.20	18.22
St. Louis City	47.93	4.69	2.30
Totals	**487.16**	**29.44**	**28.17**